CalAmp Corp.
Form D/A
February 01, 2010

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Video Services

Bermuda, Cayman Islands, U.S. Virgin Islands

Logic, One, Viya

Renewable Energy

Solar

India

Vibrant Energy

As a holding company, we provide management, technical, financial, regulatory, and marketing services to our subsidiaries and typically receive a management fee equal to a percentage of their revenues, which is eliminated in consolidation.

Our principal corporate offices are located at 500 Cummings Center, Beverly, Massachusetts, 01915. The telephone number at our principal corporate offices is (978) 619 1300.

Strategy

The key elements of our strategy consist of the following:

- Target Under served Markets or Industries Where We Can Compete Successfully. We operate our telecommunications businesses primarily in smaller, rural or under served markets where we believe we are or will be one of the leading providers of telecommunications services. We take a long-term view and are willing to consider more difficult operating or political environments. Our businesses typically have or develop strong local brand identities that help them become leaders in the markets they serve. By providing access to low-cost capital, leveraging local brand identities and market knowledge and supplementing the business with senior management and other expertise at the holding company level, we strive to improve and expand our product and service offerings in the locations we serve in order to better satisfy customer needs, expand our customer bases and revenues and ensure the business is efficient and economically viable. More recently, we have made multiple investments in earlier stage businesses in all three operating segments (U.S. and International Telecom and Renewable Energy) that we believe have the potential to provide a platform for future organic and strategic growth. Additionally, these investments, some of which are non-controlling investments, can provide a variety of benefits that enhance the potential to expand our business, including providing an entry point into emerging sectors of our existing businesses, as well as enhancing our product offerings, providing visibility into newer technologies and establishing and enhancing strategic relationships.
- Collaborate with Local Management. We believe that strong local management enhances our close relationship with customers and reduces risk. Wherever feasible, we seek to partner with local investors, owners or management teams who have demonstrated a successful track record or have extensive knowledge of the industry or markets in which we operate, and who have local credibility. By maintaining these relationships and leveraging our comprehensive management experience and technical and financial expertise, we can assist the local management teams in further improving operations and growing their businesses.

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- Maintain a Disciplined Earnings Oriented Approach. We carefully assess the potential for cash flow stability and growth when we evaluate the performance of our subsidiaries, new investment opportunities and prospective acquisitions or dispositions. In managing our more mature businesses, we seek to solidify our brands, improve customer satisfaction, add new services, control costs and preserve cash flow. In managing newer, early stage businesses, we seek to invest capital to improve our competitive position, increase our market share and generate strong long-term revenue and cash flow potential. We consider new investments, acquisitions and dispositions on a disciplined, return on investment basis. In addition, we have been increasingly willing to make non-controlling investments in earlier stage businesses that we consider strategically relevant, and which may offer long-term growth potential for us, either individually, or as research and development businesses that can support our operating subsidiaries in new product and service development and offerings.

Recent Acquisitions

U.S. Telecom

In July 2016, we acquired certain telecommunications fixed assets and the associated operations in the western United States. Results of operations for the business are included in the U.S. Telecom segment and are not material to our historical results of operations.

International Telecom

During 2016, we completed the acquisitions of One Communications and Viya (the “2016 International Telecom Acquisitions”).

One Communications (formerly KeyTech Limited)

On May 3, 2016, we completed our acquisition of a controlling interest in One Communications Ltd. (formerly known as KeyTech Limited, “One Communications”), a publicly held Bermuda company listed on the Bermuda Stock Exchange (“BSX”) that provides broadband and video services and other telecommunications services to residential and enterprise customers in Bermuda and the Cayman Islands (the “One Communications Acquisition”).

Viya (formerly Innovative)

On July 1, 2016, we completed an acquisition of all of the membership interests of Caribbean Asset Holdings LLC (“CAH”), the holding company for the group of companies operating video services, Internet, wireless and landline services in the U.S. Virgin Islands, British Virgin Islands and St. Maarten (collectively, “Viya”) (the “Viya

Transaction”). In April 2017, the U.S. Virgin Islands operations and our existing wireless operations rebranded their tradenames from “Innovative” and “Choice,” respectively, to “Viya.” Subsequent to the Viya Transaction, we sold the acquired businesses in St. Maarten and the British Virgin Islands, as further described in “Dispositions” below.

Renewable Energy

Vibrant Energy

On April 7, 2016, we completed our acquisition of a solar power development portfolio in India (the “Vibrant Energy Acquisition”). The business operates under the name Vibrant Energy. We also retained several employees in India who are employed by us to oversee the development, construction and operation of Indian solar projects. These projects are initially located in the states of Andhra Pradesh and Telangana and are based on a commercial and industrial business model, similar to the operating model we followed for our renewable energy operations in the United States, which we sold in November 2018.

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Platform and Minority Investments

U.S. Telecom

During the second quarter of 2018, we invested in a new platform, based in the United States, to develop in-building wireless network technology that enables building owners to capitalize on the growing demand for better indoor wireless solutions. Also during the second quarter of 2018, we provided funding for another new platform, based in the United States, seeking to "build to suit" large scale fiber networks to serve the telecommunications and content provider industries in need of lower latency long haul fiber transit services.

International Telecom

In 2017, we completed our investment in a technology solutions business based in Bermuda that provides a variety of cloud-based managed services and information technology solutions for enterprise-hosted software applications.

In 2017 we also made a minority investment in an Australian-based tower operator.

Dispositions

U.S. Telecom

On March 8, 2017, we completed the sale of our integrated voice and data communications and wholesale transport businesses in New England and New York (the "Sovernet Transaction"). This disposition did not qualify as discontinued operations because the disposition did not represent a strategic shift that has a major effect on our operations and financial results.

International Telecom

On August 18, 2017, we completed the sale of the Viya cable operations located in the British Virgin Islands.

On January 3, 2017, we completed the sale of the Viya cable operations located in St. Maarten.

On December 15, 2016, we transferred control of our subsidiary in Aruba to another stockholder in a nonreciprocal transfer.

These dispositions do not qualify as discontinued operations because the dispositions did not represent a strategic shift that had a major effect on our operations and financial results.

Renewable Energy (U.S. Operations)

On November 6, 2018, we completed the sale of our U.S. solar business that owned and managed distributed generation solar power projects operated under the Ahana name in Massachusetts, California and New Jersey (the "U.S. Solar Operations"). The transaction had a total value of approximately $122.6 million, which included a cash purchase price of $65.3 million and the assumption of approximately $55.0 million in debt, and is subject to certain other post-closing adjustments (the "U.S. Solar Transaction"). Approximately $6.5 million of the purchase price will be held in escrow for a period of twelve months after the closing to secure our indemnification obligations. We recorded a gain of $12.4 million upon the completion of the sale.

Our Telecommunications Services

In addition to managing and reviewing our results by operating segment, we also evaluate our results by service, namely wireless and wireline telecommunications, as well as renewable energy. We provide mobile wireless voice and data communications services in the United States, Bermuda, Guyana and the Caribbean. Our revenues from

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wireless services were approximately 44% of our consolidated revenues for fiscal year 2018. The U.S. portion of our business constitutes a significant portion of our consolidated revenue from wireless services. Our revenues from U.S. wireless services were approximately 24%, 29% and 32% of our consolidated revenues for the years ended December 31, 2018, 2017 and 2016, respectively. Our U.S. wireless service revenues have historically had high operating margins and therefore have contributed a large percentage to our operating income.

Our wireline services include operations in Guyana, Bermuda, the U.S. Virgin Islands, the Cayman Islands, and mainland United States. Our revenues from wireline services were approximately 51%, 47% and 42% of our consolidated revenues for fiscal years 2018, 2017 and 2016, respectively.

U.S. Telecom Segment

Wireless Services

Services. In the United States, we provide wholesale wireless voice and data roaming services in rural markets to national, regional, local and selected international wireless carriers. Our largest wholesale networks are located principally in the western United States. We also offer wireless voice and data services to retail customers in certain rural markets already covered by our wholesale networks.

The revenue and profits of our U.S. wholesale wireless business are primarily driven by the number of sites and base stations in operation, the amount of voice and data traffic that each of these sites generates, and the rates we receive from our carrier customers on that traffic. Many of our sites are located in popular tourist and seasonal visitor areas, which has resulted in higher wholesale revenues in those areas during the summer months.

We currently have roaming agreements with 39 United States based wireless service providers and, as of December 31, 2018, had roaming arrangements with each of the four U.S. national wireless network operators: Verizon Wireless, AT&T, Sprint and T Mobile. Other than the agreements with the national carriers, our standard roaming agreements are usually terminable within 90 days. Occasionally, we may agree or strategically decide to lower rates or build a new mobile network at a specified location as part of a long term roaming agreement to offer our roaming partner pricing certainty in exchange for priority designation with respect to their customers' wireless traffic. Once we complete building a rural network, we then benefit from the use of that network under existing roaming agreements with other international, national, regional, and local carriers to supplement our initial revenues. In 2018, the four national wireless service providers together accounted for a substantial portion of our wholesale wireless revenues, with AT&T and Verizon accounting for an aggregate of 17% of our total consolidated revenue for the year.

Network and Operations. Our roaming network offers mobile communications service through a digital wireless voice and data network that utilizes multiple cellular mobile technologies including UMTS/HSPA, CDMA/EvDO and LTE that often will be deployed at a single cell site location in order to maximize revenue opportunities. We provide wireless communications network products and services with owned and leased spectrum primarily in the 700 megahertz (MHz), 800 megahertz (MHz) and 1900 megahertz (MHz) spectrum ranges. In 2018, we continued the efforts to upgrade our cell sites with advanced 4G LTE technology throughout our service areas. Our networks comprise base stations and radio transceivers located on owned or leased towers and buildings, telecommunications switches and owned or leased transport facilities. We design and construct our network in a manner that will provide high-quality service to substantially all types of compatible wireless devices. Network reliability is carefully considered and redundancy is employed in many aspects of our network design.

Route diversity, redundant equipment, ring topologies and the use of emergency standby power are used to enhance network reliability and minimize service disruptions from any particular network element failure. We operate high-capacity, carrier-class digital wireless switching systems that are capable of serving multiple markets through a

single mobile telephone switching office. Centralized equipment used for network and data management is located in high-availability facilities supported by multiple levels of power and network redundancy. Our systems are designed to incorporate Internet Protocol (IP) packet-based Ethernet technology, which allows for increased data capacity and a

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more efficient network. Interconnection between the mobile telephone switching office and the cell sites utilizes Ethernet technology over fiber or microwave links for virtually all of our 4G LTE sites.

As of December 31, 2018, we owned and operated a total of 1,045 domestic base stations on 482 owned and leased sites, a Network Operations Center (or "NOC"), a switching center, and presence in numerous leased data centers designed to support network virtualization and provide network resiliency. Our NOC provides dedicated, 24 hour, year round monitoring of our network to ensure quality and reliable service to our customers. In 2018, we continued to expand and improve our network, adding 58 new base stations and approximately 8 new sites and upgraded approximately 15 sites to more advanced 4G LTE data technology. We will continue to deploy 4G LTE technology to enable more network capacity. In addition, we plan to test and commercially deploy Voice Over LTE ("VoLTE") technology over the next few years. VoLTE technology allows customers to utilize a 4G LTE network for both voice and data services, and the migration of our wholesale and retail subscribers to the more efficient 4G technology from 2G/3G technologies will result in increased spectrum availability.

Competition. We compete with wireless service providers that operate networks in our markets and offer wholesale roaming services. However, the most significant competitive challenge we face in our U.S. wholesale wireless business is the extent to which our carrier customers choose not to roam on our networks or elect to build or acquire their own infrastructure in a market in which we operate, reducing or eliminating their need for our services in those markets. We address this competitive threat mainly by providing a service that would be more costly for the carrier to provide itself, or, at least, a less attractive expenditure than alternative investments in its network or business.

Occasionally, we have entered into buildout projects with existing carrier customers to help the carrier accelerate the buildout of a given area. Pursuant to these arrangements, we agree to incur the cost of building and operating a network in a newly designated area meeting specified conditions. In exchange, the carrier agrees to license us spectrum in that area and enter into a contract with specific pricing and term. These arrangements typically include a purchase right in favor of the carrier to purchase that portion of the network for a predetermined price, depending on when the option to purchase is exercised. In July 2018, we completed the previously disclosed sale of approximately 100 cell sites, which, generated approximately $13.9 million of wholesale revenue during the year ended December 31, 2018. We did not receive any additional cash proceeds at closing from the sale and recorded a gain on the sale of $15.2 million.

Our ability to maintain appropriate capacity and relevant technology to respond to our roaming partners' needs also shapes our competitive profile in the markets in which we operate. We believe that currently available technologies and appropriate capital additions will allow sufficient capacity on our networks to meet anticipated demand for voice and data services over the next few years. However, increasing demand for high-speed data may require the acquisition of additional spectrum licenses to provide sufficient capacity and throughput.

Wireline Services

Sales and Marketing. Our wholesale transport and capacity customers are predominately communications carriers such as local exchange carriers, wireless carriers, internet service providers and interstate integrated providers.

Competition. Our wholesale competitors include Level 3 and Verizon Communications, other regional wholesale providers and cable television companies that operate fiber optic networks.

On March 8, 2017, we completed the sale of our integrated voice and data communications and wholesale transport business in New England and New York.

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International Telecom Segment

Wireless Services

We provide wireless voice and data service to retail and business customers in Bermuda under the “One” brand name, in Guyana under the “GTT” brand name and in the U.S. Virgin Islands under the “Viya” brand name. We also provide roaming services for many of the largest U.S. providers’ customers visiting these locations. As of December 31, 2018, we had approximately 300,000 wireless subscribers in our International Telecom segment and over 87% of those subscribers were on prepaid plans.

Products and Services. In Bermuda, a majority of our customers subscribe to one of our postpaid plans, which allow customers to select a plan with voice minutes, text messaging, a given amount of data and other features that recur on a monthly basis, which services are billed at the end of the service period. In our other markets, a substantial majority of our customers subscribe to our prepaid plans, which require customers to purchase an amount of voice minutes, text messages or data prior to use. In most markets, we also provide certain homes and businesses with fixed wireless services including high speed internet.

Network. We currently operate multiple advanced wireless voice and data technologies in our international markets in the 700, 850, 900, 1800, 1900 and 2500 MHz frequency bands, including GSM/EDGE, UMTS/HSPA+, and LTE. We have extensive backbone facilities linking our sites, switching facilities and international interconnection points. Out-of-territory connectivity is provided by leased and owned undersea fiber based interconnections.

Sales and Marketing. We maintain retail stores in our markets and allow customers to pay their bills and “top up”, or add additional minutes to their prepaid plans, through payment terminals at local stores, business centers or our website, by purchase of prepaid calling cards, or via mobile or web-based apps. We advertise frequently through print and electronic media and radio station spots and we sponsor various events and initiatives. Our handsets, prepaid cards and prepaid accounts are also sold through independent dealers that we pay on a commission basis.

Handsets and Accessories. We offer a diverse line of wireless devices and accessories designed to meet both the personal and professional needs of our customers. Our device assortment includes a wide range of smartphones including those featuring the Android™ and iOS™ operating systems in addition to a full line of feature phones, wireless hot spots and various wireless solutions for small businesses. To complement our phone offerings, we sell a complete range of original equipment manufacturer and after market accessories that allow our customers to personalize their wireless experience, including phone protection, battery charging solutions and Bluetooth hands free kits.

Competition. We believe we compete for wireless retail customers in our international properties based on features, price, technology deployed, network coverage (including through roaming arrangements), quality of service and customer care. We compete against Digicel, which is a large mobile telecommunications company in the Caribbean region, and in some markets, against one or more U.S. national operators.

Wireline Services

Voice services. We offer voice services that include local exchange, regional and long distance calling and voice messaging services in Bermuda, Guyana, the U.S. Virgin Islands, and in other smaller markets in the Caribbean and the United States. As of December 31, 2018, we had an aggregate of approximately 171,000 access lines in service in our markets, which represent both residential and commercial subscribers. Across our international businesses, residential customers account for approximately three-quarters of the wireline local telephone service revenue while

commercial customers account for approximately one quarter.

In Guyana, we are the exclusive licensed provider of domestic wireline local and long distance voice and data services into and out of the country, and in the U.S. Virgin Islands, we are the incumbent local exchange carrier and sole fixed telephony provider. With respect to our international long distance business, we also collect payments from foreign carriers for handling international long distance calls originating from the foreign carriers' countries and

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terminating on our network. We also make payments to foreign carriers for international calls originating on one of our networks and terminating in the foreign carrier's countries and collect from our subscribers or a local originating carrier a rate that is market-based or set by regulatory tariff.

Internet services. We offer high-speed Internet services with varying speeds to address different customer needs and price requirements in our various markets. As of December 31, 2018, we had approximately 120,000 Internet customers across our markets.

Video services. We also offer video service over our coaxial cable and fiber-optic networks in our international markets. In the U.S. Virgin Islands we are the only authorized video services operator and are a provider of video services to customers in Bermuda. As of December 31, 2018, we had approximately 42,000 video customers across our markets. We have several offerings available to our video customers, including basic and tiered local and cable TV channels grouped into various content categories, such as news, sports and entertainment.

Network. All of our fixed access lines are digitally switched from our switching centers in the U.S. Virgin Islands, Bermuda and Guyana. Our switching centers provide dedicated monitoring of our network to ensure quality and reliable service to our customers.

In the U.S. Virgin Islands, we deliver our services via a hybrid fiber coaxial ("HFC") cable network and continue to transition our traditional copper network to our voice, video and data services on this network. The HFC network gives us expanded Internet access coverage to more than 95% of homes in the U.S. Virgin Islands with speeds up to 100 Mbps for residential customers. Following Hurricanes Irma and Maria in 2017 (collectively, the "Hurricanes"), service to our customers over the HFC network was impacted due to both the loss of power and damage to our network. While we have substantially completed remediation efforts to our network, it may take significant time to return to pre-hurricane revenue levels.

Our international voice and data networks are linked with the rest of the world principally through undersea fiber optic cables. In Guyana we co own the Suriname Guyana Submarine Cable System with Telesur, the government owned telecommunications provider in Suriname, that provides us with more robust redundancy, the capacity to meet growing data demands in Guyana, and the opportunity to provide new and enhanced services such as Internet service. We also lease capacity on certain satellites to provide both international and local backhaul services.

Sales and Marketing. Our businesses utilize four key sales channels: stores, telesales, business-to-business ("B2B") channels and residential sales (inbound). The telesales department makes outbound calls to existing customers to promote bundling and other upgrade opportunities and our B2B sales channel focuses on selling data and voice products to business and government accounts. Certain residential sales are made through inbound communications to customer service representatives who assist with a wide range of inquiries and sell different product offerings to help retain customers or improve their service with upgrades or bundles. Our revenues for our wireline services are derived from installation charges for new lines, monthly line charges, data and video services and value added services, such as hosting or enterprise voice and data solutions. For our voice wireline services, rates differ for residential and commercial customers and in certain markets, may be set by regulatory authorities.

Competition. We compete with a limited number of other providers, including Digicel, with respect to various products. In 2016, we acquired our wireline businesses in Bermuda and the U.S. Virgin Islands in order to provide us with greater scale in those markets and the capability to offer a “quad play” of connectivity: high speed internet, mobility, video and voice services. In 2017, our competition in Bermuda made substantial additional wireline network investments and began offering video services and competitive high speed internet services. We believe our breadth of services and local economies of scale provide us with a strong competitive position and the ability to win and retain an economically viable share of those markets.

In Guyana, we have the exclusive right to provide domestic fixed and international voice and data services, pursuant to a license from the Government of Guyana. As the initial term of our license was scheduled to expire in December 2010, we notified the Government of Guyana of our election to renew our exclusive license for an additional 20 year term expiring in 2030 and received return correspondence from the Government that our exclusive license had

been renewed until such time that new legislation is implemented with regard to the Government's intention to introduce competition into the sector. We believe, however, our exclusive license continues to be valid unless and until such time as we enter into an alternative agreement with the Government. See "—Guyana Regulation—Regulatory Developments" and "Risk Factors—Our exclusive license to provide local exchange and international voice and data services in Guyana is subject to significant political and regulatory risk."

Impact of Hurricanes

During September 2017, the economy, our customer base and our operations in the U.S. Virgin Islands were severely impacted by the Hurricanes. Our wireless and wireline networks as well as our commercial operations were severely damaged by these storms. As a result of the significant damage to the wireline network and the lack of consistent commercial power in the territory, we were unable to provide most of our wireline services, which comprise the majority of our revenue in this business, subsequent to the Hurricanes and through a majority of 2018.

During the year ended December 31, 2017, we recorded a net pre-tax loss within our consolidated statement of operations of $4.0 million. This loss consisted of $35.4 million for the write off of damaged assets, net of insurance recoveries of $34.6 million which were received in February 2018. This loss also included $3.2 million of additional operating expenses that were specifically incurred to address the impact of the Hurricanes.

During the year ended December 31, 2018, we received $15.5 million in additional funding from the Federal Communications Commission's ("FCC") Universal Service Fund ("USF") to further subsidize our operations in the U.S. Virgin Islands that was recorded as revenue. This level of additional funding is not expected to continue in future periods.

During the years ended December 31, 2017 and 2018, we spent $8.6 million and $80.2 million, respectively, for network restoration and resiliency enhancements that allowed the reconnection of a significant majority of affected households and businesses. We believe that the wireline network restoration work is substantially complete, however, returning our revenue to pre-Hurricane levels may take significant time as a result of population movements, the economic impact the Hurricanes had on the market, and our subscriber base's appetite for continued wireline services.

Renewable Energy Services

United States

On November 6, 2018, we completed the sale of our U.S. Solar Operations. The transaction had a total value of approximately $122.6 million, which included a cash purchase price of $65.3 million and the assumption of approximately $57.3 million in debt, and was subject to certain other post-closing adjustments. Approximately $6.5 million of the purchase price is being held in escrow for a period of twelve months after the closing to secure our indemnification obligation and we recorded a gain of $12.4 million.

Prior to the sale of the U.S. Solar Operations, we owned and operated 29 commercial solar projects at 60 sites with an aggregate 46.93 megawatts DC peak ("MWp") of electricity generating capacity. We owned these sites through various indirect subsidiaries that were formed for the purpose of financing the development of, and owning and operating, the sites.

Services. Historically, our U.S. solar projects were in the "commercial and industrial" ("C&I") sector of the solar market, which is distinguished from utilities and residential customers. Our customers or "offtakers" included high credit quality corporate entities, utilities, schools, and municipalities, which purchased electricity from us under the terms of long term power purchase agreements ("PPAs"). In the future, we may develop a new project portfolio of U.S. facilities through additional investments with offtakers with strong credit ratings in markets that offer favorable government policies to encourage renewable energy projects and where our projects can generate electricity at a cost that is less than or equal to the price of purchasing power from traditional energy sources. We contract with utilities through

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an interconnection agreement to export excess energy generated by our Facilities to another offtaker and/or the utility electrical grid.

Infrastructure. Prior to the sale of the U.S. Solar Operations, our Facilities were comprised of rooftop, ground mounted and elevated solar support structure photovoltaic ("PV") installations. Our facilities were located on our customers' buildings, parking structures, landfill sites and other locations pursuant to leases or easements granted to us by our customers. These facilities used crystalline silicon PV modules mounted in ballasted, tracking or roof penetrating fixed tilt configurations.

International

On April 7, 2016, we acquired a solar power development portfolio in India and since that time, have been constructing distributed generation solar power projects in the states of Andhra Pradesh and Telangana based on a commercial and industrial business model, similar to our U.S. renewable energy operations. As of December 31, 2018, we have five power evacuating solar projects (each, a "Facility") each with capacity ranging from 7.5 to 11.5 megawatts DC peak ("MWp"). We have an additional 4 MWp under construction that will expand one of our existing Facilities and expect to add a sixth Facility by mid- 2019. We currently have a pipeline of acquisition opportunities and new construction capacity of up to an additional 300MWp. Solar projects are capital intensive and the greatest challenge to increasing our operating portfolio is our ability to secure third party debt to fund the installation of the additional capacity. Our strategy is also to seek third party equity capital in order to build a larger portfolio and achieve economies of scale and diversification benefits. Our ability to expand our business will also depend on, among other things, our ability to acquire the required land for the new capacity, our ability to secure agreements to sell the power on terms that our financing sources consider to be bankable, our willingness to compete with local solar businesses who may be willing to build projects with a lower risk/return profile than ours, and the need to further strengthen our systems and processes to manage the ensuing growth opportunities. For a discussion of the risks associated with executing our short and long term growth plans in India, see " Risk Factors—Risks Related to Our Renewable Energy Segment."

Market Opportunity. We believe solar power in India is an attractive investment opportunity for our Renewable Energy business due to the large unmet demand for electricity, coupled with ideal weather conditions for solar energy and the continued low cost to build, due to decreases in solar panel pricing and the decreasing cost of debt.

We consider India to be an attractive market for solar power without the need to rely on governmental subsidies. While we currently expect the landscape for solar power to change over time in India, and potentially materially as the market matures, we believe that the core principal behind our investment in our Indian solar business, that solar power can compete with fossil fuels on a level playing field for the long-term, remains valid.

Services. We own our Facilities through various Special Purpose Entities. We sell electricity to C&I customers and do not expect to sell power directly to residential customers in India. Our target C&I customers or "offtakers" for our initial Facilities are corporate entities, including banks, manufacturers, hotel groups, and hospital groups, which purchase electricity from us under the terms of PPAs. We focus on customers that have high credit ratings or that we otherwise believe to present limited credit risk. The PPA terms agreed upon with our initial customer base are typically five years in duration, with an option to extend for another five years and priced at rates with annual rate escalators, allowing customers to secure electricity at predictable and stable prices over the duration of their long term contract. As such, we believe the PPAs provide us with high quality contracted cash flows, which, although our customers may terminate the PPAs with one-year notice, we nevertheless expect will continue over their average remaining life. Our PPAs typically have penalties for the non-delivery of power and therefore, we typically try to

enter into binding PPAs late in the development process when the connection date of the solar farm can be predicted with greater confidence. On the other hand, if the offtaker fails to take the agreed quantum of power, we can levy a penalty equal to the loss of revenue we incurred due to such failure on the part of the offtaker. In the event of non-payment, current regulations allow us to sell power to any commercial or industrial customer within 500 kilometers of our grid connection and we would seek to sell the allotted power to a different customer.

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In developing each solar project, we use in-house resources for development, engineering and project management and hire third party EPC contractors to construct our Facilities. We actively manage their performance through our in-house technical and quality assurance team. To date, we have financed the construction of our Facilities mainly with internal equity and intercompany debt and following the completion of construction, our goal is to secure project debt financing for each completed Facility and to use those proceeds towards the construction of additional Facilities in 2019.

Infrastructure. Our existing Facilities are located on land that we own and are comprised of ground mounted solar photovoltaic ("PV") installations. The majority of our Facilities are single-axis tracking systems to increase the generating capability of our Facilities. For a more detailed discussion of the risks associated with land procurement and ownership in India, see " Risk Factors— Risks Related to Our Renewable Energy Segment." We manage our Facilities through third party operation and maintenance ("O&M") contracts and our corporate staff tracks the data and services provided by the third-party service provider. Our internal asset management team is hands-on and works closely with third-party vendor partners to maintain performance.

We depend on a limited number of key suppliers for the PV modules that we purchase for installation at our Facilities, with the majority of facilities constructed with Tier 1 PV modules supplied by GCL Systems, a Tier 1 Chinese module supplier. Typically, the PV modules carry materials and workmanship warranties of 10 years in duration, with power warranties for a 25 year useful life.

Competition. We compete with traditional electric power industry; however, our primary competitors are other solar energy companies that may have greater financial resources or brand name recognition than we do, disadvantaging our ability to attract new customers. The solar energy industry is highly competitive and there are low barriers to entry for companies with sufficient financial resources. However, we believe that the availability of expansion capital from third party financing sources, rather than competition from third parties, is the major risk factor that inhibits our achieving our near-term goals for our Renewable Energy segment. Over the longer term, some of our competitors may have advantages over us in terms of larger size, access to expansion capital, internal access to solar panels and greater operational, financial, technical, management, lower cost of capital or other resources. See "Risk Factors — Risks Related to Our Renewable Energy Segment — We face significant competition from traditional and renewable energy companies."

Employees

As of December 31, 2018, we had approximately 1,700 employees, of whom approximately 600 were employed in the United States (including in the U.S. Virgin Islands). At the holding company level, we employ our executive management team and staff. Approximately half of our Guyana and U.S. Virgin Island full time work forces are represented by unions. In addition, approximately 19% of our Bermuda fulltime workforce is also represented by unions. We believe we have good relations with our employees.

Regulation

Telecom Regulation

Our wireless and wireline telecommunications and video services operations are subject to extensive governmental regulation in each of the jurisdictions in which we provide services. Our wireless and wireline operations and our video services operations in the United States and the U.S. Virgin Islands are governed by the Communications Act of 1934, as amended ("Communications Act"), the implementing regulations adopted thereunder by the FCC, including the Telecommunications Act of 1996, as well as judicial and regulatory decisions interpreting and implementing the Communications Act, and other federal, state, and local statutes and regulations. Our operations are also governed by certain foreign laws and regulations.

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The following summary of regulatory developments and legislation does not purport to describe all present and proposed federal, state, local, and foreign regulation and legislation that may affect our businesses. Legislative or regulatory requirements currently applicable to our businesses may change in the future and legislative or regulatory requirements may be adopted by those jurisdictions that currently have none. Any such changes could impose new obligations on us that would adversely affect our operating results.

U.S. Federal Telecom Regulation

Wireless Services

The FCC regulates, among other things; the licensed and unlicensed use of radio spectrum; the ownership, lease, transfer of control and assignment of wireless licenses; the ongoing technical, operational and service requirements applicable to such licenses; the timing, nature and scope of network construction; the provision of certain services, such as enhanced 911 (“E 911”); and the interconnection of communications networks in the United States.

Licenses. We provide our wireless services pursuant to various commercial mobile radio services (“CMRS”) licenses (including cellular, broadband Personal Communications Services (“PCS”), 600 MHz Band, 700 MHz Band, Advanced Wireless Service (“AWS”), and Broadband Radio Service (“BRS”) licenses granted by the FCC), pursuant to special temporary authority (“STA”) to use certain BRS spectrum for which we do not hold a license, and pursuant to leases of spectrum from FCC licensed operators. Some of these licenses and STAs are site based while others cover specified geographic market areas, e.g., Cellular Market Areas (“CMAs”) and Basic Trading Areas (“BTAs”), as defined by the FCC. The specific radio frequencies, the authorized spectrum amounts, and certain of the technical and service rules vary depending on the licensed service. The FCC generally allocates CMRS licenses through periodic auctions, after determining how many licenses to make available in particular frequency ranges, the applicable service rules, and the terms on which the license auction will be conducted. Such licenses are also available via secondary market mechanisms, using procedures and regulations set forth by the FCC. There is no certainty as to when additional spectrum will be made available for wireless broadband services, the amount of spectrum that might ultimately be made available, the timing of any future auction of spectrum, the likely configuration of any such additional spectrum and conditions that might apply to it, the usability of any of this spectrum for wireless services competitive with our services or by us, or the likelihood that we will acquire spectrum licenses made available in any future auction.

Construction Obligations. The FCC conditions licenses on the satisfaction of certain obligations to construct networks covering a specified geographic area or population by specific dates. The obligations vary depending on the licensed service. Failure to satisfy an applicable construction requirement can result in the assessment of fines and forfeitures by the FCC, a reduced license term, or automatic license cancellation. We are substantially in compliance with the applicable construction requirements that have arisen for the licenses we currently hold and expect to meet our future construction requirements as well. In particular, we have met the first build out requirement with respect to our 700 MHz Band licenses, with the second build out deadline (which requires coverage to 70 percent of each license area) coming due in June 2019. If we fail to meet the first build out requirement applicable to any 600 MHz Band license (coverage to 40 percent of the population in the license area within six years of license grant), the license term for that license will be reduced by two years. If we fail to meet the end-of term build out requirement applicable to any individual 600 MHz Band license (coverage to 75 percent of the population in the license area by the end of the license term), that license will terminate automatically and we will lose the ability to regain it.

License Renewals. Our FCC licenses generally expire between 2019 and 2030 and are renewable upon application to the FCC. License renewal applications may be denied if the FCC determines, after appropriate notice and hearing, that renewal would not serve the public interest, convenience, or necessity. At the time of renewal, if we can demonstrate that we have provided “substantial” service during the past license term and have complied with the Communications Act and applicable FCC rules and policies, the FCC will award a renewal expectancy to us and will generally renew

our existing licenses without considering any competing applications. If we do not receive a renewal expectancy, the FCC will accept competing applications for the license and conduct a comparative hearing. In that situation, the FCC may award the license to another applicant. While our licenses have been renewed regularly by the FCC in the past, there can be no assurance that all of our licenses will be renewed in the future.

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The FCC may deny license applications and, in extreme cases, revoke licenses if it finds that an entity lacks the requisite qualifications to be a licensee. In making that determination, the FCC considers whether an applicant or licensee has been the subject of adverse findings in a judicial or administrative proceeding involving felonies, the possession or sale of unlawful drugs, fraud, antitrust violations, or unfair competition, employment discrimination, misrepresentations to the FCC or other government agencies, or serious violations of the Communications Act or FCC regulations. To our knowledge, there are no activities and no judicial or administrative proceedings involving either us or the licensees in which we hold a controlling interest that would warrant such a finding by the FCC.

License Acquisitions. Prior FCC approval typically is required for transfers or assignments of a controlling interest in any license or construction permit, or of any rights thereunder. The FCC may approve or prohibit such transactions altogether, or approve such transactions subject to certain conditions such as divestitures or other requirements. Non-controlling minority interests in an entity that holds an FCC license generally may be bought or sold without FCC approval, subject to any applicable FCC notification requirements. The FCC permits licensees to lease spectrum to third parties under certain conditions, subject to prior FCC approval, or in some instances, notification to the FCC. These mechanisms provide additional flexibility for wireless providers to structure transactions and create additional business and investment opportunities.

The FCC no longer caps the amount of CMRS spectrum in which an entity may hold an attributable interest and now engages in a case by case review of proposed wireless transactions, including spectrum acquired via auction, to ensure that the proposed transaction serves the public interest and would not result in a rule violation or an undue concentration of market power. The FCC utilizes a spectrum aggregation screen to determine whether a proposed secondary market transaction requires additional scrutiny. The FCC in June 2014 adopted an order that updated the spectrum screen. The FCC’s order continued the FCC’s policy of conducting a case by case analysis of a combined entity’s spectrum screen holdings for proposed transactions, revised its existing spectrum screen to reflect the current suitability and availability of spectrum for mobile wireless services, and adopted certain limitations with respect to the purchase and transfer of 600 MHz spectrum. A transaction will be reviewed by the FCC for potential competitive effects if it will result in the acquiring entity having (1) total spectrum holdings generally exceeding approximately one-third of the total amount of suitable and available spectrum in any county; or (2) over 68 MHz of spectrum under 1 GHz. The FCC’s additional scrutiny would also be triggered if a proposed transaction results in a material change in the post transaction market share in a particular market as measured by the Herfindahl Hirschman Index. We are well below the spectrum aggregation screen in the majority of geographic areas in which we hold or have access to licenses, and thus we may be able to acquire additional spectrum either from the FCC in an auction or from third parties in private transactions in most locations in which we operate. However, we are approaching or could trigger the spectrum screen if we attempt to acquire additional spectrum in the U.S. Virgin Islands. Similarly, our competitors may be able to strengthen their operations by making additional acquisitions of spectrum in our markets or by further consolidating the industry.

Other Requirements. The Communications Act and the FCC’s rules impose a number of additional requirements upon wireless service providers. A failure to meet or maintain compliance with the Communications Act and/or the FCC’s rules may subject us to fines, forfeitures, penalties or other sanctions.

Wireless licensees must satisfy a variety of FCC requirements relating to technical and reporting matters. Licensees must often coordinate frequency usage with adjacent licensees and permittees to avoid interference between adjacent systems. In addition, the height and power of transmitting facilities and the type of signals emitted must fall within specified parameters. For certain licensed services, a variety of incumbent government and non-government operations may have to be relocated before a licensee may commence operations, which may trigger the incurrence of relocation costs by the incoming licensee.

The radio systems towers that we own and lease are subject to Federal Aviation Administration and FCC regulations that govern the location, marking, lighting, and construction of towers and are subject to the requirements of the National Environmental Policy Act, National Historic Preservation Act, and other environmental statutes enforced by the FCC. The FCC has also adopted guidelines and methods for evaluating human exposure to radiofrequency field emissions from radio equipment. We believe that all of our radio systems on towers that we own or lease comply in all material respects with these requirements, guidelines, and methods.

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The FCC has adopted requirements for cellular, PCS and other CMRS providers to implement basic 911 and E-911 services. These services provide state and local emergency service providers with the ability to better identify and locate 911 callers using wireless services, including callers using special devices for the hearing impaired. Because the implementation of these obligations requires that the local emergency services provider have certain facilities available, our specific obligations are set on a market by market basis as emergency service providers request the implementation of E-911 services within their locales. As part of an E-911 initiative, the FCC adopted stronger rules regarding E-911 location accuracy and continues to evaluate the potential for improving location accuracy for 911 calls. The extent to which we are required to deploy E-911 services will affect our capital spending obligations. Federal law limits our liability for uncompleted 911 calls to a degree commensurate with wireline carriers in our markets.

The FCC also has adopted rules requiring wireless carriers and certain other text messaging service providers to provide text-to-911 service and an automatic "bounce back" text message to consumers who try to text 911 where text to 911 is not available, indicating the unavailability of such services. Like E-911 services, the obligation to provide these services is largely tied to requests from emergency service providers for these services. We are currently in compliance with all public safety answering point requests we have received. The FCC has also sought further comment regarding additional regulations pertaining to the provision of text to 911 service.

In addition to CMRS licenses, our wireless business relies on FCC-licensed spectrum for "Common Carrier Fixed Point to Point Microwave" referred to as common carrier microwave. We currently operate over 250 licensed microwave links. Common carrier microwave stations are generally used in a point-to-point configuration for cellular site backhaul connections or to connect points on the telephone network that cannot be connected using standard wireline or fiber optic cable because of cost or terrain. The majority of our license grants are for a period of ten years. The FCC grants license renewal applications in the ordinary course.

The FCC established a Wireless Emergency Alerts ("WEA") system that allows CMRS providers to transmit emergency alerts to the public. This system is voluntary. We are opting in to the service and are currently providing it to all of our retail wireless customers where technically feasible. The rules governing participation contain many requirements, such as alert logging, maximum message lengths, alerts regarding threats to police officers, and support for non-English messages. Many of these requirements are not yet effective or will change over the next 12 months. We are monitoring these effective dates and plan to fully comply with the rules.

The FCC's rules require CMRS providers to offer "roaming" services to other providers. Roaming enables one provider's customers to obtain service from another provider when the customer is using their wireless device in an area served by the second provider. These rules apply to voice, messaging, and data services, including Internet access, although the roaming rules vary somewhat among these services. We are obligated to offer roaming, and we have the right to seek roaming from other providers, on reasonable terms and conditions. The FCC has identified a variety of factors that are relevant to whether an offer to provide roaming is reasonable, including the price, terms and conditions, and whether the two providers' networks are technologically compatible. Changes in the FCC's roaming regulations may affect the terms under which we provide roaming services to third parties and may affect our ability to secure roaming arrangements with other CMRS providers on behalf of our retail wireless customers.

We are obligated to pay certain annual regulatory fees and assessments to support FCC wireless industry regulation, as well as fees supporting federal universal service programs, number portability, regional database costs, centralized telephone numbering administration, telecommunications relay service for the hearing impaired and application filing fees. These fees are subject to change periodically by the FCC and the manner in which carriers may recoup these fees from customers is subject to various restrictions.

Wireline Services

The Communications Act encourages competition in local telecommunications markets by removing barriers to market entry and imposing on non-rural incumbent local exchange carriers (“ILECs”) various requirements related to, among other things, interconnection, access to unbundled network elements, co-location, access to poles, ducts, conduits,

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and rights of way, wholesale and resale obligations, and telephone number portability. Our ILEC operations in the U.S. Virgin Islands through Viya are exempt from most of such federal requirements pursuant to a rural exemption.

While, to date, the FCC has declined to classify interconnected voice-over Internet protocol (“VoIP”) service as a telecommunications service or information service, it has imposed a number of consumer protection and public safety obligations on interconnected VoIP providers, relying in large part on its general ancillary jurisdiction powers. To the extent that we provide interconnected VoIP service, we are subject to a number of these obligations.

The FCC recently completed several related proceedings in which it adopted actions to help expedite the deployment of wireline network infrastructure. Those actions include adopting rules to facilitate the attachment of new facilities to utility poles and eliminating or reducing requirements to provide notice of service discontinuance. We expect these FCC actions will facilitate our ability to expand our wireless network coverage. However, these FCC decisions have been appealed in federal circuit court, and we cannot predict with any certainty the likely timing or outcome of any court actions.

Video Services

Video services systems are regulated by the FCC under the Communications Act. The FCC regulates our programming selection through local broadcast TV station mandatory carriage obligations, constraints on our retransmission consent negotiations with local broadcast TV stations, and limited regulation of our carriage negotiations with cable programming networks. The FCC and federal laws also impose rules governing, among other things, leased cable set-top boxes, our ability to collect and disclose subscribers’ personally identifiable information, access to inside wiring in multiple dwelling units, cable pole attachments, customer service and technical standards, and disability access requirements. Failure to comply with these regulations could subject us to penalties. The FCC is examining whether it should modernize its video regulations and already has updated or eliminated some requirements, but we cannot predict whether and to what extent the FCC will continue to pursue deregulation in this space.

Wireless and Wireline Services

Universal Service. In general, all telecommunications providers are obligated to contribute to the federal Universal Service Fund (“USF”), which is used to promote the availability of wireline and wireless telephone service to individuals and families qualifying for federal assistance, households located in rural and high cost areas, and to schools, libraries, and rural health care providers. Contributions to the federal USF are based on end-user interstate and international telecommunications revenue. Some states have similar programs that also require contribution. The FCC has suggested that it may examine the way in which it collects carrier contributions to the USF, including a proposal to base collections on the number of telephone numbers or network connections in use by each carrier, and some states have changed or are considering changing their contribution methodologies. We contribute to the USF as required by the rules throughout the U.S., and receive funds from the USF for providing service in rural areas of the United States, including the U.S. Virgin Islands. The collection of USF fees and distribution of USF support is under continual review by state and federal legislative and regulatory bodies, and changes to these programs could affect our revenues. We are subject to audit by the Universal Service Administration Company (“USAC”) with respect to our contributions and our receipts of universal service funding. We believe we are substantially compliant with all FCC and state regulations related to the receipt and collection of universal service support.

In November 2011, the FCC released an order reforming the USF program. As part of the USF reforms, the FCC ordered the creation of two new replacement funds, the Connect America Fund and the Mobility Fund, both of which require the use of USF funds for broadband and voice services. These funds are intended to provide targeted financial support to areas that are unserved or under served by voice and broadband service providers. We and our subsidiaries

pay into, and certain of our subsidiaries receive funding from, these funds. We cannot predict the impact of any changes in the amounts we pay or receive in USF funds or whether such a change will occur in the future.

In July 2012, the FCC initiated the application process for the Mobility Fund I program, a reverse auction for a one time distribution of up to $300 million intended to stimulate third and fourth generation wireless coverage in

unserved and under served geographic areas. A number of our subsidiaries participated in the Mobility Fund I reverse auction on September 27, 2012 and bid successfully for approximately $21.7 million in one time support to expand voice and broadband networks in certain geographic areas in order to offer either 3G or 4G coverage. These subsidiaries have completed the construction of the facilities funded by this support and have finalized the submissions necessary to receive their final payments.

In August 2018, we were awarded $79.9 million over 10 years under the Connect America Fund Phase II Auction. The funding requires we provide fixed broadband and voice services to certain eligible areas in the United States. We are subject to operational and reporting requirements under the program. We expect to begin receiving the funding in 2019 and will record the amounts received as revenue in our financial statements.

Our business in the U.S. Virgin Islands also benefits from USF support. Our U.S. Virgin Islands wireline business has historically received, and continues to receive, annual support of approximately $16.4 million. In addition, after the devastation caused by the Hurricanes in September 2017, the FCC provided approximately $9.7 million in recovery support in November 2017, and an additional $7.3 million in recovery support in August 2018. The FCC has an ongoing proceeding in which it has proposed to allocate USF funding of up to $18.65 million per year (inclusive of the $16.4 million per year currently allocated to Viya) for 10 years to fixed voice and broadband providers in the U.S. Virgin Islands. In this proceeding, the FCC has asked questions about how to award this funding. Specifically, the FCC has asked for public comment regarding which entity or entities should be eligible for the funding and how it should be allocated among eligible recipients. Viya has urged the FCC to maintain support to Viya at or above the current level of $16.4 million per year for a period of no less than ten years. The FCC's proceeding remains open at this time and we cannot predict its outcome.

Intercarrier Compensation. Under federal and state law, telecommunications providers are sometimes required to compensate one another for originating and terminating traffic for other carriers. Consistent with these provisions, we currently receive compensation from other carriers and also pay compensation to other carriers. In October 2011, the FCC, significantly revised its intercarrier compensation regime such that most of these compensation obligations ceased by July 1, 2017, and most remaining obligations will cease by July 1, 2020. As a result, this type of intercarrier compensation is no longer material to our business.

Net Neutrality. In January 2018, the FCC released a decision rescinding various "net neutrality" requirements governing how broadband Internet access providers were permitted to offer broadband service. As a result, under the current approach, broadband Internet access providers must publicly disclose detailed information regarding their service offerings, Internet traffic management processes, and other practices affecting broadband customers, but are otherwise largely limited in their ability to block, throttle, or prioritize specific types of Internet traffic. The FCC also held that states are prohibited from enacting their own versions of these or similar requirements. Various Internet content providers, numerous states, and several advocacy groups have challenged the FCC's 2018 decision in federal appeals court. Among other things, the challengers argue that the court should reinstate previous rules regulating broadband providers' treatment of Internet traffic on their networks, and that the FCC lacked authority to prohibit states from adopting state regulations. We cannot predict with any certainty the likely timing or outcome of this court challenge. In the meantime, several states have adopted, or are considering, net neutrality requirements of their own. Some of these are currently subject to legal challenge by broadband providers and/or the United States government in federal district court. We cannot predict with any certainty the likely timing or outcome of these or future challenges.

Telecommunications Privacy Regulations. We are subject to federal regulations relating to privacy and data security that impact all parts of our business. On April 3, 2017, the President signed into law a bill that nullified privacy rules adopted by the FCC in October 2016, which would have imposed certain transparency, consumer choice, data security, and data breach notification requirements on telecommunications providers, including broadband Internet providers. However, certain other federal statutory and regulatory privacy and data security requirements continue to

apply to our telecommunications services. Other parts of our business are subject to the privacy and data security oversight by other federal regulators, including the Federal Trade Commission. Generally, attention to privacy and data security requirements is increasing. We believe that we comply with all currently applicable requirements, but we cannot predict future changes of law in this area or the impact of any such changes on our businesses.

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CALEA. Under certain circumstances, federal law also requires telecommunications carriers to provide law enforcement agencies with capacity and technical capabilities to support lawful wiretaps pursuant to the Communications Assistance for Law Enforcement Act (“CALEA”). Federal law also requires compliance with wiretap related record keeping and personnel related obligations. We are in compliance with all such requirements currently applicable to us. The FCC has adopted rules that apply CALEA obligations to high-speed Internet access and VoIP services. Maintaining compliance with these law enforcement requirements may impose additional capital spending obligations on us to make necessary system upgrades.

Obligations Due to Economic Stimulus Grants

One of our subsidiaries has received awards from the Broadband Technology Opportunities Program (“BTOP”) of the U.S. Department of Commerce (“DOC”) pursuant to the American Recovery and Reinvestment Act of 2009 (“ARRA”). As a BTOP sub-recipient, we are subject to the various terms and conditions included in the agency’s Notice of Funds Availability published in the Federal Register on July 9, 2009. We are also required to comply with other terms and conditions of the individual DOC grants. We believe we are currently in material compliance with all BTOP and DOC requirements applicable to our grants.

U.S. State Regulation

Wireless Services

Federal law preempts state and local regulation of the entry of, or the rates charged by, any CMRS provider. As a practical matter, we are free to establish wireless rates and offer new wireless products and services and are subject to only a minimum level of state regulatory requirements. The states in which we operate maintain nominal oversight jurisdiction. For example, although states do not have the authority to regulate the entry or the rates charged by CMRS providers, states may regulate the “other terms and conditions” of a CMRS provider’s service. Most states still maintain some form of jurisdiction over complaints as to the nature or quality of services and as to billing issues. A number of state authorities have initiated actions or investigations of various wireless carrier practices. The outcome of these proceedings is uncertain and could require us to change certain of our practices and ultimately increase state regulatory authority over the wireless industry. States and localities assess on wireless carriers taxes and fees that may equal or even exceed federal obligations.

The location and construction of our wireless transmission towers and antennas are subject to state and local environmental regulation, as well as state or local zoning, land use and other regulation. Before we can put a system into commercial operation, we must obtain all necessary zoning and building permit approvals for the cell site and tower locations. The time needed to obtain zoning approvals and requisite state permits varies from market to market and state to state. Likewise, variations exist in local zoning processes. If zoning approval or requisite state permits cannot be obtained, or if environmental rules make construction impossible or infeasible on a particular site, our network design might be adversely affected, network design costs could increase and the service provided to our customers might be reduced.

The FCC recently completed several related proceedings in which it adopted actions to help expedite the deployment of wireless network infrastructure. Those actions include limiting state and local regulations governing the construction of towers and the installation of small cells and other facilities within and outside public rights-of-way when the FCC determines those regulations can be barriers to deployment. Among other things, the FCC established new shorter shot clocks for completion of local reviews of small wireless facility applications and eliminated federal environmental and historic preservation review of small wireless facilities. We expect these FCC actions to facilitate our ability to expand our wireless network coverage.

U.S. Virgin Islands Regulation

Virgin Islands Public Service Commission

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In addition to the regulations described above, our operations in the U.S. Virgin Islands are also subject to the U.S. Virgin Islands Public Utilities Code, pursuant to which the Virgin Islands Public Service Commission ("PSC") regulates certain telecommunications and cable TV services that Viya provides in the U.S. Virgin Islands. Among other things, the PSC establishes the rates and fees that we may charge local exchange residential and enterprise customers in the U.S. Virgin Islands. The PSC is required by U.S. Virgin Islands law to review local utility rates every five years. In June 2016, the PSC adopted an order increasing the rates and fees that we may charge subject to certain conditions and future obligations. We believe that we have satisfied these requirements. In addition, certain of our subsidiaries entered into a transfer of control agreement with the PSC on July 1, 2016, which imposes certain operational and reporting obligations on the Viya companies. The PSC currently is evaluating our compliance with certain of these requirements. Although we believe that we comply with all such requirements, some of which were temporarily waived by the PSC as a result of the Hurricanes in September 2017, we cannot predict the outcome of this proceeding. Further, as a condition to Viya's receipt of USF funds from the FCC, the PSC is required to certify on an annual basis that Viya is in compliance with certain eligible telecommunication carrier ("ETC") obligations. We believe that we comply with all such obligations but cannot predict the outcome of future PSC proceedings relating to Viya's ETC status.

Our subsidiaries provide cable TV service in the U.S. Virgin Islands pursuant to two franchises granted by the PSC. Each franchise was renewed in July 2015 by an order issued by the PSC, but the PSC has not yet issued new franchise agreements memorializing these renewals. We cannot predict what requirements will be included in the renewed franchise agreements. However, we understand that the renewed franchise agreements will likely contain substantially similar terms and conditions as the prior franchise agreements, including a 15-year term. We also believe that the renewed franchise agreements will exclude prior language permitting the PSC to regulate our cable rates. The FCC is considering whether it should place new limits on the powers of local cable franchising authorities such as the PSC, but we cannot predict what, if any, action the FCC will take or how any such changes will impact our business.

The PSC is reviewing the damage to our network caused by the Hurricanes, as well as our efforts to restore telecommunications and video services in the U.S. Virgin Islands and maintain compliance with our communications regulatory obligations under U.S. Virgin Islands laws during our restoration efforts. We do not know what, if any, action the PSC will take in the course of this review.

Virgin Islands Research and Technology Park

Our video and wireless companies in the U.S. Virgin Islands also receive tax benefits as qualifying participants in the U.S. Virgin Islands' Research & Technology Park ("RTPark") program. RTPark was chartered with the goal of promoting technology-based economic development in the territory and offering attractive economic incentives to companies that contribute to the development of the Virgin Islands through local employment and sourcing, as well as significant contributions to both the economy and the non-profit sectors of the community. As part of the program, our participating entities currently receive a 100% tax exemption applied against gross receipts and excise taxes as well as a 90% exemption against income taxes. These benefits resulted in tax exemptions of approximately $2.7 million during the year ended December 31, 2018. In order to qualify, we are required to maintain certain capital investments over the first five years of the agreement, pay monthly management fees of 0.4% of tenant company revenue, make

annual charitable contributions to the University of the Virgin Islands, purchase products and services locally when feasible and provide in-kind services to RTPark.

Guyana Regulation

Our subsidiary, Guyana Telephone & Telegraph Limited ("GTT"), in which we hold an 80% interest, is subject to regulation in Guyana under the provisions of GTT's License from the Government of Guyana, the Guyana Public Utilities Commission Act of 1999 as amended (or "PUC Law") and the Guyana Telecommunications Act 1990 (or "Telecommunications Law"). The Public Utilities Commission of Guyana (or "PUC") is an independent statutory body with the principal responsibility for regulating telecommunications rates and services in Guyana. The Ministry of Telecommunications, an agency of the Government of Guyana, has formal authority over telecommunications licensing and related issues.

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Licenses. GTT provides domestic fixed (both wireline and wireless) and international voice and data services in Guyana pursuant to a license from the Government of Guyana granting GTT the exclusive right to provide the following: public telephone, radio telephone, and pay telephone services; domestic fixed services (both wireline and wireless); international voice and data services; sale of advertising in any telephone directories; and switched or non-switched private line service. The license, which was issued in December 1990, had an initial 20 year term. Pursuant to the license, GTT also provides mobile wireless telephone service in Guyana on a non exclusive basis pursuant to an initial twenty-year term. In November 2009, GTT notified the Government of its election to renew both the exclusive and non-exclusive license grants for an additional 20 year term expiring in 2030. In exercising this option, GTT reiterated to the Government that GTT and the Company would be willing to voluntarily relinquish the exclusivity aspect of GTT's licenses, but only as part of an alternative agreement with the Government. On December 15, 2010, the Government, through the Office of the President, sent a letter to GTT indicating that GTT's license was renewed until such time as a new legislative and regulatory regime to reform the telecommunications sector in Guyana is brought into force; however, GTT formally notified the Government that it is entitled to an unconditional renewal of both the exclusive and non exclusive license grants for an additional period of twenty years or until such time as GTT and the Company enter into an alternative agreement with the Government.

PUC Law and Telecommunications Law. The PUC Law and the Telecommunications Law provide the general framework for the regulation of telecommunications services in Guyana. As a general matter, the PUC has authority to regulate GTT's domestic and international telecommunications services and rates and to require GTT to supply certain technical, administrative and financial information as it may request. The PUC claims broad authority to review and amend any of GTT's programs for development and expansion of facilities or services, although GTT has challenged the PUC's view on the scope of its authority. For a description of recent actions of the PUC, see Note 14 to the Consolidated Financial Statements included in this Report.

Regulatory Developments. In 2016, the Government of Guyana passed new telecommunications legislation introducing material changes to many features of Guyana's existing telecommunications regulatory regime with the intention of introducing additional competition into Guyana's telecommunications sector. The legislation that passed, however, has not yet been implemented and does not include a provision that permits other telecommunications carriers to receive licenses automatically upon signing of the legislation, nor does it have the effect of terminating our exclusive license. Instead, the legislation, as passed, requires the Minister of Telecommunications to conduct further proceedings and issue implementing orders to enact the various provisions of the legislation. We have met with the Government of Guyana, including as recently as December 2018, to discuss modifications of our exclusivity rights and other rights under our existing agreement and license. However, there can be no assurance that those discussions will be concluded before the Government issues new licenses as contemplated by the legislation or at all, or that they will satisfactorily address the Company's contractual exclusivity rights. Although we believe that we would be entitled to damages or other compensation for any involuntary termination of our contractual exclusivity rights, we cannot guarantee that we would prevail in a proceeding to enforce our rights or that our actions would effectively halt any unilateral action by the Government

FCC Rule Making and International Long Distance Rates. The actions of foreign telecommunications regulators, especially the FCC in the United States, can affect the settlement or termination rate payable by foreign carriers to GTT for incoming international voice calls. While the FCC continues to monitor and evaluate termination rate levels and benchmarks, we cannot predict when and if the FCC will further reduce settlement rates or the effect lower rates will have on revenue in our International Telecom segment.

Bermuda Regulation

In Bermuda, we were historically subject to Bermuda's Telecommunications Act of 1986 that authorized us to use spectrum to deliver services under our "Class B" license. In 2013, the Regulatory Authority implemented the Electronic

Communications Act of 2011 (“ECA”), which allows communications service providers to enter new lines of business and introduces competition in the sector. As the government of Bermuda reforms the local telecommunications market, it has imposed regulatory and other fees and adopted additional regulation that have increased the regulatory costs incurred by, and could otherwise impact, our Bermuda operations. In 2019, the Regulatory Authority is expected to

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conduct a review of the market as required by the ECA. We cannot now accurately predict the impact to the competitive position of our Bermuda business or limitations that such actions will have on our ability to grow.

Renewable Energy Services Regulation

India Regulation

The Electricity Act, 2003

The Electricity Act, 2003, (the "Electricity Act"), regulates and governs the generation, transmission, distribution, trading and use of electricity in India. Under the Electricity Act, the transmission, distribution and trade of electricity are regulated activities that require licenses from the Central Electricity Regulatory Commission, State Electricity Regulatory Commissions, or "SERCs", or the joint commission (constituted by an agreement entered into by two or more state governments or the central government in relation to one or more state governments, as the case may be).

In terms of the Electricity Act, any generating company may establish, operate and maintain generating stations without obtaining a license if it complies with prescribed technical standards relating to grid connectivity. The generating company is required to establish, operate and maintain generating stations, tie-lines, sub-stations and dedicated transmission lines.

Further, the generating company may supply electricity to any licensee or even directly to consumers, subject to availing open access to the transmission and distribution systems and payment of transmission charges, including wheeling charges and open access charges, as may be determined by the relevant electricity regulatory commission. In terms of the Electricity Act, open access means the non-discriminatory provision for the use of transmission lines or distribution system or associated facilities with such lines or system, by any licensee or consumer or a person engaged in generation in accordance with the regulations specified by the relevant electricity regulatory commission.

The relevant electricity regulatory commission is empowered, among other things, to determine or adopt the tariff for supply of electricity from the generating company to a distribution licensee (such as the distribution utility companies), for transmission of electricity, wheeling of electricity and retail sale of electricity. However, the relevant electricity regulatory commission may, in case of shortage of supply of electricity, fix the minimum and maximum tariffs for sale or purchase of electricity under agreements between a generating company and a licensee or between licensees, for a period not exceeding one year, to ensure reasonable prices of electricity. While determining the tariff, commissions are required to be guided by, among other things, the promotion of co-generation and generation of electricity from renewable sources of energy.

The Electricity (Amendment) Bill, 2014 was introduced in the lower house of the Indian Parliament to amend certain provisions of the Electricity Act. Among other things, the amendment empowers the Indian government to establish and review a national renewable energy policy, tariff policy and electricity policy. Further, the Indian government may, in consultation with the state governments, notify policies and adopt measures for promotion of renewable energy generation including through tax rebates, generation-linked incentives, creation of a national renewable energy fund, development of the renewable industry and for effective implementation and enforcement of such measures.

Generating companies are also required to ensure compliance with certain other regulations, including the Central Electricity Authority (Safety Requirements for Construction, Operation and Maintenance of Electrical Plants and Electric Lines) Regulations, 2011.

The National Electricity Policy, 2005

The Indian government approved the National Electricity Policy on February 12, 2005, in accordance with the provisions of the Electricity Act. The National Electricity Policy, 2005 has material effects on our business since it provides the policy framework to the central and state Electricity Regulatory Commissions in developing the power

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sector, supplying electricity and protecting interests of consumers and other stakeholders, while keeping in view the availability of energy resources, technology available to exploit such resources, economics of generation using different resources and energy security issues. The National Electricity Policy emphasizes the need to promote generation of electricity based on non-conventional sources of energy.

Central Electricity Regulatory Commission (Terms and Conditions for Tariff Determination from Renewable Energy Sources) Regulations, 2012

The Central Electricity Regulatory Commission announced the Central Electricity Regulatory Commission (Terms and Conditions for Tariff Determination from Renewable Energy Sources) Regulations, 2012 (the "Tariff Regulations"), which prescribe the criteria that may be taken into consideration by the SERCs while determining the tariff for the sale of electricity generated from renewable energy sources that include, among other things, return on equity, interest on loan capital and depreciation. Accordingly, such tariffs cannot be determined independently by renewable energy power producers such as our company. Pursuant to the Tariff Regulations, the Central Electricity Regulatory Commission is required to determine the rate of return on equity which may be adopted by the SERCs to determine the generic tariff, keeping in view the overall risk and prevalent cost of capital, which factors are also to be taken into consideration by SERCs while determining the tariff rate. The Tariff Regulations prescribe that the normative return on equity shall be 20% per annum for the first 10 years and 24% per annum from the 11th year onward.

The Tariff Regulations also provide the mechanism for sharing of carbon credits from approved clean development mechanism projects between renewable energy power producers and the concerned beneficiaries. Under the Tariff Regulations, the project developer is entitled to retain 100% of the gross proceeds on account of clean development mechanism project benefits in the first year following the date of commercial operation of the generating station. Subsequently, in the second year, the share of the beneficiaries is increased to 10% and then progressively increased by 10% every year until it reaches 50%, after which the clean development mechanism project proceeds are to be shared equally between the generating company and the beneficiaries.

MNRE

The Ministry of New and Renewable Energy ("MNRE") in India has been facilitating the implementation of programs harnessing renewable power, renewable energy for industrial and commercial applications and development. The ministry is focused on a mix of subsidies, fiscal incentives, preferential tariffs, market mechanisms and affirmative actions such as renewable purchase obligations by way of legislation and policies. It has introduced the generation-based incentive scheme to support small grid solar projects, pursuant to which the MNRE will pay incentives to the state utilities when they directly purchase solar power from project developers. One such incentive is exemption of customs and excise duties on all rooftop Solar PV Power Projects with a minimum capacity of 100 kw.

Renewable Purchase Obligations

The Electricity Act promotes the development of renewable sources of energy by requiring the SERCs to ensure grid connectivity and the sale of electricity generated from renewable sources. In addition, it requires the SERCs to specify, for the purchase of electricity from renewable sources, a percentage of the total consumption of electricity within the area of a distribution licensee, which are known as RPOs. Pursuant to this mandate, most of the SERCs have specified solar and non-solar RPOs in their respective states. In terms of the RPO regulations, RPOs are required to be met by obligated entities (that is, distribution licensees, captive power plants and open access consumers) by purchasing renewable energy, either by entering into PPAs with renewable energy power producers or by purchasing renewable energy certificates. The RPO regulations require the obligated entities to purchase power from renewable energy power producers such as our company. In the event of default by an obligated entity in any fiscal year, the SERCs may direct the obligated entity to deposit an amount determined by the relevant SERC, into a fund to be utilized for, among other things, the purchase of renewable energy certificates. Additionally, pursuant to the Electricity Act, a defaulting obligated entity may also be liable to pay a penalty as determined by the SERCs.

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In May 2015, the Supreme Court of India upheld a regulation that made it compulsory for captive power plants and open access consumers to purchase electricity to fulfill their RPOs. This judgment is expected to boost the demand for renewable energy by captive players and also improve the marketability of renewable energy certificates in India.

Available Information

Our website address is www.atni.com. The information on our website is not incorporated by reference in this Report and you should not consider information provided on our website to be part of this Report. Investors may access, free of charge, our annual reports on Form 10 K, quarterly reports on Form 10 Q and current reports on Form 8 K, plus amendments to such reports as filed or furnished pursuant to Sections 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended, through the SEC's electronic data gathering, analysis and retrieval system ("EDGAR"), via electronic means on the SEC's website at www.sec.gov, or through the "Financials & Filings" portion of the "Investor Relations" section of our website as soon as reasonably practicable after we electronically file such material with, or furnish it to, the Securities and Exchange Commission. In addition, paper copies of these documents may be obtained free of charge upon request by writing to us at 500 Cummings Center, Beverly, Massachusetts 01915, Attention: Investor Relations, by calling us at (978) 619 1300 or by emailing us at ir@atni.com.

We have adopted a written Code of Ethics that applies to all of our employees and directors, including, but not limited to, our principal executive officer, principal financial officer, and principal accounting officer or controller, or persons performing similar functions. Our Code of Ethics, along with our Compensation Committee Charter, Audit Committee Charter and Nominating and Corporate Governance Committee Charter, are available at the Corporate Governance section of our website. We intend to make any disclosure required under the SEC rules regarding amendments to, or waivers from, our Code of Ethics on our website.

ITEM 1A. RISK FACTORS

In addition to the other information contained in, or incorporated by reference into, this Report, you should carefully consider the risks described below that could materially affect our business, financial condition, or future results. These risks are not the only risks facing us. Additional risks and uncertainties not presently known to us or that we currently believe are immaterial also may materially adversely affect our business, financial condition and/or results of operations.

Risks Related to our U.S. Telecom Segment

A significant portion of our U.S. wholesale wireless revenue is derived from a small number of customers.

A substantial portion of our U.S. Wireless revenue is generated from four national wireless service providers. Our U.S. wholesale wireless revenues accounted for approximately 20.1% of our consolidated revenues in 2018.

Our relationships with our roaming customers generally are much more financially significant for us than for our customers. Frequently, our relationships with our roaming customers do not require them to "prefer" our networks or require them to send us a minimum amount of traffic. Instead, roaming customers may choose to utilize other networks, if available, for their subscribers' roaming use. If our markets currently included in our roaming partners' home calling areas are instead subject to the imposition of additional roaming charges or if we fail to keep any of our roaming customers satisfied with our service offerings or economic terms, we could lose their business, experience less roaming traffic or be unable to renew or enter into new agreements with these customers on beneficial terms (including pricing), resulting in a substantial loss of revenue, which would have a material adverse effect on our

results of operations and financial condition. In addition, if these customers build or acquire wireless networks in our service areas, we would lose revenue. Should any of these customers take such actions over a significant portion of the areas we serve, it may have a material adverse effect on our results of operations and financial condition.

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We may have difficulty meeting the growing demand for data services.

Demand for smartphones and data services continues to grow across all of our wireless markets and our value to our customers in some markets depends in part on our network's ability to provide high quality and high capacity network service to smartphone devices. Indeed, much of the revenue growth in our wireless businesses in the past few years has been attributable to increased demand for data services. However, if data usage increases faster than we anticipate and exceeds the then available capacity of any of our networks, our costs to deliver roaming services may be higher than we anticipate. In the United States, the dearth of available spectrum and or non-transparent spectral allocation practices in our industry means that we cannot guarantee that we will be able to acquire additional spectrum at a reasonable cost or at all to ensure our ability to maintain or grow our business and traffic volumes. As demand for advanced mobile data services continues to grow, we may have difficulty satisfying our retail and wholesale customers' demand for these services without substantial upgrades and additional capital expenditures and operating expenses, which could have an adverse effect on our results of operations and financial condition.

Risks Relating to Our International Telecom Segment

Changes in USF funding could have an adverse impact on our financial condition or results of operations.

Viya, our subsidiary operating video services, Internet, wireless and landline services in the U.S. Virgin Islands, currently receives high-cost USF support in the U.S. Virgin Islands of approximately $16.4 million per year. The FCC has proposed in response to the damage caused by the Hurricanes to allocate $18.65 million per year for 10 years in the U.S. Virgin Islands to wireline voice and broadband providers and this amount is inclusive of the USF funding currently received by Viya. The FCC has not yet determined which entities will be eligible for this funding or what standards will be used to allocate the funding. Any reduction in the amount of USF funding allocated to Viya in this proceeding could negatively affect our efforts to build and maintain networks in the U.S. Virgin Islands and our ability to provide services supported by USF funds, which could adversely affect the revenues of our International Telecom segment.

We may have difficulty securing video services content from third parties desirable to our customers on terms and conditions favorable to us.

We have secured licensing agreements with numerous content providers to allow our various video services businesses to offer a wide array of popular programming to our subscribers. Typically, we make long-term commitments relating to these rights in advance even though we cannot predict the popularity of the services or ratings the programming will generate. License fees may be negotiated for a number of years and may include provisions requiring us to pay part of the fees even if we choose not to distribute such programming.

The success of our video services operations depends on our ability to access an attractive selection of video programming from content providers on terms and pricing favorable to us. Our ability to provide movies, sports and other popular programming is a major factor that attracts subscribers to our services. Our inability to provide the content desired by our subscribers on satisfactory terms or at all could result in reduced demand for, and lower revenue from, our cable operations that may not offset the typically large subscription fees that we pay for these services. In certain cases, we may not have satisfactory contracts in place with the owners of our distributed content, leading to such parties' desire for increased renewed contractual pricing or leading to disputes with such parties including claims for copyright or other intellectual property infringement.

The cost of obtaining programming associated with providing our video services is significant. The terms of many of our programming contracts are for multiple years and provide for future increases in the fees we must pay. In addition, local over-the-air television stations are increasingly seeking substantial fees for retransmission of their stations over our cable networks. Historically, we have absorbed increased programming costs in large part through increased prices to our customers. We cannot assure that competitive and other marketplace factors will permit us to continue to pass through these costs or that we are able to renew programming agreements on comparable or favorable terms. Also, programming in the Caribbean typically includes Latin American or Spanish programming, while our subscribers

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typically prefer content in English. To the extent that we are unable to reach acceptable agreements with programmers or obtain desired content, we may be forced to remove programming from our line-up, which could result in a loss of customers and materially adversely affect our results of operations and financial condition.

Our exclusive license to provide local exchange and international voice and data services in Guyana is subject to significant political and regulatory risk.

Since 1991, our subsidiary Guyana Telephone and Telegraph, Ltd. ("GTT") has operated in Guyana pursuant to a license from the Government of Guyana to be the exclusive provider of domestic fixed and international voice and data services pursuant to a license with an initial term ending in December 2010, which was renewable at our sole option for an additional 20-year term. In November 2009, we notified the Government of Guyana of our election to renew our exclusive license for an additional 20-year term expiring in 2030. On December 15, 2010, we received correspondence from the Government of Guyana indicating that our license had been renewed until such time that new legislation is in place with regard to the Government's intention to expand competition within the sector; however, we believe our exclusive license continues to be valid unless and until such time as we enter into an alternative agreement with the Government.

In 2016, the Government of Guyana passed new telecommunications legislation introducing material changes to many features of Guyana's existing telecommunications regulatory regime with the intention of introducing additional competition into Guyana's telecommunications sector. The legislation that passed, however, has not yet been implemented and does not have the effect of terminating our exclusive license. Instead the legislation as passed requires the Minister of Telecommunications to conduct further proceedings and issue implementing orders to put into effect the various provisions of the legislation. We have met with the Government of Guyana to discuss modifications of the Company's exclusivity rights and other rights under its existing agreement and license. However, there can be no assurance that those discussions will be concluded before the Government issues new licenses as contemplated by the legislation or at all, or that they will satisfactorily address the Company's contractual exclusivity rights. Although we believe that we would be entitled to damages or other compensation for any involuntary termination of our contractual exclusivity rights, we cannot guarantee that we would prevail in a proceeding to enforce our rights or that our actions would effectively halt any unilateral action by the Government.

We are dependent on GTT for approximately 23% of our total consolidated revenues. A loss of exclusivity on international voice and data service would result in a reduction in the international call traffic and as a result, a loss in that portion of our wireline revenue. Any modification, early termination or other revocation of the exclusive domestic fixed and international voice and data license could materially adversely affect our revenues and profits and diminish the value of our investment in Guyana.

Risks Related to Our Renewable Energy Segment

Our Facilities have a limited operating history.

All of our Facilities have limited operating histories. Our expectations about the performance of these Facilities are based on assumptions and estimates made without the benefit of a lengthy operating history. There can be no assurance that our Facilities will perform as anticipated or projected and the failure of these Facilities to perform as we expect could have a material adverse effect on the financial condition, results of operations and cash flows of our Renewable Energy segment.

Our revenues are dependent on the performance and effectiveness of our PPAs.

The cash flow from our PPAs is significantly affected by our ability to collect payments from offtakers under our PPAs. If for any reason our PPA customers are unable or unwilling to fulfill their related contractual obligations or if they refuse to accept delivery of power or otherwise terminate or breach such agreements, such non payment could have a material adverse effect on our revenues from the Renewable Energy segment. In addition, our inability to perform our obligations under the PPAs could also have a material adverse effect on these revenues. For instance, our inability to

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meet certain operating thresholds or performance measures under certain of our PPAs within specified time periods exposes us to the risk of covering the cost of any shortfall or early termination by such customer.

Certain of our PPAs provide for early termination for a variety of reasons, including in the event that (a) an offtaker is unable to appropriate government funds, (b) there is a change of law that substantially reduces the value of utility credits, (c) termination for convenience, (d) change of control in the managing structure of the offtaker, (e) insolvency of the offtaker, or (f) any change in the credit worthiness of the offtaker. While we would be entitled to a termination fee (typically set at the terminal value of the PPA) in most cases, the termination fee might not be a sufficient substitute for the payments otherwise due under the PPAs. There can be no assurances that such appropriations will be made or timely made in any given year or that tax or other incentives will continue to be available for the purchase of solar energy. However, we have the option to sell the power to the grid and claim Average Pooled Purchase Price ("APPC") in the event of early termination while we are looking for alternate buyers or offtakers to sign a new PPA contract. In the event a PPA for one or more of our projects is terminated or payments are not made (or not made in a timely manner) pursuant to such provisions, it could materially and adversely affect our results of operations from the Renewable Energy segment and our financial condition. We cannot provide any assurance that PPAs containing such provisions will not be terminated or, in the event of termination, we will be able to enter into a replacement PPA. Moreover, any replacement PPA may be on terms less favorable to us than the PPA that was terminated.

India is undergoing rapid governmental and regulatory change, which may have both short and long term material adverse impacts on our operations and ability to execute our strategic growth plans.

The government of Prime Minister Narendra Modi in India has expressed its intention to cut down on corruption and tax avoidance wherever possible and in parallel with its anti-corruption measures, the Indian government is also looking to encourage foreign investment in India. Some of these changes have had a significant impact on our operations in India in the short-term. For instance, India is currently a predominately cash economy, with millions of people having no bank accounts and transacting solely in cash. On November 8, 2016, the Indian government removed the 500 (approximately equal to $7.60 at the time) and 1,000 rupee notes from circulation and replaced them with new 2,000 rupee notes. This step was taken to remove money from the black market economy with a view to reducing corruption, increasing tax receipts, and moving India to a modern, non-cash economy. While we have very limited cash transactions in India (mostly in relation to the payment of employee travel and subsistence expenses), much of the construction team employed by our sub-contractors is paid in cash, often on a daily basis. With the removal of 500 and 1,000 rupee notes from circulation, our sub-contractors have struggled to source the cash required to pay their labor, resulting in many of the workers responsible for our ongoing solar Facility construction failing to continue to show up to the worksite. To remedy the situation, our sub-contractors have been opening bank accounts on behalf of their workers to enable them to receive their compensation electronically; however, the construction of our solar farms in India has met with substantial delays as a result.

Further, our business model in India is predicated on the availability of "open access" rules, which allow our customers to buy their electricity from us, rather than from traditional utility providers. Any major policy changes issued by the Indian government to current open access rules, or other major policy changes, particularly when implemented in such a short time frame, could impair the development or operations of our solar projects and may adversely impact our ability to construct our power project portfolio or maintain operations, once constructed.

Land title in India can be uncertain and difficult to procure.

There is no central title registry for real property in India and the documentation of land records in India has not been fully computerized. Property records in India are generally maintained at the state and district level and in local languages, and are updated manually through physical records. Therefore, property records may not be available online for inspection or may not be updated in a timely manner, may be illegible, untraceable, incomplete or inaccurate in certain respects, or may have been kept in poor condition, which may impede title investigations or our ability to rely on such property records. Furthermore, title to land in India is often fragmented, and in many cases, land may have multiple owners. Title may also suffer from irregularities, such as non-execution or non-registration of conveyance deeds and inadequate stamping, and may be subject to encumbrances that we are unaware of. As a result, potential disputes or claims over title to the land on which our power projects are or will be constructed may arise. Any real estate issues

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could impair the development or operations of our solar projects and any defects in, or irregularities of, title may result in a loss of development or operating rights over the land that may adversely impact our ability to construct our power project portfolio or maintain operations, once constructed. Further, the government may exercise its rights of eminent domain, or compulsory acquisition in respect of land on which our projects are or will be located. Any of this may adversely affect our business, results of operations and cash flows in the future. For instance, in one such state a PIL (Public Interest Litigation) has been filed in the courts against the acquisition of large parcels of land by the solar power generation companies. Any such litigation may result in new regulations, adversely affecting our project construction and operation.

We may not be able to timely and effectively construct our developed solar project portfolio.

The development and construction of solar projects involve numerous risks and uncertainties and require extensive research, planning and due diligence. We have already incurred, and may continue to incur, significant costs for land and interconnection rights, regulatory approvals, preliminary engineering, permits, and legal and other expenses before we can determine whether a solar project is economically, technologically or otherwise feasible.

Our ability to realize profits in our investment may depend greatly on our ability to achieve the following:

- accurately identify and prioritize geographic markets for entry, both in terms of market demand and viability of solar conditions and grid connection;
- manage local operations, capital investment or component sourcing in compliance with regulatory requirements;
- procure land at cost-effective prices and on terms favorable to us;
- procure equipment and negotiate favorable payment and other terms with suppliers;
- obtain grid interconnection rights;
- successfully complete construction prior to the expiration of any procured grid interconnection rights;
- secure reliable and enforceable EPC and O&M resources; and
- sign PPAs or other arrangements on a long-term basis on terms that are favorable to us.

Construction of our solar projects may be also be adversely affected by circumstances outside of our control, including inclement weather, adverse geological and environmental conditions, a failure to receive regulatory approvals on schedule or third-party delays in providing supplies and other materials. Any construction setbacks or delays could have a material adverse effect on our ability to obtain, maintain and perform under the PPAs we seek to procure and could result in financial penalties under these agreements and/or the termination of such agreements, which could have a material adverse impact on our prospects and results of operations in our Renewable Energy segment.

We are reliant on India's infrastructure to deliver power and any failure or technical challenges may lead to delays or other impediments that may have an adverse effect on our operations or financial condition.

India has a target of installing 175 GW of renewable energy capacity by March 2022, of which it is intended that 100 GWp will be solar power capacity. New capacity additions have historically been lower than the targeted capacity. If the government fails to reach its targeted solar capacity, it will likely result in a slowdown in our growth opportunities and adversely affect our ability to achieve our long term business objectives, targets and goals. Moreover, due to the intermittent nature of most forms of renewable energy generation, significant renewable energy generation capacity on a limited area of grid infrastructure can cause technical challenges to keep the grid in balance. Such technical issues could result in a grid company looking to turn down the export capacity of one of our solar projects for a limited or extended period, or the grid company incurring additional costs in order to manage its grid infrastructure, and looking to recharge such costs to renewable energy generators. Such actions by a grid operator could have a material adverse impact on our prospects and results of operations in our Renewable Energy segment.

For distributing power to an offtaker, we generally rely on transmission lines and other transmission and distribution facilities that are owned and operated by the respective state governments or public entities. In absence of such transmission and distribution networks, we may engage contractors to build transmission lines and other related infrastructure. In such a case, we will be exposed to additional costs and risks associated with developing transmission

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lines and other related infrastructure, such as the ability to obtain right of way from land owners for the construction of our transmission lines, which may delay and increase the costs of our projects. We may not be able to secure access to the available transmission and distribution networks at reasonable prices, in a timely manner or at all.

In some instances, we are required to distribute power to customers across long distances from our project sites. Any constraints or limited access to transmission and distribution networks, could curtail the transmission and dispatch of the full output of our projects and we may have to suspend producing electricity during the period when electricity cannot be transmitted, thereby reducing the net power generation of our projects. Any such curtailment of our power projects' output levels will reduce our electricity output and limit operational efficiencies, which in turn could have an adverse effect on our business, results of operations and cash flows.

Our ability to realize the benefits of our investment in India may be delayed and our growth prospects depend to a significant extent on the availability of additional funding options with acceptable terms.

We require a significant amount of cash to fund the installation and construction of our projects in India and other aspects of our operations, and have planned to incur debt or acquire additional equity funding in the future to complement our investment. We may also require additional cash due to changing business conditions or other future developments, including any investments or acquisitions we may decide to pursue in order to remain competitive. We intend to evaluate third-party financing options, including any bank loans, equity investors, financial leases and securitization. However, we cannot guarantee that we will be successful in obtaining additional suitable sources of financing on a timely basis or at all, or on terms or at costs that are acceptable to us, which may materially adversely affect our ability to continue construction and expand our operations in India. In addition, rising interest rates could adversely impact our ability to secure financing on favorable terms.

We face significant competition from traditional and renewable energy companies.

We face significant competition in the markets in which we operate. Our competitors may have greater operational, financial, technical and management expertise or other resources than we do and may be able to achieve better economies of scale and lower cost of capital, allowing them to sell electricity at more competitive rates. Our local competitors are likely to be funded from Indian sources of capital, and so will not have to factor foreign currency movements into their target returns, which may also enable them to sell electricity at more competitive rates. Our competitors may also have a more effective or established localized business presence or a greater appetite for risk (for example in relation to equipment warranties) and greater willingness or ability to operate with little or no operating margins for sustained periods of time. Our market position depends on our financing, development and operational capabilities, reputation and track record. Any increase in competition or reduction in our competitive capabilities could have a significant adverse impact on the margins we generate from our solar projects. We cannot assure that we will be able to compete effectively, and our failure to do so could result in an adverse effect on our business, results of operations and cash flows in our Renewable Energy segment.

Other Risks Related to Our Businesses

Failure of network or information technology systems, including as a result of security breaches, could have an adverse effect on our business.

We are highly dependent on our information technology ("IT") systems for the operation of our network, our facilities delivery of services to our customers and compilation of our financial results. Failure of these IT systems, through cyberattacks, breaches of security, or otherwise, may cause disruptions to our operations. There can be no assurance that we will be able to successfully prevent a material security breach stemming from future cyberattacks. Our inability to operate our network, facilities and back office systems as a result of such events, even for a limited period of time, may result in significant expenses and impact the timely and accurate delivery of our services or other information. Other risks that may also cause interruptions in service or reduced capacity for our customers include power loss, capacity limitations, software defects and breaches of security by computer viruses, break ins or otherwise. Disruptions in our networks and the unavailability of our services or our inability to efficiently and effectively complete necessary technology or systems upgrades or conversions could lead to a loss of customers, damage to our reputation and violation

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of the terms of our licenses and contracts with customers. Additionally, breaches of security may lead to unauthorized access to our customer or employee information processed and stored in, and transmitted through, our IT systems. We may be required to expend significant additional resources to modify our protective measures or to investigate and remediate vulnerabilities or other exposures arising from operational and security risks, including notification under data privacy laws and regulations, and we may be subject to litigation, regulatory penalties and financial losses. These failures could also lead to significant negative publicity, regulatory problems and litigation.

Storms and changes in meteorological conditions may materially disrupt our operations.

Many of the areas in which we operate have experienced severe weather conditions over the years including hurricanes, tornadoes, blizzards, fires, damaging storms and floods. Some areas in which we operate may also be at risk of earthquakes. Such events may materially disrupt and adversely affect our business operations, such as the ongoing impacts of the Hurricanes in the U.S. Virgin Islands in 2017, which we assessed caused damage and losses to our wireline and wireless networks in excess of $35.4 million. Major hurricanes also passed directly over Bermuda in 2003, 2014 and 2016, causing major damage to our network and to the island's infrastructure. Guyana has suffered from severe rains and flooding in the past as well. These types of events can also cause major disruption and harm to the communities and markets we serve, which can have a material adverse effect on our business. We cannot be sure that these types of events will not have an impact in the future or that we can procure insurance coverage against these types of severe weather events under reasonable business terms and conditions, or that any insurance coverage we are able to maintain will adequately compensate us for all damage and economic losses resulting from natural catastrophes. In addition, it may take significant time to return to pre-storm levels following any such storm or meteorological event. If we are unable to restore service on a timely and cost-effective basis, it could harm our reputation and have a material adverse effect on our business, financial condition or results of operations through continued loss of revenue and customer attrition to our competitors.

The electricity produced and revenues generated by a solar electric generation facility is highly dependent on suitable solar and associated weather conditions and our solar panels and inverters could be damaged by severe weather, such as hailstorms or tornadoes. In addition, replacement and spare parts for key components may be difficult or costly to acquire or may be unavailable. Unfavorable weather and atmospheric conditions could reduce the output of our facilities and lead to a loss of revenue from our offtakers.

In addition, rising ocean temperatures in the Atlantic Ocean may result in the intensification of hurricanes over time. If the frequency of more intense hurricanes increases in the Atlantic Ocean and Caribbean Sea, the likelihood of significant damage also increases, including in locations where we operate. After major events such as hurricanes, which can cause significant destruction to the power grid, our ability to access sites and facilities, obtain fuel and receive sufficient fuel supplies in order to provide power for stand-by generators is severely limited, and in many cases, is not possible for extended periods of time. Our ability to access ports in order to obtain relief and supplies for affected areas will also likely be significantly hampered for extended periods of time.

Regulatory changes may impose restrictions that adversely affect us or cause us to incur significant unplanned costs in modifying our business plans or operations.

We are subject to U.S. federal, state and local regulations and foreign government regulations, all of which are subject to change. As new laws and regulations are issued or discontinued, we may be required to materially modify our business plans or operations. We cannot be certain that we can do so in a cost effective manner. Our operations in the United States are subject to the Communications Act. The interpretation and implementation of the provisions of the Communications Act and the FCC rules implementing the Communications Act continue to be heavily debated and may have a material adverse effect on our business. Also, although comprehensive legislation has not yet been introduced, there have been indications that Congress may substantially revise the Telecommunications Act of 1996

and other regulations in the next few years. Our international operations are subject to similar regulations, the interpretation and implementation of which are also often debated, and which may have a material adverse effect on our business. Our interpretation of our obligations may differ from those of regulatory authorities. Both federal and state regulators, as well as international regulators, require us to pay various fees and assessments, file periodic reports and comply with various

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rules regarding our consumer marketing practices and the contents of our bills, on an on-going basis. If we fail to comply with these requirements, we may be subject to fines or potentially be asked to show cause as to why our licenses to provide service should not be revoked.

The loss of certain licenses could adversely affect our ability to provide wireless and broadband services.

In the United States, wireless licenses generally are valid for ten years from the effective date of the license, although recently-issued 600 MHz licenses were issued for a slightly longer initial term to account for the need for broadcast television incumbents to vacate the spectrum before the new wireless licensees could construct. Licensees may renew their licenses (including renewal of 600 MHz licenses) for additional ten year periods by filing renewal applications with the FCC. Our 600 MHz wireless licenses all expire in 2029. Our other wireless licenses in the U.S. expire between 2019 and 2030. We intend to renew our licenses expiring this year, and the renewal applications are subject to FCC review and are put out for public comment to ensure that the licensees meet their licensing requirements and comply with other applicable FCC mandates. Failure to file for renewal of these licenses or failure to meet any licensing requirements could lead to a denial of the renewal application and thus adversely affect our ability to continue to provide service in that license area. Furthermore, our compliance with regulatory requirements, such as E-911 and CALEA requirements, may depend on the availability of necessary equipment or software.

In our international markets, telecommunications licenses are typically issued and regulated by the applicable telecommunications ministry. The application and renewal process for these licenses may be lengthy, require us to expend substantial renewal fees, and/or be subject to regulatory or legislative uncertainty, such as we are experiencing in Guyana, as described above. Failure to comply with these regulatory requirements may have an adverse effect on our licenses or operations and could result in sanctions, fines or other penalties.

Rapid and significant technological changes in the telecommunications industry may adversely affect us.

Our industry faces rapid and significant changes in technology that directly impact our business, including the following:

- evolving industry standards;
- requirements resulting from changing regulatory regimes;
- the allocation of radio frequency spectrum in which to license and operate wireless services;
- ongoing improvements in the capacity and quality of digital technology;
- changes in end user requirements and preferences;
- convergence between video and data services;
- development of data and broadband capabilities and rapidly expanding demand for those capabilities
- migration to new generation services such as “5G” network technology;
- introduction of new telecom delivery platforms such as next generation satellite services, including SDN and IMS services; and.
- consolidation among service providers within the industry.

For us to keep pace with these technological changes and remain competitive, at a minimum we must continue to make significant capital expenditures to add to our networks’ capacity, coverage and technical capability. For example, we have spent considerable amounts adding higher speed and capacity mobile data services to many of our networks

in recent years and we think it likely that more such expenditures, including adding LTE mobile data and 5G fixed wireless access services technologies, will be needed over the next few years.

We cannot predict the effect of technological changes on our business. Alternative or new technologies may be developed that provide communications services superior to those available from us, which may adversely affect our business. For example, to accommodate the demand from our wireless customers for next generation advanced wireless products such as high speed data and streaming video, we may be required to purchase additional spectrum, however, we have had difficulty finding spectrum for sale or on terms that are acceptable to us. In addition, usage of wireless voice or broadband services in excess of our expectations could strain our capacity, causing service disruptions and

result in higher operating costs and capital expenditures. In each of our markets, providing more and higher speed data services through our wireless or wireline networks may require us to make substantial investments in additional telecommunications transport capacity connecting our networks to the Internet, and in some cases such capacity may not be available to us on attractive terms or at all. Failure to provide these services or to upgrade to new technologies on a timely basis and at an acceptable cost could have a material adverse effect on our ability to compete with carriers in our markets.

We rely on a limited number of key suppliers and vendors for timely supply of handsets, accessories, equipment and services relating to our network or Facility infrastructure. If these suppliers or vendors experience problems or favor our competitors, we could fail to obtain sufficient quantities of the products and services we require to operate our businesses successfully.

We depend on a limited number of suppliers and vendors for equipment and services relating to our handset lineup, network infrastructure, solar equipment and our back office IT systems infrastructure. If these suppliers experience interruptions or other problems delivering these network components and other equipment on a timely basis, our subscriber or revenue growth and operating results could suffer significantly.

We source wireless devices for our retail wireless businesses from a small number of handset resellers and to a lesser extent, equipment manufacturers and depend on access to compelling devices at reasonable prices on primary and secondary markets for these devices, as well as timely delivery of devices to meet market demands. The inability to provide a competitive device lineup could materially impact our ability to attract new customers and retain existing customers. We are also reliant upon a limited number of network equipment manufacturers, including Ericsson and Nokia and a limited number of solar equipment manufacturers, including GCL for photovoltaic modules and Satcon for inverters.

We are also dependent on the ability of our solar equipment manufacturers to fulfill the warranties on our solar equipment, which typically range from 5 to 25 years in length, in the event of equipment malfunction. If these suppliers cease operations or for some reason default on their warranties, we would have to bear the expense of repairing or replacing any faulty equipment. Our business, financial condition, results of operations and cash flows could be materially adversely affected if we cannot make claims under warranties covering our Facilities. If it becomes necessary to seek alternative suppliers and vendors, we may be unable to obtain satisfactory replacement suppliers or vendors on economically attractive terms on a timely basis.

Changes in our relationships with our vendors, changes in tax policy or trade relations, interruptions in our supply chain or increased commodity or supply chain costs could adversely affect our results of operations.

A number of our equipment suppliers and vendors are based outside the United States, with China serving as one of our primary non-U.S. sources for our international telecommunications and solar equipment. Because a large portion of our equipment is sourced, directly or indirectly, from outside the United States, major changes in tax policy or trade relations, such as the disallowance of tax deductions for imported products or the imposition of additional tariffs or duties on imported products, could adversely affect our business, results of operations, effective income tax rate, liquidity and net income.

We are actively evaluating investment, acquisition and other strategic opportunities, which may affect our long term growth prospects.

We actively evaluate acquisition, investment, business divestitures and combinations, and other strategic opportunities, both domestic and international, in telecommunications, energy related and other industries, including in areas that may not be seen by the broader market as timely today. We may focus on opportunities that we believe have

potential for long term organic and strategic growth or that may otherwise satisfy our return and other investment criteria. Any acquisition or investment that we might make outside of the telecommunications or solar industries would pose the risk inherent in our entering into a new, unrelated business, including the ability of our holding company management team to effectively oversee the management team of such operations. Similarly, there are risks inherent in

the sale of a business or assets, including the potential of a transaction's failing to close due to last minute negotiations, regulatory issues, or other unpredictable matters that can be costly and disruptive to our operations. There can be no assurance as to whether, when or on what terms we will be able to invest in, acquire or divest any businesses or assets or that we will be able to successfully integrate the business or realize the perceived benefits of any acquisition or strategic investment. Any such transactions may be accomplished through the payment of cash, issuance of shares of our capital stock or incurrence of additional debt, or a combination thereof. As of December 31, 2018, we had approximately $193.3 million in cash, cash equivalents, restricted cash, and short term investments and approximately $91.0 million of long term debt. How and when we deploy our balance sheet capacity will figure prominently in our longer term growth prospects and stockholder returns.

Increased competition may adversely affect growth, require increased capital expenditures, result in the loss of existing customers and decrease our revenues.

We face competition in the markets in which we operate. For example:

- In the United States, our greatest competitive risk to our wholesale wireless business is the possibility that our current roaming customers may elect to build or enhance their own networks within the rural markets in which we currently provide service, which is commonly known as "over building." If our roaming customers, who generally have greater financial resources and access to capital than we do, determine to over build our network, their need for our roaming services will be significantly reduced or eliminated.
- In Bermuda and the Caribbean, we compete primarily against Digicel, a large mobile telecommunications company in the Caribbean region, and other larger providers such as Liberty Global, a multinational telecommunications company.
- In our solar power business, we face competition from traditional utilities and renewable energy companies. Many of our competitors are larger with greater resources and are less dependent on third parties for the sourcing of equipment or operation and maintenance of their solar facilities.

Over the last decade, an increase in competition in many areas of the telecommunications industry has contributed to a decline in prices for communication services, including mobile wireless services, local and long distance telephone service and data services. Increased competition in the industry may further decrease prices. In addition, increased competition in the telecommunications and renewable energy industries could reduce our customer base, require us to invest in new facilities and capabilities and result in reduced revenues, margins and returns.

Our International Telecom segment operates mainly in island locations, where a limited number of providers maintain strong competition in these small markets. In several of our markets, we hold a dominant position as the local incumbent carrier and in others we may have a competitive advantage in our ability to bundle some combination of voice, data, video and wireless services. Increased competition, whether from new entrants or increased capital investment by our competitors in their existing networks, will make it more difficult for us to attract and retain customers in our small markets, which could result in lower revenue and cash flow from operating activities.

General economic factors, domestically and internationally, may adversely affect our business, financial condition and results of operations.

General economic factors could adversely affect demand for our products and services, require a change in the services we sell or have a significant impact in our operating costs. Energy costs are historically volatile and are subject to fluctuations arising from changes in domestic and international supply and demand, labor costs,

competition, market speculation, government regulations, or weather conditions. Rapid and significant changes in these and other commodity prices may affect our sales and profit margins. General economic conditions can also be affected by the outbreak of war, acts of terrorism, or other significant national or international events.

In addition, an economic downturn in markets in which we currently operate or in the global market may lead to slower economic activity, increased unemployment, concerns about inflation, decreased consumer confidence and other adverse business conditions that could have an impact on our businesses. For example, among other things

- a decrease in tourism could negatively affect revenues and growth opportunities from operations in the islands and in a number of areas covered by U.S. rural and wholesale wireless operations that serve tourist destinations;
- an increase in "bad debt", or the amounts that we have to write off of our accounts receivable could result from our inability to collect subscription fees from our subscribers; and
- we rely on the population of Guyanese living abroad who initiate calls to Guyana or are responsible for remittances to relatives living in Guyana. A prolonged economic downturn in the U.S. or Canadian economies could affect inbound calling and, therefore, our revenue in Guyana.

The impact, if any, that these events might have on us and our business, is uncertain.

Our operations are subject to economic, political, currency and other risks that could adversely affect our revenues or financial position.

Our operations may face adverse financial consequences and operational problems due to political or economic changes, such as changes in national or regional political or economic conditions, laws and regulations that restrict repatriation of earnings or other funds, or changes in foreign currency exchange rates. As new laws and regulations are issued or discontinued to implement an agenda set by the current U.S. administration, we may be required to materially modify our business plans or operations. Any of these changes could adversely affect our revenues or financial position.

In India in particular, our exposure to the fluctuation in the value of the rupee will have a direct impact on our ability to meet expected returns projected in U.S. dollars or make payment on any debt denominated in U.S. dollars. Any further currency fluctuation could have a material adverse impact on our ability to realize the returns we projected in making such investments.

Our ability to recruit and retain experienced management and technical personnel could adversely affect our results of operations and ability to maintain internal controls.

The success of our business depends on the ability of our executive officers and the officers of our operating units to develop and execute on our business plan, and to identify and pursue new opportunities and product innovations, as well as on our ability to attract and retain these officers and other highly qualified technical and management personnel. If our executive officers and the officers of our operating units are not able to execute on our business plan, this could adversely affect our business, financial condition and results of operations. Furthermore, we believe that there is, and will continue to be, strong competition for qualified personnel in the communications and energy industries and in our markets, and we cannot be certain that we will be able to attract and retain the personnel necessary for the development of our business. We rely heavily on local management to run our operating units. Many of the markets in which we operate are small and remote, making it difficult to attract and retain talented and qualified managers and staff in those markets. The loss of key personnel or the failure to attract or retain personnel with the sophistication to run complicated telecommunications or solar equipment, networks and systems could have a material adverse effect on our business, financial condition and results of operations. We do not currently maintain "key person" life insurance on any of our key employees and none of the executives at our parent company have executed employment agreements.

In addition, cultural differences abroad and local practices of conducting business in our foreign operations may not be in line with the business practices, recordkeeping and ethics standards in the United States. In order to continue to ensure compliance with foreign and U.S. laws, accounting standards and our own corporate policies, we have

implemented financial and operational controls, created an internal audit team responsible for monitoring and ensuring compliance with our internal accounting controls, and routinely train our employees, vendors and consultants. However, having substantial foreign operations also increases the complexity and difficulty of developing, implementing and

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monitoring these internal controls and procedures. If we are unable to manage these risks effectively, it could have a material adverse effect on our business, financial condition and results of operations.

Risks Related to Our Capital Structure

Our debt instruments include restrictive and financial covenants that limit our operating flexibility.

The credit facilities that we and our subsidiaries maintain include certain financial and other covenants that, among other things, restrict our ability to take specific actions, even if we believe such actions are in our best interest. These include restrictions on our ability to do the following:

- incur additional debt;
- create liens or negative pledges with respect to our assets;
- pay dividends or distributions on, or redeem or repurchase, our capital stock;
- make investments, loans or advances or other forms of payments;
- issue, sell or allow distributions on capital stock of specified subsidiaries;
- enter into transactions with affiliates; or
- merge, consolidate or sell our assets.

Any failure to comply with the restrictions of the credit facilities or any subsequent financing agreements may result in an event of default. Such default may allow our creditors to accelerate the repayment of the related debt and may result in the acceleration of the repayment of any other debt to which a cross acceleration or cross default provision applies. In addition, these creditors may be able to terminate any commitments they had made to provide us with further funds.

Our founder is our largest stockholder and will continue to exert significant influence over us.

Cornelius B. Prior, Jr., our founder and the father of our Chairman and Chief Executive Officer, together with related entities, affiliates and family members (including our Chairman and Chief Executive Officer), beneficially owns approximately 27% of our outstanding Common Stock. As a result, he is able to exert significant influence over all matters presented to our stockholders for approval, including election and removal of our directors and change of control transactions. His interests may not always coincide with the interests of other holders of our Common Stock.

Low trading volume of our stock may limit our stockholders ability to sell shares and/or result in lower sale prices.

For the three months prior to February 1, 2019, the average daily trading volume of our Common Stock was approximately 68,000 shares. As a result, our stockholders may have difficulty selling a large number of shares of our Common Stock in the manner or at a price that might be attainable if our Common Stock were more actively traded. In addition, the market price of our Common Stock may not be reflective of its underlying value.

We may not pay dividends in the future.

Our stockholders may receive dividends out of legally available funds if, and when, they are declared by our Board of Directors. We have consistently paid quarterly dividends in the past, but may cease to do so or decrease the dividend amount at any time. Our credit facility sets certain limitations on our ability to pay dividends on, or repurchase, our capital stock. We may incur additional indebtedness in the future that may further restrict our ability to declare and

pay dividends. We may also be restricted from paying dividends in the future due to restrictions imposed by applicable state laws, our financial condition and results of operations, capital requirements, management's assessment of future capital needs and other factors considered by our Board of Directors.

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ITEM 1B. UNRESOLVED STAFF COMMENTS

None.

ITEM 2. PROPERTIES

We lease approximately 21,000 square feet of office space at 500 Cummings Center, Beverly, MA 01915 for our corporate headquarters. Worldwide, we utilize the following approximate square footage of space for our operations:

Type of space	U.S. Telecom	International Telecom	Renewable Energy
Office	65,038	287,503	5,720
Retail stores	16,177	27,290	—
Technical operations	115,631	1,933,296	—

All of the above locations are leased except for the office and technical space within our International Telecom segment, which we own. As of December 31, 2018, we operated twelve retail stores in our U.S. Telecom segment and nineteen retail stores in our International Telecom segment.

Our offices and technical operations are in the following locations:

U.S. Telecom	International Telecom	Renewable Energy
Little Rock, AR	Georgetown, Guyana	Hyderabad, India
Castle Rock, CO	Bermuda	Singapore
Atlanta, GA	U.S. Virgin Islands	
	Cayman Islands	

Within our telecommunications operations, we globally own 277 towers, lease an additional 376 towers and have five switch locations within rented locations. In addition, our renewable energy operations own 52MW commercial solar projects at 5 sites. We consider our owned and leased properties to be suitable and adequate for our business operations.

ITEM 3. LEGAL PROCEEDINGS

Our Guyana subsidiary, Guyana Telephone & Telegraph, Ltd. (“GTT”) holds an exclusive license to provide domestic fixed services and international voice and data services in Guyana. The license, whose initial term of twenty years expired at the end of 2010, allowed for GTT at its sole option, to extend the term for an additional twenty years, until December 2030. GTT exercised its extension right, in accordance with the terms of its License and its agreement with the Government of Guyana, in November 2009.

In 2016, the Government of Guyana passed new telecommunications legislation introducing material changes to many features of Guyana’s existing telecommunications regulatory regime with the intention of introducing additional

competition into Guyana's telecommunications sector. The legislation that passed, however, has not yet been implemented and does not include a provision that permits other telecommunications carriers to receive licenses automatically upon signing of the legislation, nor does it have the effect of terminating the Company's exclusive license. Instead the legislation as passed requires the Minister of Telecommunications to conduct further proceedings and issue implementing orders to enact the various provisions of the legislation. We have met with the Government of Guyana, including as recently as December 2018 to discuss modifications of the Company's exclusivity rights and other rights under its existing agreement and license. However, there can be no assurance that those discussions will be concluded before the Government issues new licenses as contemplated by the legislation or at all, or that they will satisfactorily address our contractual exclusivity rights. Although the Company believes that it would be entitled to

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damages or other compensation for any involuntary termination of its contractual exclusivity rights, it cannot guarantee that the Company would prevail in a proceeding to enforce its rights or that its actions would effectively halt any unilateral action by the Government.

In November 2007, Caribbean Telecommunications Limited (“CTL”) filed a complaint in the U.S. District Court for the District of New Jersey against GTT and ATN claiming breach of an interconnection agreement for domestic cellular services in Guyana and related claims. CTL asserted over $200 million in damages. GTT and ATN moved to dismiss the complaint on procedural and jurisdictional grounds. On January 26, 2009, the court granted the motions to dismiss the complaint on the grounds asserted. In November 2009 and again in April 2013, CTL filed and then abandoned a similar claim against GTT and the PUC in the High Court of Guyana. CTL once more filed a similar claim against the Company in December 2017, seeking damages of $25 million; however, this matter was dismissed in May 2018. CTL made an untimely filing for an appeal thereafter, which the court subsequently denied. The Company continues to believe this claim is without merit and intends to vigorously defend against it.

On May 8, 2009, Digicel filed a lawsuit in Guyana challenging the legality of GTT’s exclusive license rights under Guyana’s constitution. Digicel initially filed this lawsuit against the Attorney General of Guyana in the High Court. On May 13, 2009, GTT petitioned to intervene in the suit in order to oppose Digicel’s claims and that petition was granted on May 18, 2009. GTT filed an answer to the charge on June 22, 2009, and the case is pending. We believe that any legal challenge to GTT’s exclusive license rights granted in 1990 is without merit, and we intend to vigorously defend against such a legal challenge.

GTT has filed several lawsuits in the High Court of Guyana asserting that Digicel is engaged in international bypass in violation of GTT’s exclusive license rights, the interconnection agreement between the parties, and the laws of Guyana. GTT is seeking injunctive relief to stop the illegal bypass activity and punitive damages caused thereby. Digicel filed counterclaims alleging that GTT has violated the terms of the interconnection agreement and Guyana laws. These suits, filed in 2010 and 2012, have been consolidated with Digicel’s constitutional challenge described above and is scheduled to proceed to trial in the second quarter of 2019. GTT intends to vigorously prosecute these matters.

GTT is also involved in several legal claims regarding its tax filings with the Guyana Revenue Authority dating back to 1991 regarding the deductibility of intercompany advisory fees as well as other tax assessments. Should GTT be held liable for any of the disputed tax assessments, totaling $44.1 million, the Company believes that the Government of Guyana would then be obligated to reimburse GTT for any amounts necessary to ensure that GTT’s return on investment was no less than 15% per annum for the relevant periods.

ITEM 4. MINE SAFETY DISCLOSURES

Not Applicable.

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PART II

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

Our Common Stock, $.01 par value, is listed on the Nasdaq Global Select Market under the symbol "ATNI." The number of holders of record of Common Stock as of February 28, 2019 was 87.

Issuer Purchases of Equity Securities in the Fourth Quarter of 2018

On September 19, 2016, our Board of Directors authorized the repurchase of up to $50.0 million of our common stock from time to time on the open market or in privately negotiated transactions (the "2016 Repurchase Plan"). As of December 31, 2018, we have $37.7 million remaining authorized to be repurchased under the 2016 Repurchase Plan.

The following table reflects the repurchases by the Company of its Common Stock during the quarter ended December 31, 2018:

Period	(a) Total Number of Shares Purchased (1)		(b) Average Price Paid per Share		(c) Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs	(d) Maximum Number (or Approximate Dollar Value) of Shares that May be Purchased Under the Plans or Programs
October 1, 2018 — October 31, 2018	11,479	(1)	$ 79.44	(1)	—	$ 37,690,086
November 1, 2018 — November 30, 2018	87,245	(2)	84.25	(2)		$ 37,690,086
December 1, 2018 — December 31, 2018	—		—		—	$ 37,690,086

(1) Consists of 11,479 shares purchased on October 2, 2018, October 6, 2018, October 19, 2018, and October 31, 2018 from our executive officers and other employees who tendered these shares to the Company to satisfy their tax withholding obligations incurred in connection with the exercise of stock options and the vesting of restricted stock awards at such date. These shares were not purchased under the plan discussed above. The price paid per share was the closing price per share of our Common Stock on the Nasdaq Stock Market on the date those shares were purchased

(2) Consists of 87,245 shares purchased on November 9, 2018, November 12, 2018 and November 30, 2018 from our executive officers and other employees who tendered these shares to the Company to satisfy their tax withholding obligations incurred in connection with the exercise of stock options and the vesting of restricted stock awards at such date. These shares were not purchased under the plan discussed above. The price paid per share was the closing price per share of our Common Stock on the Nasdaq Market on the date those shares were purchased

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Stock Performance Graph

The graph below matches ATN International's cumulative 5-Year total shareholder return on common stock with the cumulative total returns of the Russell 2000 index, the S&P Smallcap 600 index, and the NASDAQ Telecommunications index. The graph tracks the performance of a $100 investment in our common stock and in each index (with the reinvestment of all dividends) from 12/31/2013 to 12/31/2018.

	12/13	12/14	12/15	12/16	12/17	12/18
ATN International	100.00	121.70	143.24	149.34	104.64	136.92
Russell 2000	100.00	104.89	100.26	121.63	139.44	124.09
S&P Smallcap 600	100.00	105.76	103.67	131.20	148.56	135.96
NASDAQ Telecommunications	100.00	102.75	100.20	106.61	130.48	130.76

The stock price performance included in this graph is not necessarily indicative of future stock price performance

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ITEM 6. SELECTED FINANCIAL DATA

You should read the selected financial data in conjunction with our "Management's Discussion and Analysis of Financial Condition and Results of Operations" and our Consolidated Financial Statements for the years ended December 31, 2018, 2017 and 2016 and the related Notes to those Consolidated Financial Statements included in this Report. The historical results set forth below are not necessarily indicative of the results of future operations. Period to period comparisons are also significantly affected by our significant acquisitions. See Notes 5 to the Consolidated Financial Statements included in this Report for a more detailed discussion of our recent acquisitions and discontinued operations.

The selected Consolidated Income Statement data for the years ended December 31, 2018, 2017 and 2016 and the selected Consolidated Balance Sheet data as of December 31, 2018 and 2017 are derived from our Consolidated Financial Statements beginning on page F-1 of this Annual Report on Form 10-K. The selected Consolidated Income Statement data for the years ended December 31, 2015 and 2014 and the selected Consolidated Balance Sheet data as of December 31, 2016, 2015 and 2014 are derived from our Consolidated Financial Statements not included in this Annual Report on Form 10-K.

	Year ended December 31,				
	2018	2017	2016	2015	2014
	(In thousands, except per share data)				
Income Statement Data					
Revenue	$ 451,207	$ 481,193	$ 457,003	$ 355,369	$ 336,347
Operating expenses	390,184	425,885	405,733	276,774	250,771
Income from operations	61,023	55,308	51,270	78,595	85,576
Other income (expense):					
Interest income	1,811	1,613	1,239	588	788
Interest expense	(7,973)	(8,838)	(5,362)	(3,180)	(1,208)
Other, net(1)	(1,119)	(530)	(1,773)	(19,802)	1,012
Other income (expense), net	(7,281)	(7,755)	(5,896)	(22,394)	592
Income from continuing operations before income taxes	53,742	47,553	45,374	56,201	86,168
Income (benefit) provisions	18,870	(1,341)	21,160	24,137	28,148
Income from continuing operations	34,872	48,894	24,214	32,064	58,020
Income from discontinued operations, net of tax	—	—	—	1,092	1,102
Net income	34,872	48,894	24,214	33,156	59,122
Net income attributable to non controlling interests, net of tax	(15,057)	(17,406)	(12,113)	(16,216)	(10,970)
Net income attributable to ATN International, Inc. Stockholders	$ 19,815	$ 31,488	$ 12,101	$ 16,940	$ 48,152
Net income per weighted average basic share attributable to ATN International, Inc. Stockholders:					
Continuing operations	1.24	1.95	0.75	0.99	2.96
Discontinued operations	—	—	—	0.07	0.07
Total	1.24	1.95	0.75	1.06	3.03
Net income per weighted average diluted share attributable to ATN					

International, Inc. Stockholders:					
Continuing operations	1.24	1.94	0.75	0.98	2.94
Discontinued operations	—	—	—	0.07	0.07
Total	1.24	1.94	0.75	1.05	3.01
Dividends per share applicable to common stock	0.68	1.02	1.32	1.22	1.12

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	2018	2017	2016	2015	2014
	(In thousands)				
Balance Sheet Data (as of December 31,):					
Cash, restricted cash, and short term investments	$ 193,300	$ 226,966	$ 297,595	$ 398,346	$ 371,394
Assets of discontinued operations	—	—	—	—	175
Working capital	135,116	181,223	217,264	384,137	347,305
Fixed assets, net	626,852	643,146	647,712	373,503	369,582
Total assets	1,107,304	1,205,605	1,198,218	945,004	925,030
Short term debt (including current portion of long term debt)	4,688	10,919	12,440	6,284	6,083
Liabilities of discontinued operations	—	—	—	—	1,247
Long term debt, net	86,294	144,873	144,383	26,575	32,794
ATN International, Inc. stockholders' equity	695,387	688,727	677,055	680,299	677,222
Statement of Cash Flow Data (for the years ended December 31,):					
Net cash provided by (used in):					
Operating activities:					
Continuing operations	$ 115,865	$ 145,725	$ 111,656	$ 139,079	$ 82,699
Discontinued operations	—	—	—	158	(4,719)
Investing activities:					
Continuing operations	(87,319)	(172,318)	(296,580)	(31,971)	(74,467)
Discontinued operations	—	—	—	—	—
Financing activities:					
Continuing operations	(55,230)	(42,101)	75,334	(41,438)	(33,904)
Discontinued operations	—	—	—	—	—
Capital expenditures	(185,921)	(142,371)	(124,282)	(64,753)	(58,300)

(1) During the year ended December 31, 2015, the Company recognized a loss on the deconsolidation of a subsidiary.

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

Overview

We are a holding company that, directly and through our subsidiaries, owns and operates telecommunications and renewable energy businesses in North America, India, Bermuda and the Caribbean. We were incorporated in Delaware in 1987, began trading publicly in 1991 and spun off more than a half of our operations to stockholders in 1998. Since that time, we have engaged in many strategic acquisitions and investments to help grow our operations, using the cash generated from our established operating units to re-invest in our existing businesses and to make strategic investments in earlier stage businesses. We look for businesses that offer growth opportunities or potential strategic benefits, but that require additional capital investment in order to execute on their business plans. We hold controlling positions with respect to some of our investments and minority positions in others. These strategic investments frequently offer a product and service development component in addition to the prospect of generating returns on our invested capital. For a discussion of the risks involved in our investment strategy, see "Risk Factors—We are actively evaluating investment, acquisition and other strategic opportunities, which may affect our long term growth prospects." We have identified three operating segments to manage and review our operations, and to facilitate investor presentations of our results, as follows:

- U.S. Telecom. In the United States, we offer wireless and wireline services. We offer wholesale wireless voice and data roaming services to national, regional, local and selected international wireless carriers in rural markets located principally in the Southwest and Midwest United States. We also provide retail wireless, wireline services and wholesale long distance voice services to telecommunications carriers in the areas in which we offer wireline services.

- International Telecom. Our international wireless services include voice and data services to retail customers in Bermuda, Guyana and the U.S. Virgin Islands. Our international wireline services include voice and data services in Bermuda, the Cayman Islands, Guyana and the U.S. Virgin Islands, as well as video services in Bermuda, the Cayman Islands, and the U.S Virgin Islands. In addition, we offer wholesale long distance voice services to other telecommunications carriers in the countries in which we offer international wireline services.

- Renewable Energy. In India, we provide distributed generation solar power to corporate, utility and municipal customers. Through November 6, 2018, we also provided distributed generation solar power in the United States in Massachusetts, California and New Jersey.

The following chart summarizes the operating activities of our principal subsidiaries, the segments in which we report our revenue and the markets we served as of December 31, 2018:

Segment	Services	Markets	Tradenames
U.S. Telecom	Wireless	United States (rural markets)	Choice, Choice NTUA Wireless, Commnet, WestNet, Geoverse
	Wireline	United States	Essextel, Deploycom
International Telecom	Wireline	Bermuda, Cayman Islands, Guyana, U.S. Virgin Islands	Fireminds, GTT+, One, Logic, Viya
	Wireless	Bermuda, Guyana, U.S. Virgin Islands	GTT+, One, Viya

	Video Services	Bermuda, Cayman Islands, U.S. Virgin Islands	Logic, One, Viya
Renewable Energy	Solar	India	Vibrant Energy

We actively evaluate potential acquisitions, investment opportunities and other strategic transactions, both domestic and international, that meet our return on investment and other criteria. In addition, we consider non-

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controlling investments in earlier stage businesses that we consider strategically relevant, and which may offer long-term growth potential for us, either individually, or as research and development businesses that can support our operating subsidiaries in new product and service development and offerings. We provide management, technical, financial, regulatory, and marketing services to our subsidiaries and typically receive a management fee equal to a percentage of their revenues, which is eliminated in consolidation. For information about our financial segments and geographical information about our operating revenues and assets see Notes 1 and 16 to the Consolidated Financial Statements included in this Report.

Acquisitions

U.S. Telecom

In July 2016, we acquired certain telecommunications fixed assets and the associated operations in the western United States. Results of operations for the business are included in the U.S. Telecom segment and are not material to our historical results of operations.

International Telecom

During 2016, we completed the acquisitions of One Communications and Viya (the "2016 International Telecom Acquisitions").

One Communications (formerly KeyTech Limited)

On May 3, 2016, we completed our acquisition of a controlling interest in One Communications Ltd. (formerly known as KeyTech Limited, "One Communications"), a publicly held Bermuda company listed on the Bermuda Stock Exchange ("BSX") that provides broadband and video services and other telecommunications services to residential and enterprise customers in Bermuda and the Cayman Islands (the "One Communications Acquisition").

Viya (formerly Innovative)

On July 1, 2016, we completed an acquisition of all of the membership interests of Caribbean Asset Holdings LLC ("CAH"), the holding company for the group of companies operating video services, Internet, wireless and landline services in the U.S. Virgin Islands, British Virgin Islands and St. Maarten (collectively, "Viya") (the "Viya Transaction"). In April 2017, the U.S. Virgin Islands operations and our existing wireless operations rebranded their tradenames from "Innovative" and "Choice", respectively, to "Viya." Subsequent to the Viya Transaction, we sold the acquired businesses in St. Maarten and the British Virgin Islands, as further described in "Dispositions" below.

Renewable Energy

Vibrant Energy

On April 7, 2016, we completed our acquisition of a solar power development portfolio in India (the "Vibrant Energy Acquisition"). The business operates under the name Vibrant Energy. We also retained several employees in India who are employed by us to oversee the development, construction and operation of Indian solar projects. These projects are initially located in the states of Andhra Pradesh and Telangana and are based on a commercial and industrial business model, similar to the operating model we followed for our renewable energy operations in the United States, which we sold in November 2018.

Platform and Minority Investments

U.S. Telecom

During the second quarter of 2018, we invested in a new platform, based in the United States, to develop in-building wireless network technology that enables building owners to capitalize on the growing demand for better indoor

wireless solutions. Also during the second quarter of 2018, we provided funding for another new platform, based in the United States, seeking to "build to suit" large scale fiber networks to serve the telecommunications and content provider industries in need of lower latency long haul fiber transit services.

International Telecom

In 2017, we completed our investment in a technology solutions business based in Bermuda that provides a variety of cloud-based managed services and information technology solutions for enterprise hosted software applications.

In 2017 we also made a minority investment in an Australian-based tower operator.

Dispositions

U.S. Telecom

On March 8, 2017, we completed the sale of our integrated voice and data communications and wholesale transport businesses in New England and New York for consideration of $25.9 million (the "Sovernet Transaction"). The consideration included $20.9 million of cash, $3.0 million of receivables and $2.0 million of contingent consideration. The contingent consideration represented the fair value of payments related to certain operational milestones of the disposed assets. The value of the contingent consideration was up to $4.0 million based on whether or not certain operational milestones were achieved by December 31, 2017. In September 2017, based on progress toward achieving the operational milestones, and the December 31, 2017 deadline under which to do so, management determined that earning the contingent consideration was unlikely. As a result, the fair value of the contingent consideration was reduced to zero. The amount was recorded as a loss on disposition of assets within operating income during the year ended December 31, 2017. This disposition does not qualify as discontinued operations because the disposition did not represent a strategic shift that has a major effect on our operations and financial results.

International Telecom

On August 18, 2017, we completed the sale of the Viya cable operations located in the British Virgin Islands.

On January 3, 2017, we completed the sale of the Viya cable operations located in St. Maarten.

On December 15, 2016, we transferred control of our subsidiary in Aruba to another stockholder in a nonreciprocal transfer.

These dispositions do not qualify as discontinued operations because the dispositions did not represent a strategic shift that had a major effect on our operations and financial results.

Renewable Energy (U.S. Operations)

On November 6, 2018, we completed the sale of our U.S. solar business that owned and managed distributed generation solar power projects operated under the Ahana name in Massachusetts, California and New Jersey (the "U.S. Solar Operations"). The transaction had a total value of approximately $122.6 million, which included a cash purchase price of $65.3 million and the assumption of approximately $57.3 million in debt, and is subject to certain other post-closing adjustments (the "U.S. Solar Transaction"). Approximately $6.5 million of the purchase price will be held in escrow for a period of twelve months after the closing to secure our indemnification obligations. We recorded a gain of $12.4 million upon the completion of the sale.

The U.S. Solar Transaction does not qualify as a discontinued operation because the disposition does not represent a strategic shift that has a major effect on our operations and financial results.

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Universal Service Fund

The Federal Universal Service Fund ('USF') is a subsidy program managed by the FCC. USF funds are disbursed to telecommunication providers through four programs: the High Cost Program; Low Income Program; Schools and Libraries Program ("E-Rate"); and Rural Health Care Program. We participate in High Cost Program, Low Income Program, Schools and Libraries Programs, and Rural Health Care Support programs as further described below. All of the funding programs are subject to certain operational and reporting compliance requirements. We believe we are in compliance will all applicable requirements.

The FCC's Mobility Funds and Connect America Funds are administered through the High Cost Program. The High-Cost Support program subsidizes telecommunications services in rural and remote areas. The FCC created the Phase I Mobility Fund ("Phase I Mobility Fund"), a one-time award meant to support wireless coverage in underserved geographic areas in the United States.

We received $21.1 million of Phase I Mobility Fund support to our wholesale wireless business (the "Mobility Funds") to be used to expand voice and broadband networks in certain geographic areas in order to offer either 3G or 4G service. Of these funds, $7.2 million was recorded as an offset to the cost of the property, plant, and equipment associated with these projects and, consequentially, a reduction of future depreciation expense. The remaining $13.9 million received offset operating expenses from inception of the program through part of the third quarter of 2018. The Mobility Funds projects and their operating results are included within our U.S. Telecom segment. As part of the receipt of the Mobility Funds, we committed to comply with certain additional FCC construction and other requirements. If the requirements are not met the funds may be subject to claw back provisions. We currently expect to comply with all applicable requirements related to these funds.

During the years ended December 31, 2018, 2017 and 2016, we recorded $16.5 million, $16.5 million, and $8.2 million, respectively, of revenue from High Cost Support in our International Telecom segment for our U.S. Virgin Islands operations. Also, during each year ended December 31, 2018, 2017 and 2016, we recorded $1.2 million of High Cost Support revenue in our US Telecom segment. We are subject to certain operational, reporting and construction requirements as a result of this funding and we believe that we are in compliance with all of these requirements. In addition, we recorded revenue of $15.5 million during the year ended December 31, 2018, from additional funding authorized by the FCC following the Hurricanes.

In August 2018, we were awarded $79.9 million over 10 years under the Connect America Fund Phase II Auction. The funding requires we to provide fixed broadband and voice services to certain eligible areas in the United States. We are subject to operational and reporting requirements under the program. We determined the award is a revenue grant and as a result will record the funding as revenue upon receipt. We expect to begin receiving funds under the Connect America Fund Phase II program during mid-2019.

The E-Rate program provides discounted telecommunication access to eligible schools and libraries. The E-Rate program awards (i) special construction funding to build network connectivity for eligible participants, and (ii) pays for discounted recurring charges for eligible broadband services. The special construction funding is used to reimburse construction costs and is distributed upon completion of a project. As of December 31, 2018, we were awarded approximately $15.4 million of E-Rate grants with construction completion obligations between June 2019 and June 2020. Once these projects are constructed we are obligated to provide service to the E-Rate program participants. We are in various stages of constructing the networks and have not received any of the funds. We expect to meet all requirements associated with these grants.

We also receive funding to provide discounted telecommunication services to eligible customers under the E-Rate, Lifeline, and Rural Health Care Support Programs. During the years ended December 31, 2018, 2017, and 2016 we recorded revenue of $8.2 million, $10.2 million, and $11.0 million, respectively, in the aggregate from these programs. We are subject to certain operational and reporting requirements under the above mentioned programs and we believe that we are in compliance with all of these requirements.

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Tribal Bidding Credit

As part of the broadcast television spectrum incentive auction, the FCC implemented a tribal lands bidding credit to encourage deployment of wireless services utilizing 600 MHz spectrum on the lands of federally recognized tribes. We received a bidding credit of $7.4 million under this program in 2018. A portion of these funds will be used to offset network capital costs and a portion will be used to offset the costs of supporting the networks. Our current estimate is that we will use $5.4 million to offset capital costs and, consequently, reduce future depreciation expense and $2.0 million to offset the cost of supporting the network which will reduce future operating expense. The credits are subject to certain requirements, including deploying service by January 2021 and meeting minimum coverage metrics. If the requirements are not met the funds may be subject to claw back provisions. We currently expect to comply with all applicable requirements related to these funds.

Impact of Hurricanes

During September 2017, the economy, our customer base and our operations in the U.S. Virgin Islands were severely impacted by Hurricanes Irma and Maria (collectively, the “Hurricanes”). Both our wireless and wireline networks and commercial operations were severely damaged by these storms. As a result of the significant damage to our wireline network and the lack of consistent commercial power in the territory, we were unable to provide most of our wireline services, which comprise the majority of our revenue in this business, after the Hurricanes and through a majority of 2018.

During the year ended December 31, 2017, we recorded a net pre-tax loss within our consolidated statement of operations of $4.0 million. This loss consisted of $35.4 million for the write off of damaged assets, net of insurance recoveries of $34.6 million, for which we received the proceeds in February 2018. This loss also included $3.2 million of additional operating expenses that we specifically incurred to address the impact of the Hurricanes.

During the year ended December 31, 2018, we received $15.5 million in additional funding from the Federal Communications Commission’s (“FCC”) Universal Service Fund (“USF”) to further subsidize our operations in the U.S. Virgin Islands that was recorded as revenue. This level of additional funding is not expected to continue in future periods.

During the years ended December 31, 2017 and 2018, we spent $8.6 million and $80.2 million, respectively, for network restoration and resiliency enhancements that allowed the reconnection of a significant majority of affected households and businesses as of the period end. We expect that our wireline network restoration work is substantially complete, however, returning our revenue to pre-Hurricane levels may take significant time as a result of population movements, the economic impact the Hurricanes had on the market, and our subscriber base’s appetite for continued wireline services.

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Selected Segment Financial Information

The following represents selected segment information for the years ended December 31, 2018 and 2017 (in thousands):

For the Year Ended December 31, 2018

	U.S. Telecom	International Telecom	Renewable Energy	Corporate and Other (1)	Consolidated
Revenue					
Wireless	$ 108,878	$ 89,946	$ —	$ —	$ 198,824
Wireline	6,602	223,623	—	—	230,225
Renewable Energy	—	—	22,158	—	22,158
Total Revenue	115,480	313,569	22,158	—	451,207
Operating income (loss)	36,813	45,022	13,440	(34,252)	61,023

For the Year Ended December 31, 2017

	U.S. Telecom	International Telecom	Renewable Energy	Corporate and Other (1)	Consolidated
Revenue					
Wireless	$ 143,028	$ 89,473	$ —	$ —	$ 232,501
Wireline	12,695	215,132	—	—	227,827
Renewable Energy	—	—	20,865	—	20,865
Total Revenue	155,723	304,605	20,865	—	481,193
Operating income (loss)	55,317	28,308	5,179	(33,496)	55,308

(1) Reconciling items refer to corporate overhead costs and consolidating adjustments

A year-to-date comparison of our segment results is as follows:

U.S. Telecom. Revenue within our U.S. Telecom segment decreased by $40.2 million, or 25.8%, to $115.5 million from $155.7 million for the years ended December 31, 2018 and 2017, respectively.

Revenue within our wireless operations decreased by $34.1 million, or 23.8%, to $108.9 million from $143.0 million for the years ended December 31, 2018 and 2017, respectively. All of this decrease was attributable to our wholesale wireless operations which had its revenue negatively impacted by $9.6 million relating to the July 2018 sale of 100 cell sites with the remaining $24.5 million decrease resulting from a reduction in wholesale roaming rates, reduced roaming traffic, and the impact of contractual revenue caps with certain carriers. Revenue from our retail wireless operations remained unchanged at $18.1 million for the years ended December 31, 2018 and 2017.

Revenue within our wireline operations decreased by $6.1 million, or 48.0%, to $6.6 from $12.7 for the years ended December 31, 2018 and 2017, respectively. The impact of the Sovernet Transaction resulted in a decrease in revenue of $4.2 million. In addition, a decline in traffic volumes within our wholesale long-distance services resulted in a decrease of $1.9 million in that business.

Operating expenses within our U.S. Telecom segment decreased $19.4 million, or 19.3%, to $81.0 million from $100.4 million for the years ended December 31, 2018 and 2017, respectively. This decrease in operating expenses was primarily related to the July 2018 sale of 100 cell sites and the related $15.2 gain recognized on such transaction as well as a $4.0 million decrease related to the Sovernet Transaction.

As a result of the above, our U.S. Telecom segment's operating income decreased $18.5 million, or 33.5%, to $36.8 million from $55.3 million for the years ended December 31, 2018 and 2017, respectively.

International Telecom. Revenues within our International Telecom segment increased $9.0 million, or 3.0%, to $313.6 million from $304.6 million for the years ended December 31, 2018 and 2017, respectively.

During the year ended December 31, 2018, we received $15.5 million in additional funding from the Federal Communications Commission's ("FCC") Universal Service Fund ("USF") to further subsidize our operations in the U.S. Virgin Islands that was recorded as revenue. This level of additional funding is not expected to continue in future periods. The impact of this additional funding on our revenues was offset by the impact of the Hurricanes and the sale of our operations in the British Virgin Islands in August 2017 which reported $3.1 million of revenue during the year ended December 31, 2017.

An increase in broadband revenues and the addition of our new managed services and technology platform, which began operations in September 2017, increased our revenues within the International Telecom market.

Operating expenses within our International Telecom segment decreased by $7.7 million, or 2.8%, to $268.6 million from $276.3 million for the years ended December 31, 2018 and 2017, respectively. The decrease was primarily the result of a $3.2 million reduction in hurricane-related expenses (including a loss on damaged assets and other hurricane-related charges, net of insurance recovery) and a $3.8 million reduction in television programming and other variable costs that were not incurred as a result of the impact of the Hurricanes.

As a result, our International Telecom segment's operating income increased $16.7 million, or 59.0%, to $45.0 million from $28.3 million for the years ended December 31, 2018 and 2017, respectively.

Renewable Energy. Revenue within our Renewable Energy segment increased $1.3 million, or 6.2%, to $22.2 million from $20.9 million for the year ended December 31, 2018 and 2017, respectively, primarily as a result of a $3.2 million increase in revenue from our newly completed solar power plants in India partially offset by a $1.9 million decrease in revenue in our U.S. operations primarily as a result of the U.S. Solar Transaction.

Operating expenses within our Renewable Energy segment decreased by $6.9 million, or 43.9%, to $8.8 million from $15.7 million for the years ended December 31, 2018 and 2017, respectively, primarily related to the $11.9 million gain on the U.S. Solar Transaction.

As a result of the above, our Renewable Energy segment's operating income increased by $8.2 million, or 157.7%, to $13.4 million from $5.2 million for the years ended December 31, 2018 and 2017, respectively.

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The following represents a year over year discussion and analysis of our results of operations for the years ended December 31, 2018 and 2017 (in thousands):

	Year Ended December 31, 2018	2017	Amount of Increase (Decrease)	Percent Increase (Decrease)	
REVENUE:					
Wireless	$ 198,824	$ 232,501	$ (33,677)	(14.5)	%
Wireline	230,225	227,827	2,398	1.1	
Renewable Energy	22,158	20,865	1,293	6.2	
Total revenue	451,207	481,193	(29,986)	(6.2)	
OPERATING EXPENSES (excluding depreciation and amortization unless otherwise indicated):					
Termination and access fees	114,478	120,624	(6,146)	(5.1)	
Engineering and operations	73,031	74,614	(1,583)	(2.1)	
Sales, marketing and customer services	35,207	35,184	23	0.1	
General and administrative	104,267	102,294	1,973	1.9	
Transaction-related charges	2,642	1,009	1,633	161.8	
Restructuring charges	515	1,169	(654)	(55.9)	
Depreciation and amortization	85,719	86,934	(1,215)	(1.4)	
(Gain) loss on disposition of long-lived assets	(26,425)	101	(26,526)	(26,263.4)	
Loss on damaged assets and other hurricane related charges, net of insurance recovery	750	3,956	(3,206)	(81.0)	
Total operating expenses	390,184	425,885	(35,701)	(8.4)	
Income from operations	61,023	55,308	5,715	10.3	
OTHER INCOME (EXPENSE):					
Interest income	1,811	1,613	198	12.3	
Interest expense	(7,973)	(8,838)	865	(9.8)	
Loss on deconsolidation of subsidiary	—	(529)	529	(100.0)	
Other expense, net	(1,119)	(1)	(1,118)	(100.0)	
Other expense, net	(7,281)	(7,755)	474	(6.1)	
INCOME BEFORE INCOME TAXES	53,742	47,553	6,189	13.0	
Income tax expense (benefit)	18,870	(1,341)	20,211	(1,507.2)	
NET INCOME	34,872	48,894	(14,022)	(28.7)	
Net income attributable to non-controlling interests, net of tax:	(15,057)	(17,406)	2,349	(13.5)	
NET INCOME ATTRIBUTABLE TO ATN INTERNATIONAL, INC. STOCKHOLDERS	$ 19,815	$ 31,488	$ (11,673)	(37.1)	%

Wireless revenue. Our wireless revenue consists of wholesale revenue generated within our U.S. Telecom segment and retail revenue generated within both our U.S. Telecom and International Telecom segments. Within our International Telecom segment, wireless revenue is generated in Bermuda and the Caribbean (including the U.S. Virgin Islands).

Wholesale wireless revenue. Our U.S. Telecom segment generates wholesale wireless revenue from providing mobile voice and data services to the customers of other wireless carriers, the provision of network switching services and certain transport services using our wireless networks. Wholesale wireless revenue is primarily driven by the number of sites and base stations we operate, the amount of voice and data traffic from the subscribers of other carriers that each of these sites generates and the rates we are paid from our carrier customers for carrying that traffic as well as tower rental income.

The most significant competitive factor we face in our U.S. Telecom's wholesale wireless business is the extent to which our carrier customers choose to roam on our networks or elect to build or acquire their own infrastructure in a

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market, reducing or eliminating their need for our services in those markets. Occasionally, we have entered into buildout projects with existing carrier customers to help the customer accelerate the buildout of a given area. Pursuant to these arrangements, we agree to incur the cost of building and operating a network in a newly designated area meeting specified conditions. In exchange, the carrier agrees to lease us spectrum in that area and enter into a contract with specific pricing and terms. Historically, these arrangements typically have included a purchase right in favor of the carrier to purchase that portion of the network for a predetermined price, depending on when the right to purchase is exercised. In July 2018, we completed the previously disclosed sale of approximately 100 cell sites which, under one of these arrangements, generated approximately $4.3 million and $13.9 million of wholesale wireless revenue during the years ended December 31, 2018 and 2017, respectively. We received no additional cash proceeds at closing as the cash proceeds were previously received and deferred under our revenue arrangement.

Retail wireless revenue. Both our U.S. Telecom and International Telecom segments generate retail wireless revenues by providing mobile voice and data services to our subscribers. Retail wireless revenues also include roaming revenues generated by other carriers' customers roaming into our retail markets and wireless equipment sales, primarily handsets and data modems, as well as real estate rental income.

Wireless revenue decreased by $33.7 million, or 14.5%, to $198.8 million for the year ended December 31, 2018 from $232.5 million for the year ended December 31, 2017. The decreases in wireless revenue, within our segments, consisted of the following:

· U.S. Telecom. Wireless revenue within our U.S. Telecom segment decreased by $34.1 million, or 23.8%, to $108.9 million from $143.0 million, for the years ended December 31, 2018 and 2017, respectively. Of this decrease, $34.1 million represented a decrease in wholesale wireless revenue, which was a 27.3% decrease to $90.8 million from $124.9 million for the years ended December 31, 2018 and 2017, respectively. Of this decrease in wholesale wireless revenue, $9.6 million was related to the July 2018 sale of 100 cell sites with the remaining decrease a result of a reduction in wholesale roaming traffic, roaming rates and the impact of contractual revenue caps with certain carrier customers. Wireless revenue within our U.S. Telecom's retail operations remained unchanged at $18.1 million for the years ended December 31, 2018 and 2017.

· International Telecom. Within our International Telecom segment, wireless revenue increased by $0.4 million, or 0.4%, to $89.9 million for the year ended December 31, 2018 from $89.5 million for the year ended December 31, 2017. This increase was primarily related to an increase in voice and data traffic within most of our international markets partially offset by a $2.9 million decrease in revenues in the U.S. Virgin Islands which was negatively impacted by the Hurricanes.

We expect wholesale wireless revenue within our U.S. Telecom segment to continue to decline and margins to contract as a result of a reduction in wholesale roaming traffic, previously disclosed contracts that significantly reduce rates and impose revenue caps. Wholesale wireless revenue was also negatively impacted by the July 2018 sale of 100 cell sites. As such, we expect that capital expenditures in this segment will be significantly lower going forward. While we are facing lower revenue as a result of the renegotiated roaming arrangements, we believe that maintaining roaming arrangements favorable to our carrier customers allows us to preserve wholesale revenue for a

longer period of time while creating potential for a long lived shared infrastructure solution for carriers in areas they may consider to be non-strategic.

We expect wireless revenues within our International Telecom segment to increase as we invest in upgrading our networks and service offerings. Growth in revenue from anticipated subscriber growth in certain markets may be somewhat offset by a decline in roaming revenues due to lower negotiated roaming rates received from our carrier customers. Roaming revenues in these markets are also subject to seasonality and can fluctuate between quarters.

Wireline revenue. Wireline revenue is generated by our U.S. Telecom and International Telecom segments. Within our U.S. Telecom segment, wireline revenue is generated by our wholesale long-distance voice services to telecommunications carriers. Within our International Telecom segment, wireline revenue is generated in Bermuda and the Caribbean (including the U.S. Virgin Islands) and includes internet, voice, and video service revenues as well as revenues from our new managed services and technology business.

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Wireline revenue increased by $2.4 million, or 1.1%, to $230.2 million from $227.8 million for the years ended December 31, 2018 and 2017, respectively. The changes in wireline revenue, within our segments, consisted of the following:

· U.S. Telecom. Wireline revenue decreased within our U.S. Telecom segment by $6.1 million, or 48.0%, to $6.6 million from $12.7 million, for the years ended December 31, 2018 and 2017, respectively, primarily due to the Sovernet Transaction which resulted in a $4.2 million reduction in wireline revenue. The remainder of the decrease relates to a decrease in traffic volume within our wholesale long-distance voice services operations.

· International Telecom. Within our International Telecom segment, wireline revenue increased by $8.5 million, or 4.0%, to $223.6 million from $215.1 million, for the years ended December 31, 2018 and 2017, respectively. Within the U.S. Virgin Islands, revenue decreased by $0.6 million, net of the $15.5 million of additional support from the USF, as a result of the Hurricanes. In other international markets, we recognized an increase in broadband data revenues as a result of subscriber growth.

Within our International Telecom segment, we anticipate that wireline revenue may increase (excluding the impact of the additional $15.5 million of USF funding received during 2018) in the next few quarters as we continue to recover from the impact of the Hurricanes in the U.S. Virgin Islands. However, returning revenues to levels reported prior to the Hurricanes will take longer, or may never occur, as a result of the damage caused by the Hurricanes to the economy of the U.S. Virgin Islands and our customer base in that market. In all of our international markets we may incur a decline in video revenues as a result of subscribers using alternative methods to receive video content. We anticipate that wireline revenue from our international long distance business in Guyana will continue to decrease as consumers seek to use alternative technology services to place calls as well as a result of the loss of market share should we cease to be the exclusive provider of domestic fixed and international long distance service in Guyana, whether by reason of the Government of Guyana implementing recently-passed legislation or new regulations or the lack of enforcement of our exclusive rights. While the loss of our exclusive rights will likely cause an immediate reduction in our wireline revenue, over the longer term such declines may be offset by increased revenue from broadband services to consumers and enterprises in Guyana or an increase in regulated local calling rates in Guyana. We currently cannot predict when or if the Government of Guyana will take any action to implement such legislation or any other action that would otherwise affect our exclusive rights in Guyana. See Note 14 to the Consolidated Financial Statements included in this Report.

Renewable energy revenue. Our Power Purchase Agreements (“PPAs”), which are typically priced at or below local retail electricity rates and allow our customers to secure electricity at predictable and stable prices over the duration of their long-term contract, provide us with high-quality contracted cash flows. Internationally, renewable energy revenue includes the generation of power through PPAs from our solar plants in India. In the United States, until the sale of those operations on November 6, 2018, renewable energy revenue represented revenue from the sale of electricity through PPAs and the sale of Solar Renewable Energy Credits (“SRECs”). During the years ended December 31, 2018 and 2017, our renewable energy operations within the United States generated $16.8 million and $18.7 million of revenue, respectively.

Renewable energy revenue increased by $1.3 million, or 6.2%, to $22.2 million from $20.9 million for the years ended December 31, 2018 and 2017, respectively, primarily as a result of the increase in revenue from our newly completed solar power plants in India, partially offset by a $1.9 million decrease in our U.S. operations primarily as a result of the U.S. Solar Transaction, the expiration of certain incentive energy credits from the state of California and adverse weather conditions in the northeast United States.

We expect that renewable energy will decrease in future periods as compared to 2018 as a result of the U.S. Solar Transaction. However, our renewable energy revenue in India may have moderate growth as additional solar plants in India become operational.

Termination and access fee expenses. Termination and access fee expenses are charges that we pay for voice and data transport circuits (in particular, the circuits between our wireless sites and our switches), internet capacity,

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video programming costs, other access fees we pay to terminate our calls, telecommunication spectrum fees and direct costs associated with our managed services and technology business and Renewable Energy segment. Termination and access fees also include the cost of handsets and customer resale equipment incurred by our retail businesses.

Termination and access fees decreased by $6.1 million, or 5.1%, to $114.5 million from $120.6 million for the years ended December 31, 2018 and 2017, respectively. Net decreases in termination and access fees, within our segments, consisted of the following:

· U.S. Telecom. Termination and access fees within our U.S. Telecom segment decreased by $4.9 million, or 11.2%, to $38.9 million from $43.8 million, for the years ended December 31, 2018 and 2017, respectively. Of this decrease, $2.2 million was related to the effects of the Sovernet Transaction within our wireline operations. Additionally, a decrease in traffic volume within our wholesale long-distance voice services business resulted in a decrease in termination and access fees of $0.7 million within that business with the remaining $1.9 million decrease being attributable to decreased traffic volume in our U.S. wireless business.

· International Telecom. Within our International Telecom segment, termination and access fees decreased by $1.5 million, or 2.0%, to $74.0 million from $75.5 million, for the years ended December 31, 2018 and 2017, respectively. Of this decrease, $3.8 million was caused by a reduction in television programming and other variable costs that were not incurred as a result of the impact of the Hurricanes and the sale of our operations in the British Virgin Islands. These decreases were partially offset by the additional costs incurred by our new managed services and technology platform, which began operations in September 2017, and within our other international markets.

· Renewable Energy. Termination and access fees within our Renewable Energy increased $0.4 million, or 28.6%, to $1.8 million from $1.4 million for the years ended December 31, 2018 and 2017, respectively, as a result of increased activity in our India operations.

We expect that termination and access fee expenses will remain fairly consistent as a percentage of revenues in future periods.

Engineering and operations expenses. Engineering and operations expenses include the expenses associated with developing, operating and supporting our expanding telecommunications networks and renewable energy operations, including the salaries and benefits paid to employees directly involved in the development and operation of our networks and renewable energy operations.

Engineering and operations expenses decreased by $1.6 million, or 2.1%, to $73.0 million from $74.6 million for the years ended December 31, 2018 and 2017, respectively. The net decrease in engineering and operations, within our segments, consisted of the following:

- U.S. Telecom. Engineering and operations expenses decreased within our U.S. Telecom segment by $0.7 million, or 5.2%, to $12.7 million from $13.4 million, for the years ended December 31, 2018 and 2017, respectively, primarily as a result of the Sovernet Transaction, which resulted in a decrease of $0.6 million, and operating efficiencies within our wireless businesses. These decreases were partially offset by $0.4 million of aggregate expenses incurred within our new in-building and large-scale fiber network businesses.

- International Telecom. Within our International Telecom segment, engineering and operations expenses decreased by $0.8 million, or 1.3%, to $59.5 million from $60.3 million, for the years ended December 31, 2018 and 2017, respectively. This decrease was primarily related to operational efficiencies in some of our international markets partially offset by expenses within our new managed services and technology platform which began operations in September 2017.

- Renewable Energy. Engineering expenses within our Renewable Energy segment decreased $0.3 million, or 75.0%, to $0.1 million from $0.4 million for the years ended December 31, 2018 and 2017, respectively.

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- Corporate Overhead. Engineering expenses within our corporate overhead increased $0.1 million, or 16.7%, to $0.7 million from $0.6 million for the years ended December 31, 2018 and 2017, respectively.

We expect that engineering and operations expenses may increase over the next twelve months as a result of continued post-Hurricane recovery efforts in the U.S. Virgin Islands and then to remain fairly consistent thereafter as a percentage of revenues.

Sales and marketing expenses. Sales and marketing expenses include salaries and benefits we pay to sales personnel, customer service expenses, sales commissions and the costs associated with the development and implementation of our promotion and marketing campaigns.

Sales and marketing expenses remained unchanged at $35.2 million for the year ended December 31, 2018 and 2017. The changes in sales and marketing expenses, within our segments, consisted of the following:

- U.S. Telecom. Sales and marketing expenses decreased within our U.S. Telecom segment by $0.2 million, or 6.1%, to $3.1 million from $3.3 million, for the years ended December 31, 2018 and 2017, respectively, primarily as a result of a decrease in marketing and advertising within the retail operations of our wireless business and the effects of the Sovernet Transaction. These decreases were partially offset by $0.3 million of aggregate expenses incurred within our new in-building and large-scale fiber network businesses.

- International Telecom. Within our International Telecom segment, our sales and marketing expenses increased by $0.3 million, or 0.9%, to $32.1 million from $31.8 million for the years ended December 31, 2018 and 2017, respectively. The increase reported from most of our international markets, primarily related to the promotion of our new broadband products, was offset by a decrease of $0.9 million in our U.S. Virgin Islands operations, caused as a result of the Hurricanes.

We expect sales and marketing expenses to remain fairly consistent as a percentage of revenues in the longer term but these expenses may increase in the next several quarters to help support the operations that were impacted by the Hurricanes.

General and administrative expenses. General and administrative expenses include salaries, benefits and related costs for general corporate functions including executive management, finance and administration, legal and regulatory, facilities, information technology and human resources. General and administrative expenses also include internal costs associated with our performance of due-diligence in connection with acquisition activities.

General and administrative expenses increased by $2.0 million, or 2.0%, to $104.3 million from $102.3 million for the years ended December 31, 2018 and 2017, respectively. Net increases in general and administrative expenses, within our segments, consisted of the following:

- U.S. Telecom. General and administrative expenses increased by $1.8 million, or 12.7%, to $16.0 million from $14.2 million primarily to support our wireless operations and the addition of new in-building and large scale fiber network businesses partially offset by the $0.5 million impact of the Sovernet Transaction.

- International Telecom. General and administrative expenses increased within our International Telecom segment by $0.2 million, or 0.4%, to $53.5 million from $53.3 million, for the years ended December 31, 2018 and 2017, respectively. The increase was primarily related to our new managed services and technology platform partially offset by operational efficiencies in some of our other markets.

- Renewable Energy. General and administrative expenses within our Renewable Energy segment decreased by $0.7 million, or 9.6%, to $6.6 million from $7.3 million for the years ended December 31, 2018 and 2017, respectively. This decrease was primarily related to U.S. Solar Transaction.

- Corporate Overhead. General and administrative expenses increased within our corporate overhead by $0.6 million, or 2.2%, to $28.1 million from $27.5 million, for the years ended December 31, 2018 and 2017, respectively, primarily related to an increase in information technology expenditures to further enhance our cyber and network security.

We expect general and administrative expenses to increase over the next several quarters as a result of continued post-Hurricane recovery effects in our networks in our International Telecom segment. We also expect to incur additional general and administrative expenses to support our new managed services and technology platform, our new in-building telecom operations, our new large scale fiber network platform and the continued build of our solar operations in India.

Transaction-related charges. Transaction-related charges include the external costs, such as legal, tax, accounting and consulting fees directly associated with acquisition and disposition-related activities, which are expensed as incurred. Transaction-related charges do not include internal costs, such as employee salary and travel-related expenses, incurred in connection with acquisitions or dispositions or any integration-related costs.

We incurred $2.6 million and $1.0 million of transaction related charges during the years ended December 31, 2018 and 2017, respectively. The transaction-related charges during the year ended December 31, 2018 were primarily related to the U.S. Solar Transaction within our Renewable Energy segment as well as our new in-building and large scale fiber network platforms within our U.S. Telecom segment. Substantially all of the 2017 expenses were related to the Sovernet Transaction.

Restructuring charges. During the year ended December 31, 2018, we incurred $0.5 million of restructuring charges which were primarily related to the U.S. Solar Transaction. During the year ended December 31, 2017, we incurred $1.2 million of restructuring charges within our Viya operations in connection with the integration of those operations with our legacy operations in the U.S. Virgin Islands.

Depreciation and amortization expenses. Depreciation and amortization expenses represent the depreciation and amortization charges we record on our property and equipment and on certain intangible assets.

Depreciation and amortization expenses decreased by $1.2 million, or 1.4%, to $85.7 million from $86.9 million for the years ended December 31, 2018 and 2017, respectively. Net decreases in depreciation and amortization expenses, within our segments, consisted primarily of the following:

- U.S. Telecom. Depreciation and amortization expenses decreased within our U.S. Telecom segment by $1.0 million, or 3.9%, to $24.6 million from $25.6 million, for the years ended December 31, 2018 and 2017, respectively, as a

result of the completion of the previously disclosed sale of approximately 100 cell sites within our U.S. wireless operations which reduced depreciation expense by $1.9 million and by the effects of the Sovernet Transaction which reduced depreciation and amortization expenses by $0.6 million. These decreases were partially offset by network expansions and upgrades within other geographic areas of our U.S. wireless operations.

· International Telecom. Depreciation and amortization expenses decreased within our International Telecom segment by $1.1 million, or 2.2%, to $48.9 million from $50.0 million, for the years ended December 31, 2018 and 2017, respectively. This decrease was primarily related to a $4.5 million reduction in depreciation expense within our U.S. Virgin Islands market on assets that were damaged and written off as a result of the Hurricanes partially offset by the expansion and upgrades of our network assets in our other International Telecom markets.

· Renewable Energy. Depreciation and amortization expenses within our Renewable Energy segment decreased by $0.1 million, or 1.5%, to $6.6 million from $6.7 million, for the years ended December 31, 2018 and 2017, respectively, as a result of the U.S. Solar Transaction partially offset by capital expenditures primarily related to the construction of our solar operations in India.

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- Corporate Overhead. Depreciation and amortization expenses increased by $0.9 million or 19.1% to $5.6 million from $4.7 million for the years ended December 31, 2018 and 2017, respectively, as a result of certain tangible assets being placed into service.

We expect depreciation expense to increase as we rebuild our networks in the International Telecom segment that were impacted by the Hurricanes and as we acquire more tangible assets to expand or upgrade our other telecommunications networks, build or acquire solar power generating facilities and amortize intangible assets recorded in connection with acquisitions.

(Gain) loss on disposition of long-lived assets. During the year ended December 31, 2018, we recorded a gain on the disposition of long-lived assets of $26.4 million. Within our U.S. Telecom segment, we recorded a gain of $17.2 million primarily as the result of a $15.2 million gain on the previously disclosed sale of approximately 100 cell sites and a $2.9 million gain on the sale of certain telecommunication licenses. Within our Renewable Energy segment, we recorded a gain on the U.S. Solar Transaction of $12.4 million. These gains were partially offset by a $3.2 million loss recorded in connection with certain asset disposals and settlement agreements within our Renewable Energy segment and a $1.1 million loss on the disposal of miscellaneous assets within our U.S. wireless operations.

Loss on damaged assets and other Hurricane-related charges. During September 2017, the economy, our customer base and our operations in the U.S. Virgin Islands were severely impacted by the Hurricanes.

During the year ended December 31, 2018, we incurred $0.8 million in expenses associated with the procurement of continued building maintenance, security services, the supply of alternative power and related professional fees.

During the year ended December 31, 2017, we recorded a net pre-tax loss within our consolidated statement of operations of $4.0 million. This loss consisted of $35.4 million for the write off of damaged assets, net of insurance recoveries of $34.6 million received in February 2018. This loss also included $3.2 million of additional operating expenses that we specifically incurred to address the impact of the Hurricanes.

Interest income. Interest income represents interest earned on our cash, cash equivalents, restricted cash and short term investment balances.

Interest income increased to $1.8 million from $1.6 million for the years ended December 31, 2018 and 2017, respectively. The increase was primarily related to an increase in the return on our cash, cash equivalents and marketable securities as compared to the previous year.

Interest expense. We incur interest expense on the Viya, One Communications and Ahana debt, commitment fees, letter of credit fees, amortization of debt issuance costs and interest incurred on our outstanding credit facilities.

Interest expense decreased by $0.8 million, or 9.1%, to $8.0 million from $8.8 million primarily as a result of the U.S. Solar Transaction which resulted in the acquirer's assumption of $57.3 million of our long-term debt.

Loss on deconsolidation of subsidiary. During the year ended December 31, 2017, we recorded a $0.5 million loss on the deconsolidation of a portion our U.S. wireline operations upon the completion of the Sovernet Transaction.

Other income (expense), net. Other income (expense), net represents miscellaneous non-operational income earned and expenses incurred. For the year ended December 31, 2018, other income (expense) was an expense of $1.1 million which was primarily related to $2.4 million in losses on foreign currency transactions partially offset by $1.3 million in income related to some of our employee benefit plans. For the year ended December 31, 2017, other income (expense) was an expense of $1.8 million which was primarily related to a loss on our equity method investment in our Aruba operations of $1.9 million and the net loss on foreign currency transactions of $0.7 million, partially offset by a gain on the sale of marketable securities of $0.8 million.

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Income taxes. Our effective tax rate for the years ended December 31, 2018 and 2017 was 35.1% and (2.8)%, respectively. The effective tax rate for the year ended December 31, 2018 was primarily impacted by the following items: (i) a $10.6 million net increase of unrecognized tax positions, (ii) a $4.7 million net benefit to record a return to accrual adjustment, (iii) a $1.2 million benefit to recognize a capital loss carryover due to capital gains on sale of wireless licenses, (iv) a $1.4 million net benefit to record a valuation allowance release on an indefinite lived intangible asset, (v) a $1.7 million provision associated with the intercompany sale of assets from the U.S. to the U.S. Virgin Islands, and (vi) the mix of income generated among the jurisdictions in which we operate along with the exclusion of losses in jurisdictions where we cannot benefit from those losses as required by ASC 740-270-30-36(a), primarily in the U.S. Virgin Islands and India.

The effective tax rate for the year ended December 31, 2017 was primarily impacted by the following items: (i) a $10.6 million benefit for the net impact of the Tax Cuts and Jobs Act of 2017 (the "Tax Act") which includes lowering the U.S. corporate income tax rate to 21% effective in 2018 resulting in an $18.0 million benefit from the remeasurement of the deferred tax assets and liabilities, which was partially offset by a provision of $7.4 million on the deemed repatriation of undistributed foreign earnings (ii) a $3.9 million benefit for the net capital transactions related to our businesses in New England, New York, BVI and St. Maarten, (iii) a $3.4 million benefit for an amended return refund claim filed for tax year 2013, (iv) a $4.4 million increase (net) in unrecognized tax benefits related to current year and prior year positions, (v) a $6.1 million provision (net) to record the change in valuation allowance and, (vi) the mix of income generated among the jurisdictions in which we operate.

Our effective tax rate is based upon estimated income before provision for income taxes for the year, composition of the income in different countries, and adjustments, if any, in the applicable quarterly periods for potential tax consequences, benefits and/or resolutions of tax contingencies. Our consolidated tax rate will continue to be impacted by any transactional or one-time items in the future and the mix of income in any given year generated among the jurisdictions in which we operate. Due to the timing of the enactment and the complexity involved in applying the provisions of the Tax Act, we made reasonable estimates of the effects and recorded provisional amounts in our consolidated financial statements as of December 31, 2017. During 2018 we made adjustments to the provisional amounts, including continued refinements to our deferred taxes of a $0.4 million provision from the $18 million benefit recorded at year-end and a $3.2 million provision on the deemed repatriation of undistributed foreign earnings in addition to the $7.4 million provision recorded at year-end. The accounting for the tax effects of the Tax Act has been completed as of December 22, 2018 as required by Staff Accounting Bulletin No. 118 ("SAB 118"). While we believe we have adequately provided for all tax positions, amounts asserted by taxing authorities could materially differ from our accrued positions as a result of uncertain and complex application of tax law and regulations. Additionally, the recognition and measurement of certain tax benefits include estimates and judgment by management. Accordingly, we could record additional provisions or benefits for U.S. federal, state, and foreign tax matters in future periods as new information becomes available.

Net income attributable to non-controlling interests, net of tax. Net income attributable to non-controlling interests reflected an allocation of $15.1 million and $17.4 million of income generated by our less than wholly-owned subsidiaries for the years ended December 31, 2018 and 2017, respectively, a decrease of $2.3 million or 13.2%. Changes in net income attributable to non-controlling interests, net of tax, within our segments, consisted of the following:

- U.S. Telecom. Net income attributable to non-controlling interests, net of tax decreased by $3.9 million, or 54.9%, to $3.2 million from $7.1 million for the years ended December 31, 2018 and 2017, respectively, primarily as a result of decreased profitability at certain less than wholly owned subsidiaries within our U.S. wireless retail operations.

- International Telecom. Net income attributable to non-controlling interests, net of tax increased by $0.6 million, or 6.5%, to $9.8 million from $9.2 million, primarily as a result of increased profitability in our less than wholly owned subsidiaries within our international operations.

- Renewable Energy. Net income attributable to non-controlling interests, net of tax increased by $1.0 million, or 90.9% to $2.1 million from $1.1 million for the years ended December 31, 2018 and 2017, respectively,

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primarily as a result of the allocation a portion of the gain we recognized on the U.S. Solar Transaction to the non-controlling shareholders of those operations.

Net income (loss) attributable to ATN International, Inc. stockholders. Net income (loss) attributable to ATN International, Inc. stockholders was income of $19.8 million and $31.5 million for the years ended December 31, 2018 and 2017, respectively.

On a per share basis, net income (loss) was income of $1.24 and $1.94 per diluted share for the years ended December 31, 2018 and 2017, respectively.

Selected Segment Financial Information

The following represents selected segment information for the years ended December 31, 2017 and 2016 (in thousands):

For the Year Ended December 31, 2017

	U.S. Telecom	International Telecom	Renewable Energy	Corporate and Other (1)	Consolidated
Revenue					
Wireless	$ 143,028	$ 89,473	$ —	$ —	$ 232,501
Wireline	12,695	215,132	—	—	227,827
Renewable Energy	—	—	20,865	—	20,865
Total Revenue	155,723	304,605	20,865	—	481,193
Operating income (loss)	55,317	28,308	5,179	(33,496)	55,308

For the Year Ended December 31, 2016

	U.S. Telecom	International Telecom	Renewable Energy	Corporate and Other (1)	Consolidated
Revenue					
Wireless	$ 150,044	$ 94,360	$ —	$ —	$ 244,404
Wireline	26,683	163,915	—	—	190,598
Renewable Energy	—	—	22,001	—	22,001

Total Revenue	176,727	258,275	22,001	—	457,003
Operating income (loss)	49,078	36,910	(246)	(34,472)	51,270

(1) Reconciling items refer to corporate overhead costs and consolidating adjustments

A year over year summary of our segment results is as follows:

U.S. Telecom. Revenues within our U.S. Telecom segment decreased by $21.0 million, or 11.9%, to $155.7 million from $176.7 million for the years ended December 31, 2017 and 2016, respectively. Of this decrease, $6.0 million was attributable to our wholesale wireless operations which were subject to reduced wholesale roaming rates and revenue caps with certain carrier customers. This decrease was partially offset by the increase in the number of our base stations and the increase data traffic volumes. In addition, revenue from our retail wireless business decreased $1.5 million as a result of decreased subscribers and traffic volumes. In our wireline businesses, the Sovernet Transaction resulted in a decrease in revenue of $17.0 million which was partially offset by an increase in our wholesale long distance voice services of $3.8 million.

Operating expenses within our U.S. Telecom segment decreased $27.2 million, or 21.3%, to $100.4 million from $127.6 million for the years ended December 31, 2017 and 2016, respectively. This decrease was primarily related to a $16.8 million reduction in operating expenses as a result of the impact of the Sovernet Transaction, expense reductions of approximately $6.0 million implemented over the last several quarters and $3.9 million in expense offsets

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from funds received under the Phase I Mobility Funds partially offset by the effects of the expansions and upgrades of our networks.

As a result of the above, our U.S. Telecom segment's operating income increased $6.2 million, or 12.6%, to $55.3 million from $49.1 million for the year ended December 31, 2017 and 2016, respectively.

International Telecom. Revenues within our International Telecom segment increased $46.3 million, or 17.9%, to $304.6 million from $258.3 million for the years ended December 31, 2017 and 2016, respectively. This increase was related to the timing of the 2016 International Telecom Acquisitions. This increase was partially offset by the $19.8 million net impact of the Hurricanes, our sale of our operations in St. Maarten and the British Virgin Islands, and the deconsolidation of our Aruba operations.

Operating expenses within our International Telecom segment increased by $54.7 million, or 24.7%, to $276.1 million from $221.4 million for the years ended December 31, 2017 and 2016, respectively. This increase was related to the timing of the 2016 International Telecom Acquisitions. The increase also includes $4.0 million related to the net impact of the Hurricanes which consisted of a $35.4 million write off of damaged assets, net of insurance recoveries of $34.6 million, and $3.2 million of additional operating expenses. These increases were partially offset by operating efficiencies, the effects of the sale of our operations in St. Maarten and the British Virgin Islands and the deconsolidation of operations in Aruba.

As a result, our International Telecom segment's operating income decreased $8.4 million, or 22.8%, to $28.5 million from $36.9 million for the years ended December 31, 2017 and 2016, respectively.

Renewable Energy. Revenues within our Renewable Energy segment decreased $1.1 million, or 5.0%, to $20.9 million from $22.0 million for the year ended December 31, 2017 and 2016, respectively, primarily as a result of the expiration of certain incentive energy credits from the state of California and decreased production due to weather conditions in California partially offset by the increase in revenue from our India operations of $1.7 million.

Operating expenses within our Renewable Energy segment decreased $6.5 million, or 29.3%, to $15.7 million from $22.2 million for the years ended December 31, 2017 and 2016, respectively. This decrease in expenses was primarily associated with acquisition-related expenses incurred during 2016 as a part of our Vibrant Energy Acquisition partially offset by increased operating expenses incurred for Vibrant Energy in 2017.

As a result, our Renewable Energy segment's operating income increased by $5.4 million to income of $5.2 million from a loss of $0.2 million for the years ended December 31, 2017 and 2016, respectively.

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The following represents a year over year discussion and analysis of our results of operations for the years ended December 31, 2017 and 2016 (in thousands):

	Year Ended December 31, 2017	2016	Amount of Increase (Decrease)	Percent Increase (Decrease)	
REVENUE:					
Wireless	$ 232,501	$ 244,404	$ (11,903)	(4.9)	%
Wireline	227,827	190,598	37,229	19.5	
Renewable Energy	20,865	22,001	(1,136)	(5.2)	
Total revenue	481,193	457,003	24,190	5.3	
OPERATING EXPENSES (excluding depreciation and amortization unless otherwise indicated):					
Termination and access fees	120,624	126,443	(5,819)	(4.6)	
Engineering and operations	74,614	60,414	14,200	23.5	
Sales and marketing	35,184	30,253	4,931	16.3	
General and administrative	102,294	90,431	11,863	13.1	
Transaction-related charges	1,009	18,064	(17,055)	(94.4)	
Restructuring charges	1,169	—	1,169	100.0	
Depreciation and amortization	86,934	75,980	10,954	14.4	
Impairment of long-lived assets	—	11,425	(11,425)	(100.0)	
Bargain purchase gain	—	(7,304)	7,304	(100.0)	
(Gain) loss on disposition of long-lived assets	101	27	74	274.1	
Loss on damaged assets and other hurricane related charges, net of insurance recovery	3,956	—	3,956	100.0	
Total operating expenses	425,885	405,733	20,152	5.0	
Income from operations	55,308	51,270	4,038	7.9	
OTHER INCOME (EXPENSE):					
Interest income	1,613	1,239	374	30.2	
Interest expense	(8,838)	(5,362)	(3,476)	64.8	
Loss on deconsolidation of subsidiary	(529)	—	(529)	(100.0)	
Other expense, net	(1)	(1,773)	1,772	(99.9)	
Other expense, net	(7,755)	(5,896)	(1,859)	31.5	
INCOME FROM CONTINUING OPERATIONS BEFORE INCOME TAXES	47,553	45,374	2,179	4.8	
Income tax provisions (benefit)	(1,341)	21,160	(22,501)	(106.3)	
NET INCOME	48,894	24,214	24,680	101.9	
Net income attributable to non controlling interests, net of tax:	(17,406)	(12,113)	(5,293)	43.7	
NET INCOME ATTRIBUTABLE TO ATN INTERNATIONAL, INC. STOCKHOLDERS	$ 31,488	$ 12,101	$ 19,387	160.2	%

Wireless revenue. Wireless revenue decreased by $11.9 million, or 4.9%, to $232.5 million for the year ended December 31, 2017 from $244.4 million for the year ended December 31, 2016. The decreases in wireless revenue, within our segments, consisted of the following:

- U.S. Telecom. Wireless revenue within our U.S. Telecom segment decreased by $7.0 million, or 4.7%, to $143.0 million from $150.0 million, for the year ended December 31, 2017 and 2016, respectively. Wholesale wireless revenue decreased by $6.0 million or 4.6%, to $123.3 million from $129.3 million for the years ended December 31, 2017 and 2016, respectively, as a result of a reduction in wholesale roaming rates and the impact of contractual revenue caps with certain carrier customers. This decrease was partially offset by growth in data traffic volumes as a result of capacity and technology upgrades to our network. Our U.S. Telecom's retail operations reported a decrease in wireless revenues of $1.0 million, or 5.1%, to $19.7 million from $20.7

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million for the years ended December 31, 2017 and 2016, respectively, as a result of a decrease in subscribers and traffic volumes.

· International Telecom. Within our International Telecom segment, wireless revenue decreased by $4.9 million, or 5.5%, to $89.5 million for the year ended December 31, 2017 from $94.4 million for the year ended December 31, 2016. This decrease was primarily related to the decline in roaming revenues within many of our international markets and the deconsolidation of our operations in Aruba. These decreases were partially offset by an increase in wireless subscribers in Guyana.

Wireline revenue. Wireline revenue increased by $37.2 million, or 19.5%, to $227.8 million from $190.6 million for the years ended December 31, 2017 and 2016, respectively. The increases in wireline revenue, within our segments, consisted of the following:

· U.S. Telecom. Wireline revenue decreased within our U.S. Telecom segment by $14.0 million, or 52.4%, to $12.7 million from $26.7 million, for the years ended December 31, 2017 and 2016, respectively, primarily as a result of the effects the Sovernet Transaction which negatively impacted revenue by $17.0 million. This decrease was partially offset by a $3.1 million increase in revenue from our wholesale long distance voice services.

· International Telecom. Within our International Telecom segment, wireline revenue increased by $51.2 million, or 31.2%, to $215.1 million from $163.9 million, for the years ended December 31, 2017 and 2016, respectively. This increase was related to the timing of the 2016 International Telecom Acquisitions partially offset by the $19.8 million net impact of the Hurricanes, the sale of our operations in St. Maarten and the British Virgin Islands and the deconsolidation of our Aruba operations.

Renewable energy revenue. Renewable energy revenue decreased $1.1 million, or 5.0%, to $20.9 million from $22.0 million for the years ended December 31, 2017 and 2016, respectively. The decrease was primarily the result of the expiration of certain incentive energy credits from the state of California and decreased production due to weather conditions in California. This decrease was partially offset by a $1.7 million increase in revenue recognized by our Vibrant Energy operations in India.

Termination and access fee expenses. Termination and access fees decreased by $5.8 million, or 4.6%, to $120.6 million from $126.4 million for the years ended December 31, 2017 and 2016, respectively. Decreases in termination and access fees, within our segments, consisted of the following:

· U.S. Telecom. Termination and access fees within our U.S. Telecom segment decreased by $10.1 million, or 18.7%, to $43.8 million from $53.9 million, for the years ended December 31, 2017 and 2016, respectively. Of this decrease, $9.5 million was primarily related to the effects of the Sovernet Transaction within our wireline operations. Additionally, our wholesale wireless operations recognized a decrease as a result of expense reductions implemented and $3.9 million in expense offsets from funds received under the Phase I Mobility Funds. These

decreases were partially offset by the increase in traffic volume within our wireline wholesale long distances voice services which increased expenses by $3.5 million.

- International Telecom. Within our International Telecom segment, termination and access fees increased by $4.3 million, or 6.0%, to $75.5 million from $71.2 million, for the years ended December 31, 2017 and 2016, respectively. This increase was related to the timing of the 2016 International Telecom Acquisitions partially offset by a reduction in television programming and other variable costs which were not incurred as a result of the impact of the Hurricanes, the sale of our operations in St. Maarten and the British Virgin Islands and the deconsolidation of our operations in Aruba.

- Renewable Energy. Termination and access fees within our Renewable Energy segment remained consistent at $1.4 million for the years ended December 31, 2017 and 2016.

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Engineering and operations expenses. Engineering and operations expenses increased by $14.2 million, or 23.5%, to $74.6 million from $60.4 million for the years ended December 31, 2017 and 2016, respectively. The net increase in engineering and operations, within our segments, consisted of the following:

- U.S. Telecom. Engineering and operations expenses decreased within our U.S. Telecom segment by $3.8 million, or 22.1%, to $13.4 million from $17.2 million, for the years ended December 31, 2017 and 2016, respectively, primarily as a result of the Sovernet Transaction, which cause engineering and operations expense to decrease by $2.6 million, and operating efficiencies within our wireless businesses.

- International Telecom. Within our International Telecom segment, engineering and operations expenses increased by $18.4 million, or 43.9%, to $60.3 million from $41.9 million, for the years ended December 31, 2017 and 2016, respectively. This increase was primarily related to the timing of the 2016 International Telecom Acquisitions as well as the restoration work done in the U.S. Virgin Islands as a result of the Hurricanes.

- Renewable Energy. Engineering and operations expenses within our Renewable Energy segment decreased slightly to $0.4 million from $0.5 million for the years ended December 31, 2017 and 2016, respectively.

Sales and marketing expenses. Sales and marketing expenses increased by $4.9 million, or 16.2%, to $35.2 million from $30.3 million for the years ended December 31, 2017 and 2016, respectively. The net increase in sales and marketing expenses, within our segments, consisted of the following:

- U.S. Telecom. Sales and marketing expenses decreased within our U.S. Telecom segment by $2.0 million, or 37.7%, to $3.3 million from $5.3 million, for the years ended December 31, 2017 and 2016, respectively, primarily as a result of a decrease in promotions and advertising within the retail operations of our wireless business and a reduction of $1.0 million relating to the effects of the Sovernet Transaction.

- International Telecom. Within our International Telecom segment, our sales and marketing expenses increased by $6.8 million, or 27.2%, to $31.8 million from $25.0 million, for the years ended December 31, 2017 and 2016, respectively. This increase was related to the timing of the 2016 International Telecom Acquisitions and increased marketing and promotional activities in our other markets.

General and administrative expenses. General and administrative expenses increased by $11.9 million, or 13.2%, to $102.3 million from $90.4 million for the years ended December 31, 2017 and 2016, respectively. Net increases in general and administrative expenses, within our segments, consisted of the following:

- U.S. Telecom. General and administrative expenses decreased within our U.S. Telecom segment by $1.5 million, or 9.6%, to $14.2 million from $15.7 million, for the years ended December 31, 2017 and 2016, respectively, as a result of a decrease of $3.7 million relating to the effects of the Sovernet Transaction partially offset by an increase in our wireless businesses to support their expanding wireless networks.

- International Telecom. General and administrative expenses increased within our International Telecom segment by $8.9 million, or 20.0%, to $53.3 million from $44.4 million, for the years ended December 31, 2017 and 2016, respectively. This increase was primarily related to the timing of the 2016 International Telecom Acquisitions.

- Renewable Energy. General and administrative expenses within our Renewable Energy segment increased by $2.0 million, or 37.7%, to $7.3 million from $5.3 million for the years ended December 31, 2017 and 2016, respectively, as a result of overhead and operating expenses incurred for the development of our India operations.

- Corporate Overhead. General and administrative expenses increased within our corporate overhead by $2.4 million, or 9.6%, to $27.5 million from $25.1 million, for the years ended December 31, 2017 and 2016, respectively, in order to support our expanding operations.

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Transaction-related charges. We incurred $1.0 million and $16.3 million of transaction related charges during the years ended December 31, 2017 and 2016, respectively. Substantially all of the 2017 expenses were related to the Sovernet Transaction. For the year ended December 31, 2016, substantially all of the expenses were related to our 2016 International Telecom and Vibrant Energy Acquisitions.

Restructuring Charges. During the year ended December 31, 2017, we incurred $1.2 million of restructuring charges within our Viya operations. During the year ended 31, 2016, we incurred $1.8 million restructuring costs within our One Communications operations. These charges were incurred in connection with the integration of these businesses with ATN's legacy operations in those locations.

Depreciation and amortization expenses. Depreciation and amortization expenses increased by $10.9 million, or 14.3%, to $86.9 million from $76.0 million for the year ended December 31, 2017 and 2016, respectively. Increases in depreciation and amortization expenses, within our segments, consisted primarily of the following:

· U.S. Telecom. Depreciation and amortization expenses increased within our U.S. Telecom segment by $1.1 million, or 4.5%, to $25.6 million from $24.5 million, for the year ended December 31, 2017 and 2016, respectively, as a result of certain wireless network expansions and upgrades partially offset by the effects of the Sovernet Transaction.

· International Telecom. Depreciation and amortization expenses increased within our International Telecom segment by $9.5 million, or 23.5%, to $50.0 million from $40.5 million, for the year ended December 31, 2017 and 2016, respectively. This increase was primarily related to the timing of the 2016 International Telecom Acquisitions partially offset by a reduction in depreciation expense on assets which were damaged and written off as a result of the Hurricanes.

· Renewable Energy. Depreciation and amortization expenses within our Renewable Energy segment increased by $1.7 million, or 34.0%, to $6.7 million from $5.0 million as a result of capital expenditures primarily related to the construction of our Vibrant Energy operations.

· Corporate Overhead. Depreciation and amortization expenses decreased by $1.3 million or 21.7% to $4.7 million from $6.0 million for the year ended December 31, 2017 and 2016, respectively, as a result of certain tangible assets becoming fully depreciated.

Impairment of long-lived assets. During 2016, as a result of industry consolidation activities and a review of strategic alternatives for our U.S. wireline business in the Northeast, we identified factors indicating the carrying amount of certain assets may not be recoverable. More specifically, the factors included the competitive environment, recent industry consolidation and our view of future opportunities in the market which began to evolve in the second quarter of 2016. As a result of these factors, the analysis concluded that certain wireline assets in the U.S. Telecom segment were overvalued. As a result, we recorded a non-cash impairment charge of $11.4 million during the year ended

December 31, 2016. The impairment reduced the carrying values of long lived assets by $3.6 million, goodwill by $7.5 million and a tradename by $0.3 million.

Bargain purchase gain. In connection with the One Communications Acquisition, we recorded a bargain purchase gain of $7.3 million during the year ended December 31, 2016. The purchase price and resulting bargain purchase gain were the result of the market conditions and competitive environment in which One Communications operates along with the Company's strategic position and resources in those same markets. Both companies realized that their combined resources would accelerate the transformation of both companies to better serve customers in these markets. The bargain purchase gain is included in operating income within our International Telecom segment in the accompanying income statement for the year ended December 31, 2016.

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Loss on damaged assets and other Hurricane-related charges, net of insurance recovery. During September 2017, our operations and customers in the U.S. Virgin Islands were severely impacted by the Hurricanes. Both our wireless and wireline networks and commercial operations were severely damaged by these storms.

As a result of the Hurricanes, we recorded a net pre-tax loss within our consolidated statement of operations of $4.0 million during the year ended December 31, 2017. This loss consists of $35.4 million for the write off of damaged assets, net of insurance recoveries of $34.6 million for which we received the proceeds in February 2018. This net loss also includes $3.2 million of additional operating expenses that we specifically incurred to address the impact of the Hurricanes.

Interest income. Interest income increased to $1.6 million from $1.2 million for the year ended December 31, 2017 and 2016, respectively. The effects of an increase in the return on our cash, cash equivalents and marketable securities were partially offset by a decrease in those assets as compared to the previous year.

Interest expense. Interest expense increased by $3.5 million to $8.8 million from $5.4 million for the year ended December 31, 2017 and 2016, respectively. The increase predominantly reflects the interest incurred on debt used to finance a portion of the Viya Acquisition, the term loans assumed with the One Communications Acquisition, refinanced on May 22, 2017 and the increased loan balance on the Ahana Debt which was refinanced on December 19, 2016.

Loss on deconsolidation of subsidiary. During the year ended December 31, 2017, we recorded a $0.5 million loss on the deconsolidation of our U.S. wireline operations upon the completion of the Sovernet Transaction.

Other income (expense), net. For the year ended December 31, 2017, other income (expense) was a nominal amount which was primarily related to gains on foreign currency transactions of $0.9 million and from the sales of marketable securities of $0.9 million. These gains were partially offset by the losses of an unconsolidated affiliate of $1.9 million. For the year ended December 31, 2016, other income (expense) was an expense of $1.8 million which was primarily related to $1.5 million of expenses associated with certain employee benefit plans and the losses of an unconsolidated affiliate of $0.8 million partially offset by a $0.5 million gain on a foreign currency transaction.

Income taxes. Our effective tax rate for the years ended December 31, 2017 and 2016 was (2.8)% and 46.6%, respectively. The effective tax rate for the year ended December 31, 2017 was primarily impacted by the following items: (i) a $10.6 million benefit for the net impact of Tax Act which included lowering the U.S. corporate income tax rate to 21% effective in 2018 resulting in an $18.0 million benefit from the remeasurement of the deferred tax assets and liabilities, which was partially offset by a provision of $7.4 million on the deemed repatriation of undistributed foreign earnings, (ii) a $3.9 million benefit for the net capital transactions related to our businesses in New England, New York, British Virgin Islands and St. Maarten, (iii) a $3.4 million benefit for an amended return

refund claim filed for tax year 2013, (iv) a $4.4 million increase (net) in unrecognized tax benefits related to current year and prior year positions, (v) a $6.1 million provision (net) to record the change in valuation allowance and, (vi) the mix of income generated among the jurisdictions in which we operate. The effective tax rate for the year ended December 31, 2016 was impacted by the following items: (i) a $3.1 million provision related to certain transactional charges incurred in connection with our acquisitions that had no tax benefit, (ii) a $2.6 million provision related to an impairment charge to write down the value of assets related to our wireline business, (iii) a $2.5 million provision related to the write-off of an unrecoverable tax receivable and (iv) the mix of income generated among the jurisdictions in which we operate. Our effective tax rate is based upon estimated income before provision for income taxes for the year, composition of the income in different countries, and adjustments, if any, in the applicable quarterly periods for potential tax consequences, benefits and/or resolutions of tax contingencies. Our consolidated tax rate will continue to be impacted by any transactional or one-time items in the future and the mix of income in any given year generated among the jurisdictions in which we operate.

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Net income attributable to non-controlling interests. Net income attributable to non-controlling interests reflected an allocation of $17.4 million and $12.1 million of income generated by our less than wholly-owned subsidiaries for the years ended December 31, 2017 and 2016, respectively, an increase of $5.3 million or 43.7%. Changes in net income attributable to non-controlling interests, within our segments, consisted of the following:

· U.S. Telecom. Net income attributable to non-controlling interests increased by $1.3 million, or 22.4%, to $7.1 million from $5.8 million for the years ended December 31, 2017 and 2016, respectively, primarily as a result of the effects of the Sovernet Transaction.

· International Telecom. Net income attributable to non-controlling interests increased by $4.8 million, or 109.1% to $9.2 million from $4.4 million, primarily as a result of an increase in profits in our Bermuda operations as a result of our One Communications acquisition partially offset by the effects of the deconsolidation of our operations in Aruba.

· Renewable Energy. Net income attributable to non-controlling interests decreased by $0.8 million, or 42.1%, to $1.1 million from $1.9 million, as a result of decreased profitability and our increased ownership within our domestic solar operations.

Net income (loss) attributable to ATN International, Inc. stockholders. Net income attributable to ATN International, Inc. stockholders was $31.5 and $12.1 million for the years ended December 31, 2017 and 2016, respectively.

On a per share basis, net income was $1.94 and $0.75 per diluted share for the years ended December 31, 2017 and 2016, respectively.

Regulatory and Tax Issues

We are involved in a number of regulatory and tax proceedings. A material and adverse outcome in one or more of these proceedings could have a material adverse impact on our financial condition and future operations. For discussion of ongoing proceedings, see Note 14 to the Consolidated Financial Statements in this Report.

Tax Reform

The Tax Cuts and Jobs Act of 2017 (“2017 Tax Act” also commonly referred to as U.S. tax reform), which was signed into law on December 22, 2017, has resulted in significant changes to the U.S. corporate income tax system and the U.S. Virgin Islands mirror code which replaces “United States” with “U.S. Virgin Islands” throughout the Internal

Revenue Code. These changes include a U.S. federal statutory rate reduction from 35% to 21%, which results in a U.S. Virgin Islands rate change of 38.5% to 23.1% under the mirror tax code which allows for a 10% surcharge on the U.S. federal tax rate, 100% expensing of certain qualified capital investments, the elimination or reduction of the alternative minimum tax regime, certain domestic deductions and credits and limitations on the deductibility of interest expense and executive compensation.

The Tax Act also transitions international taxation from a worldwide system to a modified territorial system and includes two base erosion prevention measures on non-U.S. earnings, which has the effect of subjecting certain earnings of our foreign subsidiaries to U.S. taxation as global intangible low taxed income (“GILTI”) and eliminates the deduction of certain payments made to related foreign corporations, and imposes a minimum tax if greater than regular tax under the base-erosion and anti-abuse tax (“BEAT”). These changes became effective beginning in 2018. The Tax Act also includes a one-time mandatory deemed repatriation tax on accumulated foreign subsidiaries' previously untaxed foreign earnings (“the Transition Toll Tax”).

Transition Toll Tax

The Tax Act eliminates the deferral of U.S. income tax on the historical unrepatriated earnings by imposing the Transition Toll Tax, which is a one-time mandatory deemed repatriation tax on undistributed foreign earnings. The

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Transition Toll Tax is assessed on the U.S. shareholder's share of the foreign corporation's accumulated foreign earnings that have not previously been taxed. Earnings in the form of cash and cash equivalents will be taxed at a rate of 15.5% and all other earnings will be taxed at a rate of 8.0%.

Due to the timing of the enactment and the complexity involved in applying the provisions of the Tax Act, we made reasonable estimates of the effects and recorded provisional amounts in our consolidated financial statements as of December 31, 2017. During 2018, we made adjustments to the provisional amounts, including a $3.2 million provision on the deemed repatriation of undistributed foreign earnings in addition to the $7.4 million provision recorded at year-end. We have completed our determination of the accounting implications for charges related to the Transition Toll Tax.

At December 31, 2018, we continue to assert our earnings are permanently reinvested outside the U.S.. Cash dividends from Guyana were made in 2018, however these distributions are not subject to Guyanese withholding tax and the U.S. state tax impact is minimal.

Effect on Deferred Tax Assets and Liabilities and other Adjustments

Our deferred tax assets and liabilities are measured at the enacted tax rate expected to apply when these temporary differences are expected to be realized or settled. As the Company’s deferred tax liabilities exceed the balance of its deferred tax assets at the date of enactment, the Company has recorded a tax benefit of $18.0 million, reflecting the decrease in the U.S. and U.S. Virgin Islands corporate income tax rates, including the state impact, net of federal benefit. An additional adjustment of $0.4 million was recorded in the three-month period ending September 30, 2018 for temporary differences finalized with the filing of the 2017 tax return. We have completed our accounting for the measurement of deferred taxes.

The BEAT provisions in the Tax Act eliminate the deduction of certain base-erosion payments made to related foreign corporations, and impose a minimum tax if greater than regular tax. We do not expect we will be subject to this tax and therefore have not included any tax impacts of BEAT in our consolidated financial statements for the year ended December 31, 2018. Based on our calculation under the GILTI rules, we do not have an inclusion as of December 31, 2018.

Status of our Assessment

In accordance with SAB 118, we have completed our determination of the accounting implications of the Tax Act as of December 22, 2018.

Liquidity and Capital Resources

Historically, we have met our operational liquidity needs through a combination of cash on hand and internally generated funds and have funded capital expenditures and acquisitions with a combination of internally generated funds, cash on hand, proceeds from dispositions, borrowings under our credit facilities and seller financing. We believe our current cash, cash equivalents, short term investments and availability under our current credit facility will be sufficient to meet our cash needs for at least the next twelve months for working capital needs and capital expenditures.

Uses of Cash

Acquisitions and investments. Historically, we have funded our acquisitions with a combination of cash on hand, borrowings under our credit facilities and seller financing.

We continue to explore opportunities to expand our telecommunications and our international renewable energy businesses or acquire new businesses and licenses in the United States, the Caribbean and elsewhere. Such acquisitions, including acquisitions of renewable energy assets, may require external financing. While there can be no assurance as to whether, when or on what terms we will be able to acquire any such businesses or licenses or make such investments, such acquisitions may be accomplished through the issuance of shares of our capital stock, payment of cash or

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incurrence of additional debt. From time to time, we may raise capital ahead of any definitive use of proceeds to allow us to move more quickly and opportunistically if an attractive investment materializes.

As of December 31, 2018, we had approximately $192.9 million in cash, cash equivalents and restricted cash. Of this amount, $28.2 million was held by our foreign subsidiaries and is indefinitely invested outside the United States. The amount held by our foreign subsidiaries decreased $85.7 million from the December 31, 2017 balance of $113.9 million primarily as the result of $64.5 million in dividends paid by our Guyana subsidiary of which $51.6 million was paid to us (and eliminated in consolidation) while the remaining $12.9 million was paid to that subsidiary's minority shareholder. As the Tax Act resulted in a one-time transition tax on the deemed repatriation of foreign earnings for federal tax purposes, the tax impact of subsequent cash distributions will be primarily limited to foreign withholding tax, foreign exchange gain or loss, where applicable, and state taxes. In addition, we had approximately $91.0 million of debt, net of unamortized deferred financing costs, as of December 31, 2018. How and when we deploy our balance sheet capacity will figure prominently in our longer-term growth prospects and stockholder returns.

Capital expenditures. Historically, a significant use of our cash has been for capital expenditures to expand and upgrade our telecommunications networks and to expand our renewable energy operations.

For the years ended December 31, 2018 and 2017, we spent approximately $185.9 million and $142.4 million, respectively, on capital expenditures. The following notes our capital expenditures, by operating segment, for these periods (in thousands):

	Capital Expenditures				
Year ended December 31,	U.S. Telecom	International Telecom	Renewable Energy	Corporate and Other (1)	Consolidated
2018	$ 13,389	$ 160,013 (2)	$ 4,515	$ 8,004	$ 185,921
2017	22,230	80,912	32,738	6,491	142,371

(1) Corporate and other items refer to corporate overhead accosts and consolidating adjustments.

(2) Includes $80.2 million of expenditures used for network repairs and resiliency enhancements in the U.S. Virgin Islands which were impacted by the Hurricanes. These expenditures were financed, in part, by the $34.6 million of insurance proceeds we received during the first quarter of 2018 and cash from operations.

We are continuing to invest in our telecommunication networks along with our operating and business support systems in many of our markets. Such investments include the upgrade and expansion of both our wireline and wireless telecommunications networks as well as our service delivery platforms. We expect 2019 capital expenditures for our International Telecom segment to be approximately $50 million to $55 million. In our U.S. Telecom segment, we expect capital expenditures to be approximately $13 million to $15 million excluding our new initiatives and early-stage business spending. To a smaller extent we also continue to invest in expanding our renewable energy assets in India, however, continued expansion in the India market is largely dependent on our ability to secure local financing and the timing, terms and conditions of such financing, which are difficult to estimate at this time.

We expect to fund our current capital expenditures primarily from our current cash balances and cash generated from operations but may secure additional financing to support renewable energy capital expenditures in India.

Income taxes. We have historically used cash on hand to make payments for income taxes. Our policy is to allocate capital where we believe we will get the best returns and to date has been to indefinitely reinvest the undistributed earnings of our foreign subsidiaries. As we continue to reinvest our remaining foreign earnings, outside of dividends from Guyana made in 2018, no additional provision for income taxes has been made on accumulated earnings of foreign subsidiaries.

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Dividends. We use cash-on-hand to make dividend payments to our stockholders when declared by our Board of Directors. For the year ended December 31, 2018, our Board declared $10.9 million of dividends to our stockholders, which includes a $0.17 per share dividend declared on December 12, 2018 and paid on January 10, 2019. We have declared quarterly dividends for the last 81 fiscal quarters.

Stock Repurchase Plan. On September 19, 2016, our Board of Directors authorized the repurchase of up to $50.0 million of our common stock from time to time on the open market or in privately negotiated transactions (the “2016 Repurchase Plan”). During the year ended December 31, 2018, we repurchased $1.6 million under the 2016 Repurchase Plan and have $37.7 million available to be repurchased under that plan as of December 31, 2018.

Debt Service and Other Contractual Commitments Table. The following table discloses aggregate information about our debt, lease and other obligations as of December 31, 2018 and the periods in which payments are due:

Contractual Obligations	Total	Less Than 1 Year	1 – 3 Years	4 – 5 Years	More Than 5 Years
	(In thousands)				
Debt	$ 90,982	$ 4,688	$ 7,513	$ 19,459	$ 59,322
Pension obligations	46,734	5,022	13,823	4,355	23,534
Operating lease obligations	71,759	21,941	31,219	12,608	5,991
Total	$ 209,475	$ 31,651	$ 52,555	$ 36,422	$ 88,847

We have omitted uncertain income tax liabilities from this table due to the inherent uncertainty regarding the timing of potential issue resolution. Specifically, either the underlying positions have not been fully developed enough under audit to quantify at this time or the years relating to the issues for certain jurisdictions are not currently under audit. At December 31, 2018, we had $34.0 million of gross unrecognized tax benefits of which $29.0 million is included in “Other Liabilities” and $5.0 million is included in “Accrued Taxes” in the consolidated balance sheet.

Sources of Cash

Total liquidity. As of December 31, 2018, we had approximately $192.9 million in cash, cash equivalents and restricted cash which represents a decrease of $34.1 million from the December 31, 2017 balance of $227.0 million. The decrease is primarily attributable to cash used for capital expenditures of $185.9 million (including $80.2 million for the network repairs and resiliency enhancements of our network in the U.S. Virgin Islands following the Hurricanes), distributions to our minority shareholders of $18.8 million (which includes distributions to the minority shareholder of our Guyana subsidiary of $12.9 million), dividends paid on our common stock of $10.9 million, the repurchase of our common stock of $6.2 million, the principal repayment of our debt of $9.8 million, the repurchase of non-controlling interests of $9.7 million and $3.0 million used for certain strategic investments. These amounts were partially offset by cash provided by our operations of $115.9 million, the receipt of $34.6 million of insurance proceeds relating to the damages we incurred as a result of the Hurricanes, the aggregate net proceeds from the sale of assets and investments of $61.7 million (including $47.3 million received from the U.S. Solar Transaction) and receipt of government grants of $5.4 million.

Cash provided by operations. Cash provided by operating activities was $115.9 million for the year ended December 31, 2018 as compared to $145.7 million for the year ended December 31, 2017. The decrease of $29.8 million was primarily related to a decrease of $31.9 million within our U.S. Telecom segment which was primarily the result of the decrease in wireless revenues due to the reduction in wholesale roaming revenue rates and the impact of the July 2018 sale of 100 cell sites, a decrease of $1.9 million within our International Telecom segment primarily related to the impact of the Hurricanes and a decrease of $4.5 million within our renewable energy segment. These decreases were partially offset by an increase in cash flow from operations of $7.7 million as a result of the timing of payments made for accounts payable and income taxes.

Cash used in investing activities. Cash used in investing activities was $87.3 million and $172.3 million for the years ended December 31, 2018 and 2017, respectively. The year ended December 31, 2018 included $34.6 million of insurance proceeds relating to business interruptions and damages incurred as a result of the Hurricanes, $5.4 million of

cash received for government grants, $47.3 million in proceeds from the U.S. Solar Transaction and $13.4 million received for the aggregate proceeds on the sale of marketable securities and other investments. The year ended December 31, 2017 included aggregate proceeds of $22.4 million received from the Sovernet Transaction and the sale of our operations in St. Maarten. These cash receipts were offset by capital expenditures of $185.9 million (including $80.2 million for the rebuild of our network in the U.S. Virgin Islands which was impacted by the Hurricanes) during the year ended December 31, 2018 as compared to $142.4 million used for capital expenditures during the year ended December 31, 2017.

Cash used in financing activities. Cash used in financing activities was $55.2 million and $42.1 million during the years ended December 31, 2018 and 2017, respectively. The increase in cash used for financing activities of $13.1 million was primarily related to an $11.9 million increase in the distributions made to minority shareholders (primarily the minority shareholder of our Guyana subsidiary) and a $7.6 million increase in the repurchases of non-controlling interests. These increases were partially offset by an $8.4 million decrease in the dividends paid to our stockholders, a $6.7 million reduction in the amounts we paid to repurchase our common stock and the effects of the refinancing of the One Communications debt which was completed in 2017.

Credit facility. We have a credit facility with CoBank, ACB and a syndicate of other lenders to provide for a $225 million revolving credit facility (the “Credit Facility”) that includes (i) up to $10 million under the Credit Facility for standby or trade letters of credit, (ii) up to $25 million under the Credit Facility for letters of credit that are necessary or desirable to qualify for disbursements from the FCC’s mobility fund and (iii) up to $10 million under a Swingline sub-facility. The Credit Facility has a maturity date of December 31, 2019 and currently we expect to enter into a new agreement before the maturity date. The Credit Facility also provides for the incurrence by us of incremental term loan facilities, when combined with increases to revolving loan commitments, in an aggregate amount not to exceed $200 million (the “Accordion”).

Amounts that we may borrow under the Credit Facility bear interest at a rate equal to, at our option, either (i) the London Interbank Offered Rate (LIBOR) plus an applicable margin ranging between 1.50% to 1.75% or (ii) a base rate plus an applicable margin ranging from 0.50% to 0.75%. Swingline Loans will bear interest at the base rate plus the applicable margin for base rate loans. The base rate is equal to the higher of (i) 1.00% plus the higher of (x) the one-week LIBOR and (y) the one-month LIBOR; (ii) the federal funds effective rate (as defined in the Credit Facility) plus 0.50% per annum; and (iii) the prime rate (as defined in the Credit Facility). The applicable margin is determined based on the ratio (as further defined in the Credit Facility) of our indebtedness to EBITDA. Under the terms of the Credit Facility, we must also pay a fee ranging from 0.175% to 0.250% of the average daily unused portion of the Credit Facility over each calendar quarter.

The Credit Facility contains customary representations, warranties and covenants, including a financial covenant that imposes a maximum ratio of indebtedness to EBITDA as well as covenants limiting additional indebtedness, liens, guaranties, mergers and consolidations, substantial asset sales, investments and loans, sale and leasebacks, transactions with affiliates and fundamental changes. Our investment in “unrestricted” subsidiaries is limited to $400 Million less the aggregate amount of certain dividend payments to our stockholders. Amounts borrowed under the Accordion are also subject to proforma compliance with a net leverage ratio financial covenant. As of December 31,

2018, we were in compliance with all of the financial covenants of the Credit Facility.

As of December 31, 2018, we had no borrowings under the Credit Facility.

Ahana Debt

On December 24, 2014, in connection with the Ahana Acquisition, we assumed $38.9 million in long-term debt (the "Original Ahana Debt"). The Original Ahana Debt included multiple loan agreements with banks that bore interest at rates between 4.5% and 6.0%, matured at various times between 2018 and 2023 and were secured by certain solar facilities. Repayment of the Original Ahana Debt was being made in cash on a monthly basis until maturity.

The Original Ahana Debt also included a loan from Public Service Electric & Gas (the "PSE&G Loan"). The PSE&G Loan bore interest at 11.3%, matured in 2027, and was secured by certain solar facilities. Repayment of the

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Original Ahana Debt with PSE&G could be made in either cash or SRECs, at our discretion, with the value of the SRECs being fixed at the time of the loan's closing. Historically, we had made all repayments of the PSE&G Loan using SRECs.

On December 19, 2016, Ahana's wholly-owned subsidiary, Ahana Operations, issued $20.6 million in aggregate principal amount of 4.427% senior notes due 2029 (the "Series A Notes") and $45.2 million in aggregate principal amount of 5.327% senior notes due 2031 (the "Series B Notes" and collectively with the Series A Notes and the PSE&G Loan, the "Ahana Debt"). Interest and principal were payable semi-annually, until the respective maturity dates of March 31, 2029 (for the Series A Notes) and December 31, 2031 (for the Series B Notes). Cash flows generated by the solar projects that secured the Series A Notes and Series B Notes were only available for payment of such debt and were not available to pay other obligations or the claims of the creditors of Ahana or its subsidiaries. However, subject to certain restrictions, Ahana Operations held the right to the excess cash flows not needed to pay the Series A Notes and Series B Notes and other obligations arising out of the securitizations. The Series A Notes and Series B Notes were secured by certain assets of Ahana and were guaranteed by certain of its subsidiaries.

A portion of the proceeds from the issuances of the Series A Notes and Series B Notes was used to repay the Original Ahana Debt in full except for the PSE&G Loan which remained outstanding after the refinancing.

We capitalized $2.8 million of fees associated with the Series A Notes and Series B Notes which were recorded as a reduction to the debt carrying amount to be amortized over the life of the notes.

On November 6, 2018, we consummated the U.S. Solar Transaction, which included the transfer of the PSE&G Loan, the Series A Notes and Series B Notes to the purchaser. Refer to Note 9 to the Consolidated Financial Statements in this Report.

One Communications Debt

In connection with the One Communications Acquisition on May 3, 2016, we assumed $35.4 million in debt (the "One Communications Debt") in the form of a loan from HSBC Bank Bermuda Limited. The One Communications Debt was scheduled to mature in 2021, was bearing interest at the three-month LIBOR rate plus a margin of 3.25%, and was repaid quarterly. The One Communications Debt contained customary representations, warranties and affirmative and negative covenants (including limitations on additional debt, guaranties, sale of assets and liens) and a financial covenant that limited the maximum ratio of indebtedness less cash to annual operating cash flow.

On May 22, 2017, we amended and restated the One Communications Debt to increase the original facility by $8.6 million to $37.5 million. The amended and restated debt is scheduled to mature on May 22, 2022 and bears interest at the three-month LIBOR plus a margin ranging between 2.5% to 2.75% paid quarterly. The amended and restated One

Communications Debt contains customary representations, warranties and affirmative and negative covenants (including limitations on additional debt, guaranties, sale of assets and liens) and financial covenants that limit the ratio of tangible net worth to long term debt and total net debt to EBITDA and require a minimum debt service coverage ratio (net cash generated from operating activities plus interest expense less net capital expenditures to debt repayments plus interest expense). We were in compliance with its covenants as of December 31, 2018.

As a condition of the amendment of the One Communications Debt, within 90 days of the refinancing we were required to enter into a hedging arrangement with a notional amount equal to at least 30% of the outstanding loan balance and a term corresponding to the term of the One Communications Debt. In July 2017, we entered into an amortizing interest rate swap. This swap has been designated as a cash flow hedge, had an original notional amount of $11.0 million, has an interest rate of 1.874%, and expires in March 2022. As of December 31, 2018, the swap has an unamortized balance of $9.6 million.

In connection with the amendment of the One Communications Debt, we increased the limit of its overdraft facility from $5.0 million to $10.0 million. This facility has an interest rate of three-month LIBOR plus 1.75%.

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We capitalized $0.3 million of fees associated with the One Communications Debt in 2017, which is recorded as a reduction to the debt carrying amount and will be amortized over the life of the debt.

As of December 31, 2018, $31.9 million of the One Communications Debt was outstanding, there were no borrowings under the overdraft facility, and $0.2 million of the capitalized fees remain unamortized.

As of December 31, 2018, One Communications was in compliance with its financial covenants.

Viya Debt (formerly Innovative Debt)

On July 1, 2016, we and certain of our subsidiaries entered into a $60.0 million loan agreement (the "Viya Debt") with Rural Telephone Finance Cooperative ("RTFC"). The Viya Debt agreement contains customary representations, warranties and affirmative and negative covenants (including limitations on additional debt, guaranties, sale of assets and liens) and a financial covenant that limits the maximum ratio of indebtedness to annual operating cash flow to 3.5 to 1.0 (the "Net Leverage Ratio"). This covenant is tested on an annual basis at the end of each fiscal year. Interest is paid quarterly at a fixed rate of 4.0% and principal repayment is not required until maturity on July 1, 2026. Prepayment of the Viya Debt may be subject to a fee under certain circumstances. The debt is secured by certain assets of our Viya subsidiaries and is guaranteed by us. Earlier in 2018, we began funding the restoration of Viya's network following the Hurricanes through an intercompany loan arrangement which exceeded certain limitations on Viya incurring additional debt. RTFC consented to these intercompany advances and increased the intercompany debt limit to $50.0 million. Subsequent to the end of the second quarter end, RTFC increased the limit to $75.0 million at our request due to an increase in the on-going restoration and resiliency costs. We were not in compliance with the Net Leverage Ratio covenant for the year ending December 31, 2018 and received a waiver from the RTFC on February 25, 2019.

We paid a fee of $0.9 million in 2016 to lock the interest rate at 4% per annum over the term of the Viya debt. The fee was recorded as a reduction to the Viya debt carrying amount and will be amortized over the life of the loan.

As of December 31, 2018, $60.0 million of the Viya Debt remained outstanding and $0.7 million of the rate lock fee was unamortized.

Factors Affecting Sources of Liquidity

Internally generated funds. The key factors affecting our internally generated funds are demand for our services, competition, regulatory developments, economic conditions in the markets where we operate our businesses and

industry trends within the telecommunications and renewable energy industries.

Restrictions under Credit Facility. Our Credit Facility contains customary representations, warranties and covenants, including covenants limiting additional indebtedness, liens, guaranties, mergers and consolidations, substantial asset sales, investments and loans, sale and leasebacks, transactions with affiliates and fundamental changes.

In addition, the Credit Facility contains a financial covenant that imposes a maximum ratio of indebtedness to EBITDA. As of December 31, 2018, we were in compliance with all of the financial covenants of the Credit Facility.

Capital markets. Our ability to raise funds in the capital markets depends on, among other things, general economic conditions, the conditions of the telecommunications and renewable energy industries, our financial performance, the state of the capital markets and our compliance with Securities and Exchange Commission ("SEC") requirements for the offering of securities. On May 12, 2017, the SEC declared effective our "universal" shelf registration statement. This filing registered potential future offerings of our securities

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Foreign Currency

We translate the assets and liabilities of our foreign subsidiaries from their respective functional currencies, primarily the Indian Rupee and the Guyana Dollar, to U.S. dollars at the appropriate rates as of the balance sheet date. Changes in the carrying value of these assets and liabilities attributable to fluctuations in rates are recognized in foreign currency translation adjustment, a component of Accumulated Other Comprehensive Income on our balance sheet. Income statement accounts are translated using the monthly average exchange rates during the year. During the year ended December 31, 2018, we recorded a $2.4 million loss on foreign currency transactions. We will continue to assess the impact of our exposure to both the Indian Rupee and the Guyana dollar.

Inflation

We do not believe that inflation has had a significant impact on our consolidated operations in any of the periods presented in this Report.

We have based our discussion and analysis of our financial condition and results of operations on our Consolidated Financial Statements, which have been prepared in accordance with accounting principles generally accepted in the United States of America (or GAAP). We base our estimates on our operating experience and on various conditions existing in the market and we believe them to be reasonable under the circumstances. Our estimates form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ materially from these estimates under different assumptions or conditions.

Critical Accounting Estimates

We have identified the critical accounting estimates that we believe require significant judgment in the preparation of our Consolidated Financial Statements. We consider these accounting estimates to be critical because changes in the assumptions or estimates we have selected have the potential of materially impacting our financial statements.

Revenue Recognition. In determining the appropriate amount of revenue to recognize for a particular transaction, we apply the criteria established by the authoritative guidance for revenue recognition and defer those items that do not meet the recognition criteria. As a result of the cutoff times of our billing cycles, we are often required to estimate the amount of revenues earned but not billed from the end of each billing cycle to the end of each reporting period. These estimates are based primarily on rate plans in effect and historical evidence with each customer or carrier. Adjustments affecting revenue can and occasionally do occur in periods subsequent to the period when the services were provided, billed and recorded as revenue, however historically these adjustments have not been material.

We apply judgment when assessing the ultimate realization of receivables, including assessing the probability of collection and the current credit worthiness of customers. We establish an allowance for doubtful accounts sufficient to cover probable and reasonably estimable losses. Our estimate of the allowance for doubtful accounts considers collection experience, aging of the accounts receivable, the credit quality of customer and, where necessary, other macro economic factors.

Goodwill and Long Lived Intangible Assets. In accordance with the authoritative guidance regarding the accounting for impairments or disposals of long lived assets and the authoritative guidance for the accounting for goodwill and other intangible assets, we evaluate the carrying value of our long lived assets, including property and equipment, whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. An impairment loss exists when estimated undiscounted cash flows attributable to non current assets subject to depreciation and amortization and discounted cash flows for intangible assets not subject to amortization are less than their carrying amount. For long lived assets other than goodwill, if an asset is deemed to be impaired, the amount of the impairment loss recognized represents the excess of the asset's carrying value as compared to its estimated fair value, based on management's assumptions and projections.

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Our estimates of the future cash flows attributable to our long lived assets and the fair value of our businesses involve significant uncertainty. Those estimates are based on management's assumptions of future results, growth trends and industry conditions. If those estimates are not met, we could have additional impairment charges in the future, and the amounts may be material.

We also assess the carrying value of goodwill and indefinite lived intangible assets on an annual basis or more frequently if events or changes in circumstances indicate that the carrying value of goodwill may not be recoverable. The carrying value of each reporting unit, including goodwill assigned to that reporting unit, is compared to its fair value. If the carrying value of the reporting unit, including goodwill, exceeds the fair value of the reporting unit an impairment charge is recorded equal to the excess, but not more than the total amount of goodwill allocated to the reporting unit.

We assess the recoverability of the value of our telecommunications licenses using a market approach. We believe that our telecommunications licenses generally have an indefinite life based on historical ability to renew such licenses, that such renewals may be obtained indefinitely and at little cost, and that the related technology used is not expected to be replaced in the foreseeable future. If the value of these assets was impaired by some factor, such as an adverse change in the subsidiary's operating market, we may be required to record an impairment charge. We test the impairment of our telecommunications licenses annually or more frequently if events or changes in circumstances indicate that such assets might be impaired. The impairment test consists of a comparison of the fair value of telecommunications licenses with their carrying amount on a license by license basis.

In the third quarter of 2017, we determined that the damage caused by the Hurricanes caused a triggering event requiring us to assess the related reporting unit's goodwill and indefinite lived intangible assets for impairment. After consideration of the write-downs of fixed assets within the reporting unit, the impairment test for goodwill and indefinite lived intangible assets was performed by comparing the fair value of the reporting unit to its carrying amount. We calculated the fair value of the reporting unit by utilizing an income approach, with Level 3 valuation inputs, including a cash flow discount rate of 14.5%. Determining fair value requires the exercise of significant judgment, including judgments about appropriate discount rates, perpetual growth rates, and the amount and timing of expected future cash flows. The discount rate was based on a weighted average cost of capital, which represents the average rate the business would pay its providers of debt and equity. The cash flows employed in the discounted cash flow analysis were derived from internal and external forecasts. The impairment assessment concluded that no impairment was required for the goodwill and indefinite lived intangible assets because the fair value of the reporting unit exceeded its carrying amount.

We also performed our annual impairment assessment of our goodwill and telecommunications licenses as of December 31, 2018 for all of our reporting units and determined that no impairment relating to our goodwill and telecommunications licenses existed during the year ended December 31, 2018.

Contingencies. We are subject to proceedings, lawsuits, tax audits and other claims related to lawsuits and other legal and regulatory proceedings that arise in the ordinary course of business as further described in Note 14 to the Consolidated Financial Statements included in this Report. We are required to assess the likelihood of any adverse judgments or outcomes to these matters as well as potential ranges of probable losses. A determination of the amount of loss accruals required, if any, for these contingencies are made after careful analysis of each individual issue. We consult with legal counsel and other experts where necessary in connection with our assessment of any contingencies. The required accrual for any such contingency may change materially in the future due to new developments or

changes in each matter. We estimate these contingencies amount to approximately $44.0 million at December 31, 2018. We believe that some adverse outcome is probable and have accordingly accrued $5.0 million as of December 31, 2018 for these matters.

Recent Accounting Pronouncements

See Note 2 to the Consolidated Financial Statements included in this Report.

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ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

Translation and Remeasurement, We translate the assets and liabilities of our foreign subsidiaries from their respective functional currencies, primarily the Indian Rupee and the Guyana Dollar, to U.S. dollars at the appropriate rates as of the balance sheet date. Changes in the carrying value of these assets and liabilities attributable to fluctuations in rates are recognized in foreign currency translation adjustment, a component of Accumulated Other Comprehensive Income on our balance sheet. Income statement accounts are translated using the monthly average exchange rates during the year.

Monetary assets and liabilities denominated in a currency that is different from a reporting entity’s functional currency must first be remeasured from the applicable currency to the legal entity’s functional currency. The effect of this remeasurement process is reported in other income on our income statement.

Employee Benefit Plan. We sponsor pension and other postretirement benefit plans for employees of certain subsidiaries. Net periodic pension expense is recognized in our income statement. We recognize a pension or other postretirement plan’s funded status as either an asset or liability in our consolidated balance sheet. Actuarial gains and losses are reported as a component of other comprehensive income and amortized through other income in subsequent periods.

Interest Rate Sensitivity. As of December 31, 2018, we had $31.9 million of variable rate debt outstanding, which is subject to fluctuations in interest rates. Our interest expense may be affected by changes in interest rates. We believe that a 10% increase in the interest rates on our variable rate debt would have an immaterial impact on our Financial Statements. We may have additional exposure to fluctuations in interest rates if we again borrow amounts under our revolver loan within our Credit Facility

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

The response to this item is submitted as a separate section to this Report. See “Item 15. Exhibits, Financial Statement Schedules.”

ITEM 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE

None.

ITEM 9A. CONTROLS AND PROCEDURES

Evaluation of Disclosure Controls and Procedures

Our management, with the participation of our Chief Executive Officer and Chief Financial Officer, evaluated the effectiveness of our disclosure controls and procedures as of December 31, 2018. Disclosure controls and procedures, as defined in Rules 13a 15(e) and 15d 15(e) under the Securities Exchange Act of 1934, as amended (the “Exchange Act”), means controls and other procedures of an issuer that are designed to ensure that information required to be disclosed by the issuer in the reports that it files or submits under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the Securities and Exchange Commission’s (“SEC”) rules and forms. Disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed by an issuer in the reports that it files or submits under the Exchange Act is accumulated and communicated to the issuer’s management, including its principal executive and principal financial officers, or persons performing similar functions as appropriate to allow timely decisions regarding required disclosure. Management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving their objectives and management necessarily applies its judgment in evaluating the cost benefit relationship of possible controls and procedures. Based on the evaluation of our disclosure controls and procedures as of December 31, 2018, our Chief Executive Officer and Chief Financial Officer concluded that, as of such date, our disclosure controls and procedures were effective at the reasonable assurance level.

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Management's Report on Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting. Internal control over financial reporting is defined in Rules 13a 15(f) and 15d 15(f) promulgated under the Exchange Act, as a process designed by, or under the supervision of, our Chief Executive Officer and Chief Financial Officer or persons performing similar functions, and effected by our Board of Directors, management and other personnel, 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 and includes those policies and procedures that:

- Pertain to the maintenance of records that in reasonable detail accurately and fairly reflect the transactions and dispositions of our assets;
- Provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that our receipts and expenditures are being made only in accordance with authorizations of our management and directors; and
- Provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of our assets that could have a material effect on the financial statements.

Our management assessed the effectiveness of our internal control over financial reporting as of December 31, 2018. In making this assessment, our management used the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission ("COSO") in Internal Control—Integrated Framework (2013). Based on its assessment, management concluded that, as of December 31, 2018, our internal control over financial reporting was effective based on those criteria.

Our internal control over financial reporting as of December 31, 2018 has been audited by PricewaterhouseCoopers LLP, an independent registered public accounting firm, as stated in their report which appears on page F 2.

Changes in Internal Control Over Financial Reporting.

There were no changes in our internal control over financial reporting (as defined in Rules 13a 15(f) and 15d 15(f) under the Exchange Act) that occurred during the quarter ended December 31, 2018 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

ITEM 9B. OTHER INFORMATION

On July 1, 2016, we and certain of our subsidiaries entered into a $60.0 million loan agreement (the "Viya Debt") with Rural Telephone Finance Cooperative ("RTFC"). The Viya Debt agreement contains customary representations, warranties and affirmative and negative covenants (including limitations on additional debt, guaranties, sale of assets and liens) and a financial covenant that limits the maximum ratio of indebtedness to annual operating cash flow to 3.5 to 1.0 (the "Net Leverage Ratio"). This covenant is tested on an annual basis at the end of each fiscal year. Interest is paid quarterly at a fixed rate of 4.0% and principal repayment is not required until maturity on July 1, 2026. Prepayment of the Viya Debt may be subject to a fee under certain circumstances. The debt is secured by certain assets of our Viya subsidiaries and is guaranteed by us. Earlier in 2018, we began funding the restoration of Viya's network following the Hurricanes through an intercompany loan arrangement which exceeded certain limitations on Viya incurring additional debt. RTFC consented to these intercompany advances and increased the intercompany debt limit to $50.0 million. Subsequent to the end of the second quarter end, RTFC increased the limit to $75.0 million at our request due to an increase in the on-going restoration and resiliency costs. We were not in

compliance with the Net Leverage Ratio covenant for the year ending December 31, 2018 and received a waiver from the RTFC on February 25, 2019.

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PART III

ITEM 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

The following table sets forth information regarding our executive officers and directors as of February 28, 2019:

Name	Age	Position
Michael T. Prior	54	Chairman, President, Chief Executive Officer, and Director
Justin D. Benincasa	56	Chief Financial Officer
Brad Martin	43	Executive Vice President, Business Operations
William F. Kreisher	56	Senior Vice President, Corporate Development
Mary Mabey	37	Senior Vice President, General Counsel and Secretary
Martin L. Budd	78	Director
Bernard Bulkin	76	Director
Michael T. Flynn	70	Director
Richard J. Ganong	55	Director
John C. Kennedy	54	Director
Liane J. Pelletier	61	Director
Charles J. Roesslein	70	Director

Executive Officers

Michael T. Prior is the chairman of the Board of Directors and has been our President and Chief Executive Officer since December 2005 and an officer of the Company since June 2003. He was elected to the Board in May 2008. Previous to joining the Company, Mr. Prior was a partner with Q Advisors LLC, a Denver based investment banking and financial advisory firm focused on the technology and telecommunications sectors. Mr. Prior began his career as a corporate attorney with Cleary Gottlieb Steen & Hamilton LLP in London and New York. He received a B.A. degree from Vassar College and a J.D. degree summa cum laude from Brooklyn Law School. Mr. Prior currently serves on the Board of Directors of the Competitive Carriers Association. In 2008, Mr. Prior was named Entrepreneur of the Year for the New England Region by Ernst & Young LLP and One of America's Best CEOs by DeMarche Associates, Inc.

Justin D. Benincasa is our Chief Financial Officer. Prior to joining us in May 2006, Mr. Benincasa was a Principal at Windover Development, LLC since 2004. From 1998 to 2004, he was Executive Vice President of Finance and Administration at American Tower Corporation, a leading wireless and broadcast communications infrastructure company, where he managed finance and accounting, treasury, IT, tax, lease administration and property management. Prior to that, he was Vice President and Corporate Controller at American Radio Systems Corporation and held accounting and finance positions at American Cablesystems Corporation. Mr. Benincasa holds an M.B.A. degree from Bentley University and a B.A. degree from the University of Massachusetts.

Brad Martin is our Executive Vice President, Business Operations. Prior to joining us in 2018, he previously served as Chief Operating Officer for Senet Inc., a leading "low power wide area" network (LPWAN) operator and global service provider. From 2013 through 2015, Mr. Martin served as Senior Vice President and Chief Quality Officer with Extreme Networks, a global leader in software-driven networking solutions for Enterprise and Service Provider customers. Between 2008 and 2013, Mr. Martin served as Vice President of Engineering Operations and Quality with Siemens Enterprise Communications and Enterasys Networks, delivering voice and data networking hardware and software solutions to global enterprises. Mr. Martin holds a Bachelor of Science, Mechanical Engineering from the University of Maine, is a published author and featured industry speaker.

William F. Kreisher is our Senior Vice President, Corporate Development. Prior to joining us in 2007, Mr. Kreisher was Vice President—Corporate Development at Cingular Wireless (now AT&T Mobility) since 2004. He was part of the corporate development team at Cingular since its formation and spent five years at BellSouth before that as a Director of Finance, the acting Chief Financial Officer at its broadband and video division, and as a senior manager in its mergers and acquisitions group. Mr. Kreisher is a more than twenty five year veteran of the telecommunications

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industry, having also worked with MCI Telecommunications and SITA (Equant). Mr. Kreisher holds a Masters in Business Administration from Fordham University and a Bachelor of Arts degree from the Catholic University of America.

Mary Mabey is our Senior Vice President and General Counsel. Ms. Mabey joined us in 2009 and previously served as our Deputy General Counsel. Prior to joining us, Ms. Mabey was with the law firm of Edwards Angell Palmer & Dodge LLP (now Locke Lord LLP) in Boston, where she advised public and private companies in domestic and international transactions on corporate and securities law matters, merger, acquisition and financing transactions, corporate governance, and other general corporate matters. Ms. Mabey received a B.A. degree from the University of Notre Dame and a J.D. degree from the University of Texas School of Law.

Non-Employee Directors

Martin L. Budd has been a director of ours since May 2007, and is the Chair of our Compensation Committee. He retired as a partner of the law firm of Day, Berry and Howard LLP (now Day Pitney LLP) effective December 31, 2006. Mr. Budd chaired that firm's Business Law Department and its Business Section and had particular expertise in federal securities laws, merger and acquisition transactions and strategic joint ventures. Mr. Budd is Chairman of the Connecticut Appleseed Center for Law and Justice and has served on the Legal Advisory Board of the National Association of Securities Dealers. He is a member of the Board of Trustees of the Hartford Seminary. Mr. Budd also serves on the Board of the "I Have a Dream" Foundation. Mr. Budd earned his legal degree from the Harvard Law School.

Dr. Bernard Bulkin has been a director of our since March 2016 and is the Chair of our Nominating and Corporate Governance Committee. Dr. Bulkin brings particular expertise in the field of renewable energy. He held several senior management roles throughout his approximately twenty-year career at British Petroleum, including Director of the refining business, Vice President Environmental Affairs, and Chief Scientist, and left BP in 2003. He is currently a Director of K3Solar Ltd., IDSolar Power Ltd, and Sustainable Power Ltd,. Dr. Bulkin has served on the boards of Severn Trent plc, Ludgate Investments Limited, HMN Colmworth Ltd., Chemrec AB and REAC Fuel AB, each a Swedish biofuel technology developer, and Ze-gen Corporation, a renewable energy company, and chaired the boards of two UK public companies: AEA Technology plc (from 2005 until 2009), and Pursuit Dynamics Plc (from 2011 until 2013). Dr. Bulkin served as Chair of the UK Office of Renewable Energy from 2010 until 2013, was a member of the FTSE Environmental Markets Advisory Committee (2010-2017) and has held several other UK government roles in sustainable energy and transport. He earned a B.S. in Chemistry from the Polytechnic Institute of Brooklyn and a Ph.D. in Physical Chemistry from Purdue University. Dr. Bulkin is a Professorial Fellow at the University of Cambridge and is the author of Crash Course, published in March 2015. He was awarded the Honour of Officer of the Order of the British Empire (OBE) in the 2017 New Year Honours List.

Michael T. Flynn has been a director of ours since June 2010 and is a member of our Audit and Nominating and Corporate Governance Committees. He is currently a director of Airspan Networks, Inc., a provider of wireless broadband equipment and CALIX, Inc., a manufacturer of broadband equipment. Mr. Flynn has forty years of experience in the telecommunications wireline and wireless businesses, and spent ten years as an officer at Alltel Corporation prior to his retirement in 2004. He also previously served as an officer of Southwestern Bell Telephone Co. and its parent SBC Communications from 1987 to 1994. Mr. Flynn has previously served on the board of directors of WebEx Communications, Inc., a provider of internet collaboration services, Equity Media Holding Corporation, an owner and operator of television stations throughout the United States, iLinc Communications, Inc., a provider of SaS web collaboration and GENBAND, a worldwide leader of next generation network systems. Mr. Flynn received a Bachelor of Science degree in Industrial Engineering from Texas A&M University and attended the Dartmouth Institute and the Harvard Graduate School of Business' Advanced Management Program.

Richard J. Ganong has been a director of ours since June 2018 and is a member of our Audit Committee. Mr. Ganong has more than 25 years of experience in the financial services industry with a focus on venture capital and hedge fund investing. He was a Partner at the Tudor Investment Corporation from 1993 to 2009, an internationally recognized diversified investment management firm, and was a founding General Partner of the Tudor Venture Group which managed a series of funds providing growth capital to private companies in various information technology industries.

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Mr. Ganong was the Senior Vice President of Development and Alumni Relations at Bowdoin College from 2014 to 2016 and most recently founded Five Pine Partners, where he focuses on advising and investing in emerging companies in the information technology, consumer and food sectors. Mr. Ganong also is an emeritus member of the Board of Overseers at The Tuck School at Dartmouth. He is currently a member of the Board of Directors for The Maine Technology Institute, The Gulf of Maine Research Institute, and Wolfe's Neck Center for Agriculture and the Environment, all private entities. Mr. Ganong holds a Bachelor of Arts from Bowdoin College and an MBA from the Tuck School at Dartmouth.

John C. Kennedy has been a director of ours since June 2018 and is a member of our Compensation Committee. Mr. Kennedy is the founder and CEO of Platform Science, Inc., an emerging company in the connected vehicle and transportation technology space. Previously, he was the President of Qualcomm Enterprise Services and the President of Omnitracs, Inc. Mr. Kennedy is a veteran of News Corp., where he served as Executive Vice President of Operations—Digital Media, from 2009 to 2012. From 2007 to 2008 he served as Executive Vice President of Strategy and Corporate Development at Fox Interactive Media and began his career at Fox as a Senior Vice President of Corporate Development at Fox Networks Group, where he was part of the joint Fox/NBC Universal team that created the joint venture now known as "Hulu". His background includes multiple leadership and strategic roles with technology start-ups, including satellite broadband start-up Teledesic; pioneering online video site Load Media Network, where Mr. Kennedy served as Chief Executive Officer; Leap Wireless, and Wireless Facilities International. He began his business career as a venture capital associate with Idanta Partners. Mr. Kennedy retired as a Commander in the U.S. Navy Reserves in 2016, after serving as a founding team member of DiUX, the Department of Defense's recently established Silicon Valley presence. He served on the staff of U.S. Senator John McCain; the Aide de Camp to the vice chairman of the Joint Chiefs of Staff; and was a naval aviator in the first Gulf War. Mr. Kennedy holds a BS in Economics and Engineering from the United States Naval Academy and an MBA from the Harvard Business School, and was a Legis Fellow of the Brookings Institution.

Liane J. Pelletier has been a director of ours since June 2012, is the Independent Lead Director of our Board of Directors and a member of our Nominating and Corporate Governance and Compensation Committees. Ms. Pelletier has over twenty-five years of experience in the telecommunications industry. From October 2003 through April 2011, she served as the Chief Executive Officer and Chairman of Alaska Communications Systems, and prior to that time served as the former Senior Vice President of Corporate Strategy and Business Development for Sprint Corporation. Ms. Pelletier earned her M.S. in Management at the Sloan School of Business at the Massachusetts Institute of Technology and a B.A. in Economics, magna cum laude, from Wellesley College. Ms. Pelletier currently serves as Chairman of the Nominating and Corporate Governance Committee of the Board of Expeditors International and is Chairman of the National Association of Corporate Directors (“NACD”), Northwest Chapter. Ms. Pelletier is a NACD Board Leadership Fellow and has earned the CERT Certificate in Cybersecurity Oversight from the Software Engineering Institute of Carnegie Mellon.

Charles J. Roesslein has been a director of ours since April 2002 and is the Chair of our Audit Committee. He has been a director of National Instruments Corporation since July 2000 and is the Co-Founder of Austin Tele-Services Partners, LP, a telecommunications provider, for whom he served as Chief Executive Officer from 2004 to January 2016. He is a retired officer of SBC Communications. Mr. Roesslein previously served as Chairman of the Board of Directors, President and Chief Executive Officer of Prodigy Communications Corporation from June of 2000 until December of 2000. He served as President and Chief Executive Officer of SBC-CATV from October 1999 until May 2000, and as President and Chief Executive Officer of SBC Technology Resources from August 1997 to October 1999. Mr. Roesslein holds a BS in Mechanical Engineering from the University of Missouri-Columbia and a master’s degree in Finance from the University of Missouri-Kansas City.

Additional information required by this Item 10 will be set forth in our Definitive Proxy Statement for the 2019 Annual Meeting of Stockholders (the “2019 Proxy Statement”) and is incorporated herein by reference.

Information regarding our Code of Ethics applicable to our principal executive officer, our principal financial officer, our controller and other senior financial officers appears in Item 1 of this Report under the caption “Business—Available Information.”

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ITEM 11. EXECUTIVE COMPENSATION

Information required by this Item 11 will be set forth in our 2019 Proxy Statement and is incorporated herein by reference.

ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS

Information required by this Item 12 will be set forth in our 2019 Proxy Statement and is incorporated herein by reference.

ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE

Information required by this Item 13 will be set forth in our 2019 Proxy Statement and is incorporated herein by reference.

ITEM 14. PRINCIPAL ACCOUNTANT FEES AND SERVICES

Information required by this Item 14 will be set forth in our 2019 Proxy Statement and is incorporated herein by reference.

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PART IV

ITEM 15. EXHIBITS, FINANCIAL STATEMENT SCHEDULES

(a) The following documents are filed as part of this Report:
(1) Financial Statements. See Index to Consolidated Financial Statements, which appears on page F 1 hereof. The financial statements listed in the accompanying Index to Consolidated Financial Statements are filed herewith in response to this Item 15.
(2) Schedule II. Valuation and Qualifying Accounts for the years ended December 31, 2016, 2017, and 2018 which appears on page F-60 hereof.
(3) Exhibits. The exhibits listed below are filed herewith in response to this Item 15.

EXHIBIT INDEX

to Form 10 K for the Year Ended December 31, 2018

2.1 Purchase Agreement, effective as of September 30, 2015, by and among Caribbean Asset Holdings, LLC, National Rural Utilities Cooperative Finance Corporation, ATN VI Holdings, LLC and ATN International, Inc. (incorporated by reference to Exhibit 2.1 to the Company's Quarterly Report on Form 10-Q (File No. 001-12593) for the quarterly period ended September 30, 2015 filed on November 9, 2015).

2.2 Amendment No. 1 to the Purchase Agreement, dated as of July 1, 2016, by and among National Rural Utilities Cooperative Finance Corporation, Caribbean Asset Holdings, LLC, ATN VI Holdings, LLC, and ATN International, Inc. (incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q (file No. 001-12593) for the quarterly period ended June 30, 2016 filed on August 9, 2016).

2.3 Transaction Agreement, dated as of October 5, 2015, by and among ATN International, Inc., ATN Caribbean Holdings, Ltd., ATN Bermuda Holdings Ltd., KeyTech Limited and Chancery Holdings Limited (incorporated by reference to Exhibit 2.1 to the Company's Current Report on Form 8-K (File No. 001-12593) filed on October 6, 2015).

3.1 Restated Certificate of Incorporation of ATN International, Inc. (incorporated by reference to Exhibit 4.1 to the Company's Registration Statement on Form S 8 (File No. 333 62416) filed on June 6, 2001).

3.2 Certificate of Amendment to the Restated Certificate of Incorporation of ATN International, Inc., as filed with the Delaware Secretary of State on August 14, 2006 (incorporated by reference to Exhibit 3.2 to the Company's Quarterly Report on Form 10 Q (File No. 001 12593) for the quarterly period ended June 30, 2006 filed on August 14, 2006).

3.3 Certificate of Amendment to the Company's Restated Certificate of Incorporation, filed June 10, 2016 and effective June 21, 2016 (incorporated by reference to Exhibit 3.1 to the Company's Periodic Report on Form 8-K (File No. 001-12593) filed on June 27, 2016).

3.4 ** Amended and Restated By-Laws, effective as of February 27, 2017.

10.1* ATN International, Inc. 1998 Stock Option Plan (as amended May 24, 2007 incorporated by reference to Appendix A to the Company's Proxy Statement on Schedule 14A (File No. 001 12593) filed on April 30, 2007).

10.2* Director's Remuneration Plan as amended as of November 2, 1999 (incorporated by reference to Exhibit 4.7 to the Company's Registration Statement on Form S 8 (File No. 333 62416) filed on June 6, 2001).

10.3* Form of Incentive Stock Option Agreement under 1998 Stock Option Plan (incorporated by reference to Exhibit 4.8 to the Company's Registration Statement on Form S 8 (File No. 333 62416) filed on June 6, 2001).

10.4*

2005 Restricted Stock and Incentive Plan (incorporated by reference to Exhibit 4.5 to the Company's Registration Statement on Form S 8 (File No. 333 62416) filed on May 24, 2005).

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10.5 * ATN International, Inc. 2008 Equity Incentive Plan, as amended and restated (incorporated by reference to Appendix C of the Definitive Proxy Statement on Schedule 14A (File No. 001 12593) filed on May 2, 2011).

10.6 * Form of Notice of Grant of Restricted Stock and Restricted Stock Agreement under 2008 Equity Incentive Plan (Non Employee Directors) (incorporated by reference to Exhibit 10.2 to the Company's Current Report on Form 8 K (File No. 001 12593) filed on May 21, 2008).

10.7 * Form of Notice of Grant of Restricted Stock and Restricted Stock Agreement under 2008 Equity Incentive Plan (incorporated by reference to Exhibit 10.3 to the Company's Current Report on Form 8 K (File No. 001 12593) filed on May 21, 2008).

10.8 * Form of Notice of Grant of Incentive Stock Option and Option Agreement under 2008 Equity Incentive Plan (incorporated by reference to Exhibit 10.4 to the Company's Current Report on Form 8 K (File No. 001 12593) filed on May 21, 2008).

10.9 * Form of Notice of Grant of Nonqualified Stock Option and Option Agreement under 2008 Equity Incentive Plan (incorporated by reference to Exhibit 10.5 to the Company's Current Report on Form 8 K (File No. 001 12593) filed on May 21, 2008).

10.10* Deferred Compensation Plan for Select Employees of ATN International, Inc. (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8 K (File No. 001 12593) filed on January 6, 2009).

10.11 Fourth Amended and Restated Credit Agreement dated as of December 19, 2014 by and among the Company, as Borrower, CoBank, ACB, as Administrative Agent, Lead Arranger, Swingline Lender, an Issuing Lender and a Lender, Fifth Third Bank, as a Joint Lead Arranger, MUFG Union Bank, N.A., as a Joint Lead Arranger and an Issuing Lender, the Guarantors named therein and the other Lenders named therein (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8 K (File No. 001 12593) filed on December 23, 2014).

10.12 Amendment, Consent and Confirmation Agreement, dated January 11, 2016, by and among ATN International, Inc., as Borrower, CoBank, ACB, as Administrative Agent, and the Guarantors and other Lenders named therein (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8 K (File No. 001 12593) filed on January 15, 2016).

10.13 Agreement between the Government of the Co-Operative Republic of Guyana and Atlantic Tele- Network, Inc., dated June 18, 1990 (incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q (File No. 001-12593) for the quarterly period ended March 31, 2006 filed on May 15, 2006).

10.14 Amendment to the Agreement between the Government of the Co Operative Republic of Guyana and ATN International, Inc., dated November 2, 2012 (incorporated by reference to Exhibit 10.20 to the Company's Annual Report on Form 10 K (File No. 001 12593) for the year ended December 31, 2012 filed on March 18, 2013).

10.15* Form of Severance Agreement executed between the Company and Mssrs. Benincasa, Slap, Kreisher, and Fougere dated as of February 26, 2016 (incorporated by reference to Exhibit 10.20 to the Company's Annual Report on Form 10-K (File No. 001-12593) filed on February 29, 2016).

10.16* Severance Agreement between the Company and Mr. Michael Prior, dated as of February 26, 2016 (incorporated by reference to Exhibit 10.21 to the Company's Annual Report on Form 10-K (File No. 001-12593) filed on February 29, 2016).

10.17 Loan Agreement, dated as of July 1, 2016, by and among ATN VI Holdings, LLC, Caribbean Asset Holdings LLC, and Rural Telephone Finance Cooperative (incorporated by reference to Exhibit 10.2 to the Company's Quarterly Report on Form 10-Q (File No. 001-12593) for the quarterly period ended June 30, 2016 filed on August 9, 2016).

10.18 Limited Waiver of Net Leverage Ratio dated as of February 27, 2018, between ATN VI Holdings, LLC and the Rural Telephone Finance Cooperative (incorporated by reference to Exhibit 10.25 to the Company's Annual Report on Form 10-K (File No. 001-12593) filed on February 28, 2018).

10.19** Limited Waiver of Net Leverage Ratio dated as of February 25, 2019, between ATN VI Holdings, LLC and the Rural Telephone Finance Cooperative (filed herewith).

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10.20		Offer Letter by and between ATN International, Inc. and Brad Martin, dated April 4, 2018. (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K (File No. 001-12593) filed on April 19, 2018).
10.21		Consent and Waiver between Rural Telephone Finance Cooperative, Caribbean Asset Holdings, LLC and DTR Holdings, LLC, dated May 7, 2018. (incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q (File No. 001-12593) filed on May 9, 2018)
10.22		Form of Restricted Stock Unit Agreement under the 2008 Equity Incentive Plan (Non-Employee Directors) (incorporated by reference to Exhibit 10.2 to the Company's Quarterly Report on Form 10-Q (File No. 001-12593) filed on May 9, 2018).
10.23		Consent and Waiver between Rural Telephone Finance Cooperative, Caribbean Asset Holdings, LLC and DTR Holdings, LLC, dated August 3, 2018. (incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q (File No. 001-12593) filed on August 8, 2018).
10.24		Purchase and Sale Agreement by and between Ahana Renewables, LLC and CleanCapital Holdco 4, LLC, dated as of September 9, 2018, (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K (File No. 001-12593) filed on September 9, 2018).
21	**	Subsidiaries of ATN International, Inc.
23.1	**	Consent of Independent Registered Public Accounting Firm—PricewaterhouseCoopers LLP.
31.1	**	Certification of Principal Executive Officer pursuant to Rule 13a 14(a) of the Securities Exchange Act of 1934, as adopted pursuant to Rule 302 of the Sarbanes Oxley Act of 2002.
31.2	**	Certification of Principal Financial Officer pursuant to Rule 13a 14(a) of the Securities Exchange Act of 1934, as adopted pursuant to Rule 302 of the Sarbanes Oxley Act of 2002.
32.1	***	Certification of Principal Executive Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes Oxley Act of 2002.
32.2	***	Certification of Principal Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes Oxley Act of 2002.
101.INS	**	XBRL Instance Document
101.SCH	**	XBRL Taxonomy Extension Schema Document
101.CAL	**	XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF	**	XBRL Taxonomy Extension Definition Linkbase Document
101.LAB	**	XBRL Taxonomy Extension Label Linkbase Document
101.PRE	**	XBRL Taxonomy Extension Presentation Linkbase Document

*Management contract or compensatory plan or arrangement.

**Filed herewith.

***The certifications furnished in Exhibit 32.1 and Exhibit 32.2 hereto are deemed to accompany this Report and will not be deemed "filed" for purposes of Section 18 of the Securities Exchange Act of 1934, as amended, except to the extent that the company specifically incorporates it by reference.

ITEM 16. FORM 10-K SUMMARY

None

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SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities and Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized, in Beverly, Massachusetts on the 28Th day of February, 2019.

ATN International, Inc.
By: /s/ Michael T. Prior

Michael T. Prior
Chairman, President and Chief Executive Officer

Pursuant to the requirements of the Securities Exchange Act of 1934 this report has been signed below by the following persons on behalf of the registrant and in the capacities indicated on the 28Th day of February, 2019.

Signature	Title
/s/ Michael T. Prior Michael T. Prior	Chairman, President and Chief Executive Officer (Principal Executive Officer)
/s/ Justin D. Benincasa Justin D. Benincasa	Chief Financial Officer (Principal Financial and Accounting Officer)
/s/ Martin L. Budd Martin L. Budd	Director
/s/ Bernard J. Bulkin Bernard J. Bulkin	Director
/s/ Michael T. Flynn Michael T. Flynn	Director
/s/ Richard J. Ganong Richard J. Ganong	Director
/s/ John C. Kennedy John C. Kennedy	Director
/s/ Liane J. Pelletier Liane J. Pelletier	Director
/s/ Charles J. Roesslein Charles J. Roesslein	Director

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ATN INTERNATIONAL, INC. AND SUBSIDIARIES

CONSOLIDATED FINANCIAL STATEMENTS AND FINANCIAL STATEMENT SCHEDULE

December 31, 2018, 2017 and 2016

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Report of Independent Registered Public Accounting Firm

To the Board of Directors and Stockholders of

ATN International, Inc.:

Opinions on the Financial Statements and Internal Control over Financial Reporting

We have audited the accompanying consolidated balance sheets of ATN International, Inc. and its subsidiaries ("the Company") as of December 31, 2018 and 2017, and the related consolidated income statements, statements of comprehensive income, of equity, and of cash flows for each of the three years in the period ended December 31, 2018, including the related notes and financial statement schedule listed in the index appearing under Item 15(a)(2) (collectively referred to as the "consolidated financial statements"). We also have audited the Company's internal control over financial reporting as of December 31, 2018, based on criteria established in Internal Control - Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of the Company as of December 31, 2018 and 2017, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2018 in conformity with accounting principles generally accepted in the United States of America. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2018 based on criteria established in Internal Control - Integrated Framework (2013) issued by the COSO.

Change in Accounting Principle

As discussed in Note 2 to the consolidated financial statements, the Company changed the manner in which it accounts for revenues from contracts with customers in 2018.

Basis for Opinions

The Company's management is responsible for these consolidated financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting, included in Management's Report on Internal Control over Financial Reporting under Item 9A. Our

responsibility is to express opinions on the Company's consolidated financial statements and on the Company's internal control over financial reporting 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 audits to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud, and whether effective internal control over financial reporting was maintained in all material respects.

Our audits of the consolidated financial statements 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. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

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Definition and Limitations of Internal Control over Financial Reporting

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

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

/s/PricewaterhouseCoopers LLP

Boston, Massachusetts

February 28, 2019

We have served as the Company’s auditor since 2002.

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ATN INTERNATIONAL, INC. AND SUBSIDIARIES

CONSOLIDATED BALANCE SHEETS

December 31, 2018 and 2017

(In Thousands, Except Share Data)

	December 31, 2018	December 31, 2017
ASSETS		
Current Assets:		
Cash and cash equivalents	$ 191,836	$ 207,956
Restricted cash	1,071	833
Short-term investments	393	7,076
Accounts receivable, net of allowances of $16.5 million and $15.0 million, respectively	38,305	43,529
Inventory, materials and supplies	6,305	15,398
Prepayments and other current assets	37,855	68,136
Total current assets	275,765	342,928
Fixed Assets:		
Property, plant and equipment	1,188,916	1,169,806
Less accumulated depreciation	(562,064)	(526,660)
Net fixed assets	626,852	643,146
Telecommunication licenses, net	93,686	95,952
Goodwill	63,970	63,970
Customer relationships, net	9,323	11,734
Restricted cash	—	11,101
Other assets	37,708	36,774
Total assets	$ 1,107,304	$ 1,205,605
LIABILITIES AND EQUITY		
Current Liabilities:		
Current portion of long-term debt	$ 4,688	$ 10,919
Accounts payable and accrued liabilities	80,873	116,133
Dividends payable	2,720	2,724
Accrued taxes	31,795	6,751
Advance payments and deposits	20,574	25,178
Total current liabilities	140,650	161,705
Deferred income taxes	10,276	31,732
Other liabilities	46,760	37,072
Long-term debt, excluding current portion	86,294	144,873
Total liabilities	283,980	375,382
Commitments and contingencies (Note 14)		
ATN International, Inc. Stockholders' Equity:		
Preferred stock, $0.01 par value per share; 10,000,000 shares authorized, none issued and outstanding	—	—
Common stock, $0.01 par value per share; 50,000,000 shares authorized; 17,274,215 and 17,102,530 shares issued, respectively, 16,002,699 and	172	170

16,025,745 shares outstanding respectively		
Treasury stock, at cost; 1,271,516 and 1,076,785 shares, respectively	(48,547)	(36,110)
Additional paid-in capital	181,778	167,973
Retained earnings	563,593	552,948
Accumulated other comprehensive income	(1,609)	3,746
Total ATN International, Inc. stockholders' equity	695,387	688,727
Non-controlling interests	127,937	141,496
Total equity	823,324	830,223
Total liabilities and equity	$ 1,107,304	$ 1,205,605

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

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ATN INTERNATIONAL, INC. AND SUBSIDIARIES

CONSOLIDATED INCOME STATEMENTS

For the Years Ended December 31, 2018, 2017 and 2016

(In Thousands, Except Per Share Data)

	December 31, 2018	2017	2016
REVENUE:			
Wireless	$ 198,824	$ 232,501	$ 244,404
Wireline	230,225	227,827	190,598
Renewable energy	22,158	20,865	22,001
Total revenue	451,207	481,193	457,003
OPERATING EXPENSES (excluding depreciation and amortization unless otherwise indicated):			
Termination and access fees	114,478	120,624	126,443
Engineering and operations	73,031	74,614	60,414
Sales, marketing and customer service	35,207	35,184	30,253
General and administrative	104,267	102,294	90,431
Transaction-related charges	2,642	1,009	18,064
Restructuring charges	515	1,169	—
Depreciation and amortization	85,719	86,934	75,980
Impairment of intangible assets	—	—	11,425
Bargain purchase gain	—	—	(7,304)
(Gain) loss on disposition of long-lived assets	(26,425)	101	27
Loss on damaged assets and other hurricane related charges, net of insurance recovery	750	3,956	—
Total operating expenses	390,184	425,885	405,733
Income from operations	61,023	55,308	51,270
OTHER INCOME (EXPENSE)			
Interest income	1,811	1,613	1,239
Interest expense	(7,973)	(8,838)	(5,362)
Loss on deconsolidation of subsidiary	—	(529)	—
Other expenses	(1,119)	(1)	(1,773)
Other expense, net	(7,281)	(7,755)	(5,896)
INCOME BEFORE INCOME TAXES	53,742	47,553	45,374
Income tax provisions (benefit)	18,870	(1,341)	21,160
NET INCOME	34,872	48,894	24,214
Net income attributable to non-controlling interests, net of tax expense of $1.5 million, $1.0 million, and $1.3 million, respectively.	(15,057)	(17,406)	(12,113)
NET INCOME ATTRIBUTABLE TO ATN INTERNATIONAL, INC. STOCKHOLDERS	$ 19,815	$ 31,488	$ 12,101
NET INCOME PER WEIGHTED AVERAGE SHARE ATTRIBUTABLE TO ATN INTERNATIONAL, INC. STOCKHOLDERS:			
Basic	1.24	1.95	0.75

Diluted	1.24	1.94	0.75
WEIGHTED AVERAGE COMMON SHARES OUTSTANDING:			
Basic	15,988	16,138	16,131
Diluted	16,042	16,210	16,227
DIVIDENDS PER SHARE APPLICABLE TO COMMON STOCK	$ 0.68	$ 1.02	$ 1.32

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

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ATN INTERNATIONAL, INC. AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME

For the Years Ended December 31, 2018, 2017, and 2016

(in thousands)

	Year Ended December 31,		
	2018	2017	2016
Net income	$ 34,872	$ 48,894	$ 24,214
Other comprehensive income:			
Foreign currency translation adjustment	(4,390)	1,265	(687)
Reclassifications of gains on sale of marketable securities to net income	—	(1,044)	—
Unrealized gain on securities	78	440	868
Projected pension benefit obligation, net of tax expense of $0.6 million, $0.7 million and $0.7 million	(840)	1,357	5,251
Other comprehensive income (loss), net of tax	(5,152)	2,018	5,432
Comprehensive income	29,720	50,912	29,646
Less: Comprehensive income attributable to non-controlling interests	(15,057)	(17,406)	(12,113)
Comprehensive income attributable to ATN International, Inc.	$ 14,663	$ 33,506	$ 17,533

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

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ATN INTERNATIONAL, INC. AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF EQUITY

For the Years Ended December 31, 2016, 2017, and 2018

(In Thousands, Except Share Data)

	Common Stock	Treasury Stock, at cost	Additional Paid In Capital	Retained Earnings	Accumulated Other Comprehensive Income/(Loss)	Total ATNI Stockholders' Equity	Non-Controlling Interests	Total Equity
alance, ecember 31, 2015	$ 168	$ (18,254)	$ 154,768	$ 547,321	$ (3,704)	$ 680,299	$ 81,425	$ 761,724
ssuance f 100,005 estricted shares of ommon stock	—	—	(1)	—	—	(1)	—	(1)
ssuance of 43,053 hares of common tock upon exercise f stock options	1	—	1,408	—	—	1,409	—	1,409
urchase of 70,686 hares of common tock	—	(4,873)	—	—	—	(4,873)	—	(4,873)
tock-based ompensation	—	—	6,440	—	—	6,440	—	6,440
ividends declared n common stock	—	—	—	(21,313)	—	(21,313)	(8,848)	(30,161)
xcess tax benefits rom share-based ompensation	—	—	592	—	—	592	—	592
on-controlling nterest in equity cquired	—	—	(4,106)	—	—	(4,106)	29,998	25,892
nvestments made y minority hareholders	—	—	—	—	—	—	22,409	22,409
econsolidation of ubsidiary	—	—	—	—	—	—	(310)	(310)
epurchase of on-controlling nterests	—	—	1,075	—	—	1,075	(4,673)	(3,598)
omprehensive ncome:								—
et income	—	—	—	12,101	—	12,101	12,113	24,214
ther omprehensive loss,	—	—	—	—	5,432	5,432	—	5,432

et of tax of $677								
otal omprehensive ncome	—	—	—	—	—	17,533	12,113	29,646
alance, December 31, 2016	169	(23,127)	160,176	538,109	1,728	677,055	132,114	809,169
ssuance of 95,095 estricted shares of ommon stock	1	—	—	—	—	1	—	1
ssuance of 35,081 hares of common tock upon exercise f stock options	—	—	1,156	—	—	1,156	—	1,156
urchase of 234,746 hares of common tock	—	(12,983)	—	—	—	(12,983)	—	(12,983)
tock-based ompensation	—	—	6,970	—	—	6,970	—	6,970
ividends declared n common stock	—	—	—	(16,465)	—	(16,465)	(7,318)	(23,783)
nvestments made y minority hareholders	—	—	—	—	—	—	123	123
econsolidation of ubsidiary	—	—	—	—	—	—	529	529
epurchase of on-controlling nterests	—	—	(670)	—	—	(670)	(1,356)	(2,026)
umulative effect djustment due to doption of new ccounting ronouncements	—	—	341	(186)	—	155	—	155
omprehensive ncome:								
et income	—	—	—	31,490	—	31,490	17,404	48,894
ther omprehensive loss, et of tax of $679	—	—	—	—	2,018	2,018	—	2,018
otal omprehensive ncome	—	—	—	—	—	33,508	17,404	50,912
alance, December 31, 2017	170	(36,110)	167,973	552,948	3,746	688,727	141,496	830,223
ssuance of 13,664 estricted shares of ommon stock	2	—	—	—	—	2	—	2
ssuance of 158,021 hares of common tock upon exercise f stock options	—	—	6,319	—	—	6,319	—	6,319

urchase of 171,907 hares of common tock	—	(12,437)	—	—	—	(12,437)	—	(12,437)
tock-based ompensation	—	—	6,420	—	—	6,420	—	6,420
Dividends declared n common stock	—	—	—	(10,863)	—	(10,863)	(19,033)	(29,896)
epurchase of on-controlling nterests	—	—	1,066	—	—	1,066	(10,729)	(9,663)
umulative effect djustment due to doption of new ccounting ronouncements	—	—		1,693	(203)	1,490	1,146	2,636
omprehensive ncome:								
et income	—	—	—	19,815	—	19,815	15,057	34,872
ther omprehensive loss, et of tax of $637	—	—	—	—	(5,152)	(5,152)	—	(5,152)
otal omprehensive ncome	—	—	—	—	—	14,663	15,057	29,720
alance, December 31, 2018	$ 172	$ (48,547)	$ 181,778	$ 563,593	$ (1,609)	$ 695,387	$ 127,937	$ 823,324

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

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ATN INTERNATIONAL, INC. AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF CASH FLOWS

For the Years Ended December 31, 2018, 2017 and 2016

(In Thousands)

	Year Ended December 31,		
	2018	2017	2016
Cash flows from operating activities:			
Net income	$ 34,872	$ 48,894	$ 24,214
Adjustments to reconcile net income to net cash flows provided by operating activities:			
Depreciation and amortization	85,719	86,934	75,980
Provision for doubtful accounts	5,134	3,993	2,454
Amortization and write off of debt discount and debt issuance costs	763	670	505
Stock-based compensation	6,420	6,977	6,410
Unrealized loss on foreign currency	1,342	(1,209)	—
Deferred income taxes	(23,242)	(13,505)	(5,636)
Loss on equity method investments	—	2,033	—
Bargain purchase gain	—	—	(7,304)
Loss on damaged assets from Hurricanes	—	35,443	—
Insurance recovery related to hurricane claims	—	(34,606)	—
(Gain) Loss on disposition of long-lived assets	(26,425)	101	27
Gain on sale of investments	—	(826)	—
Impairment of long-lived assets	—	—	11,425
Pension funding required by Viya acquisition	—	—	(22,494)
Loss on deconsolidation of subsidiary	—	529	—
Other non-cash activity	308	424	566
Changes in operating assets and liabilities, excluding the effects of acquisitions and dispositions:			
Accounts receivable	(1,682)	(4,074)	2,601
Materials and supplies, prepayments, and other current assets	5,924	1,002	(8,410)
Prepaid income taxes	3,147	996	—
Accounts payable and accrued liabilities, advance payments and deposits and other current liabilities	(7,044)	4,649	6,522
Accrued taxes	29,089	(1,385)	21,547
Other assets	(238)	4,102	(12,122)
Other liabilities	1,778	4,583	15,371
Net cash provided by operating activities	115,865	145,725	111,656
Cash flows from investing activities:			
Capital expenditures	(105,769)	(133,786)	(124,282)
Hurricane rebuild capital expenditures	(80,152)	(8,585)	—
Hurricane insurance proceeds	34,606	—	—
Receipt of government grants	5,400	—	—
Purchase of strategic investments	(3,000)	(18,107)	(2,000)
	48,270	22,381	—

Divestiture of businesses, net of transferred cash of $11.5 million and $2.1 million, respectively			
Acquisition of businesses, net of acquired cash of $0.0 million and $12.6 million, respectively	—	(1,183)	(146,395)
Purchases of spectrum licenses and other intangible assets, including deposits	—	(36,832)	(10,860)
Acquisition of non-controlling interest in subsidiary	—	—	(7,045)
Purchase of short-term investments	(138)	—	(7,422)
Proceeds from sale of investments	6,564	3,794	—
Proceeds from disposition of long-lived assets	6,900	—	1,424
Net cash used in investing activities	(87,319)	(172,318)	(296,580)
Cash flows from financing activities:			
Dividends paid on common stock	(10,866)	(19,227)	(20,965)
Proceeds from new borrowings	—	8,571	125,800
Distribution to non-controlling interests	(18,780)	(6,858)	(8,632)
Payment of debt issuance costs	—	(326)	(2,763)
Proceeds from stock option exercises	72	1,030	649
Principal repayments of term loan	(9,795)	(9,355)	(33,564)
Repurchase of common stock	(6,198)	(12,855)	(4,114)
Acquisition of businesses, net of acquired cash of $0.0 million	—	(1,178)	—
Repurchases of non-controlling interests	(9,663)	(2,025)	(3,485)
Investments made by minority shareholders in consolidated affiliates	—	122	22,408
Net cash used in provided by financing activities	(55,230)	(42,101)	75,334
Effect of foreign currency exchange rates on cash and cash equivalents	(299)	226	(626)
Net change in cash, cash equivalents, and restricted cash	(26,983)	(68,468)	(110,216)
Total cash, cash equivalents, and restricted cash, beginning of period	219,890	288,358	398,574
Total cash, cash equivalents, and restricted cash, end of period	$ 192,907	$ 219,890	$ 288,358
Supplemental cash flow information:			
Interest paid	$ 7,235	$ 7,411	$ 4,451
Taxes paid	$ 12,486	$ 13,685	$ 8,237
Dividends declared, not paid	$ 2,720	$ 2,724	$ 5,487
Noncash investing activity:			
Transfer from inventory, materials and supplies to property, plant and equipment	$ 6,708	$ —	$ —
Purchases of property, plant and equipment included in accounts payable and accrued expenses	$ 12,877	$ 19,466	$ 16,847

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

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1. ORGANIZATION AND BUSINESS OPERATIONS

The Company is a holding company that, directly and through its subsidiaries, owns and operates telecommunications and renewable energy businesses in North America, India, Bermuda and the Caribbean. The Company was incorporated in Delaware in 1987, began trading publicly in 1991 and spun off more than a half of its operations to stockholders in 1998. Since that time, the Company has engaged in many strategic acquisitions and investments to help grow its operations, using the cash generated from its established operating units to re-invest in its existing businesses and to make strategic investments in earlier stage businesses. The Company looks for businesses that offer growth opportunities or potential strategic benefits, but that required additional capital investment in order to execute on their business plans. The Company holds controlling positions with respect to some of its investments and minority positions in others. These strategic investments frequently offer a product and service development component in addition to the prospects of generating returns on invested capital. The Company has identified three operating segments to manage and review its operations, and to facilitate investor presentations of its results, as follows:

· U.S. Telecom In the United States, the Company offers wireless and wireline services. The Company offers wholesale wireless voice and data roaming services to national, regional, local and selected international wireless carriers in rural markets located principally in the Southwest and Midwest United States. The Company also provides retail wireless, wireline services and wholesale long-distance voice services to telecommunications carriers in the areas in which it offers wireline services.

· International Telecom. The Company's international wireless services include voice and data services to retail customers in Bermuda, Guyana and the U.S. Virgin Islands. The Company's international wireline services include voice and data services in Bermuda, the Cayman Islands, Guyana and the U.S. Virgin Islands, as well as video services in Bermuda, the Cayman Islands, and the U.S Virgin Islands. In addition, the Company offers wholesale long distance voice services to other telecommunications carriers in the countries in which it offers international wireline services.

· Renewable Energy. In India, the Company provides distributed generation solar power to corporate, utility and municipal customers. Through November 6, 2018, the Company also provided distributed generation solar power in the United States in Massachusetts, California and New Jersey.

The following chart summarizes the operating activities of the Company's principal subsidiaries, the segments in which it reports its revenue and the markets it served as of December 31, 2018:

Segment	Services	Markets	Tradenames
U.S. Telecom	Wireless	United States (rural markets)	Choice, Choice NTUA Wireless, Commnet, WestNet, Geoverse
	Wireline	United States	Essextel, Deploycom
International Telecom	Wireline	Bermuda, Cayman Islands, Guyana, U.S. Virgin Islands	Fireminds, GTT+, One, Logic, Viya
	Wireless		GTT+, One, Viya

		Bermuda, Guyana, U.S. Virgin Islands	
	Video Services	Bermuda, Cayman Islands, U.S. Virgin Islands	Logic, One, Viya
Renewable Energy	Solar	India	Vibrant Energy

The Company actively evaluates potential acquisitions, investment opportunities and other strategic transactions, both domestic and international, that meet its return on investment and other criteria. In addition, the Company considers non-controlling investments in earlier stage businesses that it considers strategically relevant, and which may offer long-term growth potential for the Company, either individually, or as research and development businesses that can support the Company's operating subsidiaries in new product and service development and offerings.

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The Company provides management, technical, financial, regulatory, and marketing services to its subsidiaries and typically receives a management fee equal to a percentage of their revenues, which is eliminated in consolidation. For information about the Company's financial segments and geographical information about its operating revenues and assets see Notes 1 and 17 to the Consolidated Financial Statements included in this Report.

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Basis of Presentation

The consolidated financial statements include the accounts of the Company, its majority-owned subsidiaries and certain entities, which are consolidated in accordance with the provisions of the Financial Accounting Standards Board's ("FASB") authoritative guidance on the consolidation of variable interest entities since it is determined that the Company is the primary beneficiary of these entities.

Certain reclassifications have been made in the December 31, 2016 financial statements to conform to the Company's consolidated income statements to how it analyzes its operations in the current period. These changes did not impact operating income. For the year ended December 31, 2016 the aggregate impact of the changes included a decrease to termination and access fees of $4.9 million, an increase to engineering and operations expenses of $7.5 million, a decrease to sales and marketing expenses of $0.8 million, an increase to equipment expense of $0.6 million and a decrease to general and administrative expenses of $2.4 million.

Use of Estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States 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 dates of the financial statements and the reported amounts of revenue and expenses during the reporting periods. The most significant estimates relate to the allowance for doubtful accounts, useful lives of the Company's fixed and finite-lived intangible assets, allocation of purchase price to assets acquired and liabilities assumed in business combinations, fair value of indefinite-lived intangible assets, goodwill and income taxes. Actual results could differ significantly from those estimates.

Cash and Cash Equivalents

The Company considers all investments with an original maturity of three months or less at date of purchase to be cash equivalents. The Company places its cash and temporary investments with banks and other institutions that it believes have a high credit quality. At December 31, 2018, the Company had deposits with banks in excess of FDIC insured limits and $25.2 million of its cash is on deposit with noninsured institutions such as corporate money market issuers and cash held in foreign banks. The Company's cash and cash equivalents are not subject to any restrictions (see Note 9). As of December 31, 2018 and 2017, the Company held $7.5 million and $12.6 million, respectively, of its cash in Guyana dollars. While there are risks associated with the conversion of Guyana dollars to U.S. dollars due to limited liquidity in the Guyana foreign currency markets, to date it has not prevented the Company from converting

Guyana dollars into U.S. dollars within a given three month period or from converting at a price that reasonably approximates the reported exchange rate.

Short Term Investments

The Company's short-term investments consist of corporate bonds, which have remaining maturities of more than three months at the date of purchase, and equity securities classified as available for sale, which are stated at fair value. Unrealized gains and losses are recorded in other income. The estimated fair values of investments are based on quoted market prices as of the end of the reporting period.

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Restricted Cash

The Company generally classifies cash that is legally restricted as to withdrawal or usage as restricted cash. Generally, the cash is restricted due to debt service obligations, acquisitions, or to support the Company's telecommunications operations. In 2018, the Company disposed of $8.4 million of restricted cash as a result of the U.S. Solar Transaction described in Note 4.

Allowance for Doubtful Accounts

The Company maintains an allowance for doubtful accounts for the estimated probable losses on uncollectible accounts receivable. The allowance is based upon a number of factors including the credit worthiness of customers, the Company's historical experience with customers, the age of the receivable and current market and economic conditions. Such factors are reviewed and updated by the Company on a quarterly basis. Uncollectible amounts are charged against the allowance account.

Inventory, Materials and Supplies

Inventory, materials and supplies primarily include handsets and other equipment held for sale to customers. These balances are recorded at the lower of cost or market cost being determined on the basis of specific identification and market determined using replacement.

Fixed Assets

The Company's fixed assets are recorded at cost and depreciated using the straight line method generally between 3 and 39 years. Expenditures for major renewals and betterments that extend the useful lives of fixed assets are capitalized. Repairs and replacements of minor items of property are charged to maintenance expense as incurred. The cost of fixed assets in service and under construction includes an allocation of indirect costs applicable to construction. Grants received for the construction of assets are recognized as a reduction of the cost of fixed assets, a reduction of depreciation expense over the useful lives of the assets and as a reduction of capital expenditures in the statements of cash flows.

The fair value of a liability for an asset retirement obligation is recorded in the period in which it is incurred if a reasonable estimate of fair value can be made. In periods subsequent to initial measurement, period to period changes in the liability for an asset retirement obligation resulting from the passage of time and revisions to either the timing or the amount of the original estimate of undiscounted cash flows are recognized. The increase in the carrying value of the associated long lived asset is depreciated over the corresponding estimated economic life. The consolidated balance sheets include accruals of $3.8 million and $3.9 million as of December 31, 2018 and 2017, respectively, for estimated costs associated with asset retirement obligations.

In accordance with the authoritative guidance for the accounting for the impairment or disposal of long lived assets, the Company evaluates the carrying value of long lived assets, including property and equipment, in relation to the operating performance and future undiscounted cash flows of the underlying business whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. An impairment loss exists when estimated undiscounted cash flows attributable to an asset are less than its carrying amount. If an asset is deemed to be impaired, the amount of the impairment loss recognized represents the excess of the asset's carrying value as compared to its estimated fair value, based on management's assumptions and projections.

Management's estimate of the future cash flows attributable to its long lived assets and the fair value of its businesses involve significant uncertainty. Those estimates are based on management's assumptions of future results, growth

trends and industry conditions. If those estimates are not met, the Company could have additional impairment charges in the future, and the amounts may be material.

The Company did not record any fixed asset impairments for the year ended December 31, 2018. See Note 3, Impact of Hurricanes Irma and Maria, regarding the Company's write off of certain damaged fixed assets. See Note 4,

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Disposition- U.S. Telecom, regarding the Company's impairment of certain fixed assets in the year ended December 31, 2016.

Goodwill and Indefinite Lived Intangible Assets

Goodwill is recognized in business combinations equal to the amount by which the cost of acquired net assets exceeded the fair value of those net assets on the date of acquisition. The Company allocates goodwill to reporting units at the time of acquisition and bases that allocation on which reporting units will benefit from the acquired assets and liabilities. Reporting units are defined as operating segments or one level below an operating segment, referred to as a component. The Company has determined that its reporting units are components of its multiple operating segments. The Company assesses goodwill for impairment on an annual basis in the fourth quarter or more frequently when events and circumstances occur indicating that the recorded goodwill may be impaired. The assessment begins with a qualitative analysis to determine whether it is more likely than not that the fair value of the reporting unit is less than its carrying amount. If the reporting unit passes this analysis, the impairment assessment is complete and no impairment is recorded. If the reporting unit does not pass the analysis, the Company performs additional quantitative analysis by calculating the fair value of the reporting unit. If the fair value exceeds the carrying value, the test is complete and no impairment is recorded. If the carrying value of the reporting unit, including goodwill, exceeds the fair value of the reporting unit an impairment charge is recorded equal to the excess, but not more than the total amount of goodwill allocated to the reporting unit.

A significant majority of the Company's telecommunications licenses are not amortized and are carried at their historical costs. The Company believes that telecommunications licenses generally have an indefinite life based on the historical ability to renew such licenses, that such renewals may be obtained indefinitely and at little cost, and that the related technology used is not expected to be replaced in the foreseeable future. The Company has elected to perform its annual testing of its telecommunications licenses in the fourth quarter of each fiscal year, or more often if events or circumstances indicate that there may be impairment. If the value of these assets were impaired by some factor, such as an adverse change in the subsidiary's operating market, the Company may be required to record an impairment charge. The impairment test consists of a comparison of the fair value of telecommunications licenses with their carrying amount on a license by license basis and as a part of the test the Company assesses the appropriateness of the application of the indefinite lived assertion.

As of December 31, 2018 and 2017, the Company performed its annual impairment assessment of its goodwill and indefinite lived intangible assets (telecommunications licenses) and determined that no impairment charge was required. See Note 8 for a discussion of the Company's quantitative and qualitative tests of its goodwill. Also, see Note 4, Disposition- U.S. Telecom, regarding the Company's impairment of goodwill in the year ended December 31, 2016.

Other Intangible Assets

Intangible assets resulting from the acquisitions of entities accounted for using the purchase method of accounting are estimated by management based on the fair value of assets acquired. These include acquired customer relationships, tradenames, and franchise rights.

Customer relationships are amortized over their estimated lives ranging from 7-13 years, which are based on the pattern in which economic benefit of the customer relationship is estimated to be realized.

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Debt

Debt is measured at amortized cost. Debt issuance costs on term loans and specified maturity borrowings are recorded as a reduction to the carrying value of the debt and are amortized as interest expense in the consolidated income statements over the period of the debt. Fees related to revolving credit facilities and lines of credit are recorded in other assets in the consolidated balance sheet and are amortized as interest expense in the consolidated income statements over the life of the facility. Except for interest costs incurred for the construction of a qualifying asset which are capitalized during the period the assets are prepared for their intended use, interest costs are expensed.

Non Controlling Interests

The non controlling interests in the accompanying consolidated balance sheets reflect the original investments and subsequent capital contributions made by the minority stockholders in the Company's subsidiaries which are less than wholly-owned. Non-controlling interests acquired in a business combination are initially recorded at fair value. Subsequently, all non-controlling interest is adjusted for the minority stockholder's proportional share of the earnings or losses, net of any distributions.

Changes in Accumulated Other Comprehensive Income (Loss)

Changes in accumulated other comprehensive income (loss), by component, were as follows (in thousands):

	Projected Pension Benefit Obligation	Translation Adjustment	Other	Total
Balance at December 31, 2015	$ (3,481)	$ (223)	$ —	$ (3,704)
Adjust funded status of pension plan, net of tax of $0.7 million	5,251	—	—	5,251
Foreign currency translation adjustment	—	(687)	—	(687)
Unrealized gain on marketable securities	—	—	868	868
Balance at December 31, 2016	1,770	(910)	868	1,728
Adjust funded status of pension plan, net of tax of $0.7 million	1,357	—	—	1,357
Foreign currency translation adjustment	—	1,265	—	1,265
Reclassifications of gains on sale of marketable securities to net income	—	—	(1,044)	(1,044)
Unrealized gain on marketable securities	—	—	440	440
Balance at December 31, 2017	3,127	355	264	3,746
Adjust funded status of pension plan, net of tax of $0.6 million	(840)	—	—	(840)
Foreign currency translation adjustment	—	(4,390)	—	(4,390)
Adoption of ASU 2016-01	—	—	(203)	(203)
Interest rate swap	—	—	78	78
Balance at December 31, 2018	$ 2,287	$ (4,035)	$ 139	$ (1,609)

Amounts reclassified from accumulated other comprehensive income to net income were as follows (in thousands):

	2018	2017	2016
Pension and other postretirement benefit plans	$ 54	$ 716	$ 1,300
Realized gains on marketable securities	—	(1,044)	—
Total	$ 54	$ (328)	$ 1,300

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Revenue Recognition

The Company earns revenue from its telecommunication and renewable energy operations. The Company recognizes revenue through the following steps:

- Identification of the contract with a customer
- Identification of the performance obligations in the contract
- Determination of the transaction price
- Allocation of the transaction price to the performance obligations in the contract
- Recognize revenue when, or as, the Company satisfies performance obligations

Revenue Recognition- Telecommunications

Wireless revenue consists of wholesale and retail revenue. Wholesale revenue is generated from providing mobile voice and data services to the customers of other wireless carriers, the provision of network switching services and certain transport services using the Company's wireless networks. The transaction price of some wholesale revenue contracts includes variable consideration in the form of volume discounts. Management uses its judgment based on projected transaction volumes to estimate the transaction price and to allocate the transaction price to the performance obligations in the contract. Revenue is recognized over time as the service is rendered to the customer. Retail revenue is generated from providing mobile voice and data services to subscribers as well as roaming services provided to other carriers' customers roaming into the Company's retail markets. This revenue is recognized over time as the service is rendered. Lastly, wireless revenue includes revenues from equipment sold to customers which is recognized when the equipment is delivered to the customer.

Management considers transactions where customers purchase subsidized or discounted equipment and mobile voice or data services to be a single contract. For these contracts, the transaction price is allocated to the equipment and mobile service based on their standalone selling prices. The standalone selling price is based on the amount the Company charges for the equipment and service to similar customers. Equipment revenue is recognized when the equipment is delivered to customers and service revenue is recognized as service is rendered.

Wireline revenue is generated from access and usage fees for internet, voice and video services charged to subscribers as well as wholesale long-distance voice services provided to telecommunication carriers at contracted rates. Revenue from these contracts is recognized over time as the service is rendered to the customer.

The Company's wireless and wireline contracts occasionally include promotional discounts such as free service periods or discounted products. If a contract contains a substantive termination penalty, the transaction price is allocated to the performance obligations based on standalone selling price resulting in accelerated revenue recognition and the establishment of a contract asset that will be recognized over the life of the contract. If a contract includes a

promotional discount but no substantive termination penalty the discount is recorded in the promotional period and no contract asset is established. The Company's customers also have the option to purchase additional telecommunication services. Generally, these options are not performance obligations and are excluded from the transaction price because they do not provide the customers with a material right.

The Company may charge upfront fees for activation and installation of some of its products and services. These fees are reviewed to determine if they represent a separate performance obligation. If they are not a separate performance obligation, the contract price associated with them is recognized over the life of the customer. If the fees represent a performance obligation they are recognized when delivered to the customer based on standalone selling price.

Sales and use and state excise taxes collected from customers that are remitted to the governmental authorities are reported on a net basis and excluded from the revenues and sales.

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Revenue Recognition-Renewable Energy

Revenue from the Company's Renewable Energy segment is generated from the sale of electricity through power purchase agreements ("PPAs") with various customers that generally range from 10 to 25 years. The Company recognizes revenue at contractual PPA rates over time as electricity is generated and simultaneously consumed by the customer. In the United States, the Company's Renewable Energy segment also generates revenue from the sale of Solar Renewable Energy Credits ("SRECs"). Revenue is recognized over time as SRECs are sold through long-term purchase agreements at the contractual rate specified in the agreement.

Contract Acquisition Costs

The Company pays sales commissions to its employees and agents for obtaining customer contracts. These costs are incremental because they would not have been incurred if the contract was not obtained. The Company recognizes an asset for these costs and subsequently amortizes the asset on a systematic basis consistent with the pattern of the transfer of the services to the customer. The amortization period, which is between 2 and 6 years, considers both the original contract period as well as anticipated contract renewals as appropriate. The amortization period also includes renewal commissions when those commissions are not commensurate with new commissions. The Company estimates contract renewals based on its actual renewals in recent periods. When the expected amortization period is one year or less the Company utilizes the practical expedient and expenses the costs as incurred.

Operating Expenses

Termination and access fee expenses. Termination and access fee expenses are charges that are incurred for voice and data transport circuits (in particular, the circuits between the Company's wireless sites and its switches), internet capacity, video programming costs, other access fees the Company pays to terminate its calls, telecommunication spectrum fees and direct costs associated with the Company's managed services and technology business as well as within its Renewable Energy segment. Termination and access fees also include the cost of handsets and customer resale equipment incurred by the Company's retail businesses.

Engineering and operations expenses. Engineering and operations expenses include the expenses associated with developing, operating and supporting the Company's expanding telecommunications networks and renewable energy operations, including the salaries and benefits paid to employees directly involved in the development and operation of the Company's networks and renewable energy operations.

Sales and marketing expenses. Sales and marketing expenses include salaries and benefits the Company pays to sales personnel, customer service expenses, sales commissions and the costs associated with the development and implementation of the Company's promotion and marketing campaigns.

General and administrative expenses. General and administrative expenses include salaries, benefits and related costs for general corporate functions including executive management, finance and administration, legal and regulatory, facilities, information technology and human resources. General and administrative expenses also include internal costs associated with the Company's performance of due-diligence in connection with acquisition activities.

Transaction-related charges. Transaction-related charges include the external costs, such as legal, tax, accounting and consulting fees directly associated with acquisition and disposition-related activities, which are expensed as incurred. Transaction-related charges do not include internal costs, such as employee salary and travel-related expenses, incurred in connection with acquisitions or dispositions or any integration-related costs.

Restructuring charges. Restructuring charges are costs incurred as a result of reorganizing the Company's operating from acquisition or disposition activities.

Depreciation and amortization expenses. Depreciation and amortization expenses represent the depreciation and amortization charges the Company records on its property and equipment and on certain intangible assets.

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Impairment of intangible assets. The Company evaluates the carrying value of its long lived assets, including property and equipment, whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. An impairment loss exists when estimated undiscounted cash flows attributable to non-current assets subject to depreciation and amortization and discounted cash flows for intangible assets not subject to amortization are less than their carrying amount. For long lived assets other than goodwill, if an asset is deemed to be impaired, the amount of the impairment loss recognized represents the excess of the asset's carrying value as compared to its estimated fair value, based on management's assumptions and projections.

The Company also assesses the carrying value of goodwill and indefinite lived intangible assets on an annual basis or more frequently if events or changes in circumstances indicate that the carrying value of goodwill may not be recoverable. The carrying value of each reporting unit, including goodwill assigned to that reporting unit, is compared to its fair value. If the carrying value of the reporting unit, including goodwill, exceeds the fair value of the reporting unit an impairment charge is recorded equal to the excess, but not more than the total amount of goodwill allocated to the reporting unit.

(Gain) loss on disposition of long-lived assets. The Company sells or disposes assets from time to time. A gain or loss is recorded by comparing the carrying amount of the assets to the proceeds received.

Loss on damaged assets and other Hurricane-related charges, net of insurance recovery. During September 2017, the Company's operations and customers in the U.S. Virgin Islands were severely impacted by Hurricanes Irma and Maria (the "Hurricanes"). Loss on damaged assets and other hurricane related charges, net of insurance recovery represents the write off of damaged assets, net of insurance recoveries and also includes additional operating expenses that were specifically incurred to address the impact of the Hurricanes.

Accounting for Grants

The Company receives funding from the U.S. Government and its agencies under Stimulus and Universal Service Fund and other programs. These funding programs are generally designed to fund telecommunications operations, and infrastructure expansion into rural or underserved areas. The funding programs are evaluated to determine if they represent funding related to revenue, capital expenditures, or operating activities. Funding for revenue and operating activities are recorded as revenue or contra expense in the Company's consolidated income statement as the services are provided. Funding for capital expenditures is recorded as a reduction to property, plant and equipment on the Company's consolidated balance sheets and a future reduction in depreciation expense in the consolidated income statements. Government funding related to revenue and operations are recorded as operating cash inflows and grants for capital expenditures are recorded as investing cash inflows.

The Company monitors government funding for grant requirements to ensure that conditions related to grants have been met and there is reasonable assurance that the Company will be able to retain the grant proceeds and to ensure that any contingencies that may arise from not meeting the conditions are appropriately recognized. See Note 10, Government Grants.

Income Taxes

The Company accounts for income taxes under the asset and liability method, which requires the recognition of deferred tax assets and liabilities for the expected future tax consequences of events that have been included in the financial statements. Under this method, deferred tax assets and liabilities are determined on the basis of the differences between the financial statement and tax bases of assets and liabilities using enacted tax rates in effect for the year in which the differences are expected to reverse. The effect of a change in tax rates on deferred tax assets and liabilities is recognized in income in the period that includes the enactment date.

The Company recognizes deferred tax assets to the extent that the Company believes these assets are more likely than not to be realized. In making such a determination, the Company considers all available positive and negative evidence, including future reversals of existing taxable temporary differences, projected future taxable income, tax planning strategies, and results of recent operations. If the Company determines that it would be able to realize its

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deferred tax assets in the future in excess of their net recorded amount, the Company would make an adjustment to the deferred tax asset valuation allowance, which would reduce the provision for income taxes.

The Company records uncertain tax positions in accordance with ASC 740 on the basis of a two-step process whereby (1) the Company determines whether it is more likely than not that the tax positions will be sustained on the basis of the technical merits of the position and (2) for those tax positions that meet the more likely than-not recognition threshold, the Company recognizes the largest amount of tax benefit that is more than 50 percent likely to be realized upon ultimate settlement with the related authority. It is possible that the ultimate resolution of these uncertain matters may be greater or less than the amount that the Company estimated. If payment of these amounts proves to be unnecessary, the reversal of the liabilities would result in tax benefits being recognized in the period in which it is determined that the liabilities are no longer necessary. If the estimate of tax liabilities proves to be more than the ultimate assessment, a further charge to expense would result.

The Company recognizes interest and penalties related to unrecognized tax benefits within the income tax expense line in the accompanying consolidated statements of operations. Accrued interest and penalties are included within the related tax liability line in the consolidated balance sheets.

The Company does not provide for United States income taxes on earnings of foreign subsidiaries as such earnings are considered to be indefinitely reinvested. The Tax Cuts and Jobs Act of 2017 resulted in a one-time transition tax on the deemed repatriation of foreign earnings for federal tax purposes.

Credit Concentrations and Significant Customers

Historically, the Company has been dependent on a limited amount of customers for its wholesale roaming business. For the year ended December 31, 2018, one customer accounted for 11% of the Company’s consolidated revenue. For the years ended December 31, 2017, two customers accounted for 13% and 10% of the Company’s consolidated revenue. For the year ended December 31, 2016, two customers accounted for 14% and 12% of the Company’s consolidated revenue.

As of December 31, 2018, no customer accounted for more than 10% of the Company’s consolidated accounts receivable. As of December 31, 2017, one customer accounted for 18% of the Company’s consolidated accounts receivable, net of allowances.

Foreign Currency Gains and Losses

The Company translate the assets and liabilities of its foreign subsidiaries from their respective functional currencies, primarily the Indian Rupee and the Guyana Dollar, to U.S. dollars at the appropriate spot rates as of the balance sheet date. Changes in the carrying value of these assets and liabilities attributable to fluctuations in spot rates are recognized in foreign currency translation adjustment, a component of accumulated other comprehensive income. Income statement accounts are translated using the monthly average exchange rates during the year.

Monetary assets and liabilities denominated in a currency that is different from a reporting entity’s functional currency must first be remeasured from the applicable currency to the legal entity’s functional currency. The effect of this remeasurement process is reported in other income on the income statement.

Employee Benefit Plans

The Company sponsors pension and other postretirement benefit plans for employees of certain subsidiaries. Net periodic pension expense is recognized in the Company's income statement. The service cost component of net periodic pension expense is presented with other employee compensation within income from operations. Other components of net periodic pension expense, such as interest cost, expected return on plan assets, and amortization of actuarial gains and losses are presented in other income. The Company recognizes a pension or other postretirement benefit plan's funded status as either an asset or liability in its consolidated balance sheet. Actuarial gains and losses are

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deferred, reported as a component of other comprehensive income, and amortized through net periodic pension expense in subsequent periods.

Fair Value of Financial Instruments

In accordance with the provisions of fair value accounting, a fair value measurement assumes that a transaction to sell an asset or transfer a liability occurs in the principal market for the asset or liability or, in the absence of a principal market, the most advantageous market for the asset or liability and defines fair value based upon an exit price model.

The fair value measurement guidance establishes a fair value hierarchy which requires an entity to maximize the use of observable inputs and minimize the use of unobservable inputs when measuring fair value. The guidance describes three levels of inputs that may be used to measure fair value:

Level 1 Quoted prices in active markets for identical assets or liabilities as of the reporting date. Active markets are those in which transactions for the asset and liability occur in sufficient frequency and volume to provide pricing information on an ongoing basis. Level 1 assets and liabilities include money market funds, debt and equity securities and derivative contracts that are traded in an active exchange market.

Level 2 Observable inputs other than Level 1 prices, such as quoted prices for similar assets or liabilities; quoted prices in markets that are not active; or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities. Level 2 assets and liabilities include debt securities with quoted prices that are traded less frequently than exchange traded instruments and derivative contracts whose value is determined using a pricing model with inputs that are observable in the market or can be derived principally from or corroborated by observable market data. This category generally includes corporate obligations and non exchange traded derivative contracts.

Level 3 Unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities. Level 3 assets and liabilities include financial instruments and intangible assets that have been impaired whose value is determined using pricing models, discounted cash flow methodologies, or similar techniques, as well as instruments for which the determination of fair value requires significant management judgment or estimation.

Assets and liabilities of the Company measured at fair value on a recurring basis as of December 31, 2018 and 2017 are summarized as follows:

		December 31, 2018	
Description	Quoted Prices in Active Markets (Level 1)	Significant Other Observable Inputs (Level 2)	Total

Certificates of deposit	$ —	$ 380	$ 380
Money market funds	2,266	—	2,266
Short term investments	393	—	393
Commercial paper	—	13,972	13,972
Interest rate swap	—	140	140
Total assets and liabilities measured at fair value	$ 2,659	$ 14,492	$ 17,151

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	December 31, 2017		
Description	Quoted Prices in Active Markets (Level 1)	Significant Other Observable Inputs (Level 2)	Total
Certificates of deposit	$ —	$ 391	$ 391
Money market funds	2,894	—	2,894
Short term investments	555	6,521	7,076
Commercial paper	—	49,954	49,954
Interest rate swap	—	52	52
Total assets and liabilities measured at fair value	$ 3,449	$ 56,918	$ 60,367

Certificate of Deposit

As of December 31, 2018 and December 31, 2017 this asset class consisted of a time deposit at a financial institution denominated in U.S. dollars. The asset class is classified within Level 2 of the fair value hierarchy because the fair value was based on observable market data.

Money Market Funds

As of December 31, 2018 and December 31, 2017, this asset class consisted of a money market portfolio that comprises Federal government and U.S. Treasury securities. The asset class is classified within Level 1 of the fair value hierarchy because its underlying investments are valued using quoted market prices in active markets for identical assets.

Short Term Investments and Commercial Paper

As of December 31, 2018 and December 31, 2017, these asset classes consisted of short term foreign and U.S. corporate bonds, equity securities, and commercial paper. Corporate bonds and commercial paper are classified within Level 2 of the fair value hierarchy because the fair value is based on observable market data. Equity securities are classified within Level 1 because fair value is based on quoted market prices in active markets for identical assets. The Company held equity securities with a fair value of $0.3 million and $0.6 million at December 31, 2018 and December 31, 2017, respectively. Net income for the year ended December 31, 2018 includes $0.3 million of losses on these securities.

Other Fair Value Disclosures

The carrying amounts of cash and cash equivalents, accounts receivable, and accounts payable and accrued expenses approximate their fair values because of the relatively short-term maturities of these financial instruments. The fair value of the interest rate swap is measured using Level 2 inputs.

At December 31, 2018, the Company holds $23.1 million of equity securities consisting of non-controlling investments in privately held companies. These investments, over which the Company does not have the ability to exercise significant influence, are without readily determinable fair values. The investments are measured at cost, less any impairment, adjusted for observable price changes of similar investments of the same issuer. Fair value is not estimated for these investments if there are no identified events or changes in circumstances that may have an effect on the fair value of the investment. The carrying value of the strategic investments was $23.1 million and $20.1 million at December 31, 2018 and December 31, 2017, respectively. As of December 31, 2018 no impairments or price adjustments were recorded on the investments. Strategic investments are included with other assets on the consolidated balance sheets.

The fair value of long-term debt is estimated using Level 2 inputs. At December 31, 2018, the fair value of long-term debt, including the current portion, was $91.6 million and its book value was $91.0 million. At December 31, 2017, the fair value of long-term debt, including the current portion, was $159.2 million and its book value was $155.8 million.

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Net Income Per Share

Basic net income per share is computed by dividing net income attributable to the Company’s stockholders by the weighted average number of common shares outstanding during the period and does not include any other potentially dilutive securities. Diluted net income per share gives effect to all potentially dilutive securities using the treasury stock method.

The reconciliation from basic to diluted weighted average shares of Common Stock outstanding is as follows (in thousands):

	Year ended December 31,		
	2018	2017	2015
Basic weighted-average shares of common stock outstanding	15,988	16,138	16,131
Stock options	54	72	96
Diluted weighted-average shares of common stock outstanding	16,042	16,210	16,227

The following notes the number of potential shares of common stock not included in the above calculation because the effects of such were anti dilutive (in thousands of shares):

	For the Year Ended December 31,		
	2018	2017	2016
Stock options	5	7	5
Total	5	7	5

Stock Based Compensation

The Company applies the fair value recognition provisions of the authoritative guidance for the accounting for stock based compensation and is expensing the fair value of the grants of options to purchase common stock over their vesting period of four years. Relating to grants of options, the Company recognized $0.1 million, $0.1 million and $0.1 million of non cash, share based compensation expense during 2018, 2017, and 2016, respectively. See Note 11 for assumptions used to calculate the fair value of the options granted.

The Company also issued 111,474 restricted shares of common stock in 2018; 95,095 restricted shares of common stock in 2017 and 100,005 restricted shares of common stock in 2016. These shares are being charged to income based upon their fair values over their vesting period of four years. The Company accounts for forfeitures as they occur. Non cash equity based compensation expense, related to the vesting of restricted shares issued was $6.1 million, $6.6 million and $6.2 million in 2018, 2017, and 2016, respectively.

In connection with certain acquisitions, the Company issued shares of the acquired company to its local management and recorded $0.2 million, $0.3 million, and $0.1 million of stock based compensation during 2018, 2017 and 2016, respectively.

Stock based compensation expense is recognized within general and administrative expenses within the consolidated income statements.

Business Combinations

The Company accounts for business combinations using the acquisition method of accounting, under which the purchase price of the acquisition is allocated to the assets acquired and liabilities assumed using the fair values determined by management as of the acquisition date. Contingent consideration obligations that are elements of the consideration transferred are recognized as of the acquisition date as part of the fair value transferred in exchange for the

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acquired business. Acquisition-related costs incurred in connection with a business combination are expensed as incurred.

Recent Accounting Pronouncements

In May 2014, the FASB issued Accounting Standards Update ("ASU") 2014-09, "Revenue from Contracts with Customers" ("ASU 2014-09"), and subsequently issued related updates, (collectively known as ASC 606), which provides a single, comprehensive revenue recognition model for all contracts with customers. The revenue standard is based on the principle that revenue should be recognized to depict the transfer of promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. The Company adopted this standard on January 1, 2018. Refer to Note 3 to the Consolidated Financial Statements in this Report.

In April 2015, the FASB issued ASU 2015-05, "Customer's Accounting for Fees Paid in a Cloud Computing Arrangement", which provides guidance about whether a cloud computing arrangement includes software and how to account for the license for software. The new guidance does not change the accounting for a customer's accounting for service contracts. The adoption of ASU 2015-05 by the Company on January 1, 2017 did not have a material impact on the Company's financial position, result of operations or cash flows.

In January 2016, the FASB issued ASU 2016-01, "Financial Instruments—Overall (Subtopic 825-10): Recognition and Measurement of Financial Assets and Financial Liabilities" ("ASU 2016-01"), which addresses certain aspects of recognition, measurement, presentation, and disclosure of financial instruments. The Company adopted this standard on January 1, 2018. Upon adoption the Company held $20.1 million of equity investments that did not have readily determinable fair values. As a result these investments are measured at cost less impairments, adjusted for observable price changes of similar investments of the same issuer. The Company has not adjusted the cost of these investments since acquisition. Upon adoption, the Company held $0.6 million of equity investments with readily determinable fair values and reclassified $0.2 million of unrealized gains on this investment to retained earnings.

In February 2016, the FASB issued ASU 2016-02, "Leases (Topic 842)" and subsequently issued related updates ("ASU 2016-02"), which provide comprehensive lease accounting guidance. The standard requires entities to recognize lease assets and liabilities on the balance sheet as well as disclosure of key information about leasing arrangements. ASU 2016-02 will become effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2018, with early adoption permitted. The Company has implemented new systems, processes and controls to implement the guidance. The Company will adopt the standard on January 1, 2019 by applying the new lease requirements at the effective date and will recognize a cumulative-effect adjustment to the opening balance sheet retained earnings in the period of adoption with no adjustments to prior periods. The Company expects to adopt the package of practical expedients which allows it to not reassess: i) whether an arrangement contains a lease, ii) operating and capital lease classifications; and iii) previously recorded initial direct costs. The adoption will result in right to use assets and liabilities being recorded on the Company's balance sheet. The Company is finalizing quantitative information related to the impact of the guidance including the incremental borrowing rates for classes of leases. The right of use asset and liability balances recorded will be material to the Company's financial statements.

In March 2016, the FASB issued ASU 2016-09, “Compensation - Stock Compensation (Topic 718): Improvements to Employee Share-Based Payment Accounting”. The standard is intended to simplify several areas of accounting for share-based compensation arrangements, including the income tax impact, classification on the statement of cash flows and forfeitures. The Company adopted ASU 2016-09 on January 1, 2017. The guidance requires the recognition of the income tax effects of awards in the income statement when the awards vest or are settled, thus eliminating additional paid-in capital pools. This had no impact on the Company’s historical results. Also as a result of the adoption, the Company changed its policy election to account for forfeitures as they occur rather than on an estimated basis. The change resulted in the Company reclassifying $0.3 million from additional paid-in capital to retained earnings for the net cumulative-effect adjustment in stock compensation expense related to prior periods.

In August 2016, the FASB issued ASU 2016-15, “Statement of Cash Flows (Topic 230): Classification of Certain Cash Receipts and Cash Payments” (“ASU 2016-15”), which provides further clarification on eight cash flow

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classification issues. The Company adopted this standard on January 1, 2018. In November 2016, the FASB issued ASU 2016-18, "Statement of Cash Flows (Topic 230): Restricted Cash," ("ASU 2016-18"). The amendments in ASU 2016-18 are intended to reduce diversity in practice related to the classification and presentation of changes in restricted cash or restricted cash equivalents on the statement of cash flows. The amendments in ASU 2016-18 require that amounts generally described as restricted cash and restricted cash equivalents be included with cash and cash equivalents when reconciling the beginning-of-period and end-of-period total amounts shown on the statement of cash flows. The Company adopted this standard on January 1, 2018.

The Company's statement of cash flows reports the cash effects during a period of an entity's operations, its investing transactions, and its financing transactions. The statement of cash flows explains the change during the period in the total cash which includes cash equivalents as well as restricted cash. The Company applies the predominance principle to classify separately identifiable cash flows based on the nature of the underlying cash flows. Debt prepayment or extinguishment costs are classified as cash outflows from financing activities. Contingent consideration payments made three months or less after a business combination are classified as investing activities and those made after that time are classified as financing activities. Proceeds from the settlement of insurance claims are classified on the basis of the nature of the loss. Prior to January 1, 2018, the Company classified all payments made in a business combination as investing activities and did not include restricted cash in total cash. The adoption of ASU 2016-15 and ASU 2016-18 impacted the Company's cash flows for the years ended December 31, 2017 and December 31, 2016 as indicated below (amounts in thousands):

	Statement of Cash flows					
	Year ended December 31, 2017			Year ended December 31, 2016		
	Reported	Change	Under previous guidance	Reported	Change	Under previous guidance
Net cash provided by operating activities	$ 145,725	$ —	$ 145,725	$ 111,656	$ —	$ 111,656
Net cash used in investing activities	(172,318)	5,525	(166,793)	(296,580)	(12,108)	(308,688)
Net cash used in financing activities	(42,101)	1,178	(40,923)	75,334	—	75,334
Effect of foreign currency exchange rates on total cash	226	—	226	(626)	—	(626)
Net change in total cash	$ (68,468)	$ 6,703	$ (61,765)	$ (110,216)	$ (12,108)	$ (122,324)
Total cash, beginning of period	288,358	(18,637)	269,721	398,574	(6,529)	392,045
Total cash, end of period	$ 219,890	$ (11,934)	$ 207,956	$ 288,358	$ (18,637)	$ 269,721

In October 2016 the FASB issued ASU 2016-16, "Accounting for Income Taxes: Intra-Entity Asset Transfers of Assets Other than Inventory". The new standard eliminates all intra-entity sales of assets other than inventory, the exception under current standards that permits the tax effects of intra-entity asset transfers to be deferred until the transferred asset is sold to a third party or otherwise recovered through use. As a result, a reporting entity would recognize the tax

expense from the sale of the asset in the seller's tax jurisdiction when the transfer occurs. Any deferred tax asset that arises in the buyer's jurisdiction would also be recognized at the time of the transfer. The new standard was effective for the Company on January 1, 2018. There was not a material impact to the Company's Consolidated Financial Statements upon adoption.

In January 2017, the FASB issued Accounting Standards Update 2017-01, "Business Combinations (Topic 805): Clarifying the Definition of a Business," or ASU 2017-01. The amendments in ASU 2017-01 provide a screen to assist entities with evaluating whether transactions should be accounted for as acquisitions or disposals of assets or businesses. Under ASU 2017-01, an entity first determines whether substantially all of the fair value of the gross assets acquired is concentrated in a single identifiable asset or a group of similar identifiable assets. If this threshold is met, the set is not a business and the entity then evaluates whether the set meets the requirement that a business include, at a minimum, an input and a substantive process that together significantly contribute to the ability to create outputs. ASU 2017-01 also narrows the definition of outputs by more closely aligning it with how outputs are described in ASC 606. ASU 2017-01 is effective for annual reporting periods, including interim periods within those periods, beginning after December 15, 2017, with early adoption permitted. The Company prospectively adopted ASU 2017-01 in the fourth quarter of 2016. The Company expects that the standard will result in accounting for more transactions as asset acquisitions as opposed to business combination.

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In January 2017, the FASB issued Accounting Standards Update 2017-04, "Intangibles-Goodwill and Other (Topic 350): Simplifying the Test for Goodwill Impairment," or ASU 2017-04. The amendments in ASU 2017-04 simplify the subsequent measurement of goodwill by eliminating Step 2 from the goodwill impairment test. In computing the implied fair value of goodwill under Step 2, an entity had to perform procedures to determine the fair value at the impairment testing date of its assets and liabilities. Instead, under the amendments in ASU 2017-04, an entity performs its annual, or interim, goodwill impairment test by comparing the fair value of a reporting unit with its carrying amount and recognizes an impairment charge for the amount by which the carrying amount exceeds the reporting unit's fair value, but not more than the total amount of goodwill allocated to the reporting unit. ASU 2017-04 is effective for annual reporting periods, including interim periods within those periods, beginning after December 15, 2019, with early adoption permitted. The Company adopted this standard in the third quarter of 2017.

In March 2017, the FASB issued ASU 2017-07, "Compensation - Retirement Benefits (Topic 715): Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost". The new guidance requires the service cost component to be presented separately from the other components of net benefit costs. Service cost will be presented with other employee compensation cost within income from operations. The other components of net benefit cost, such as interest cost, expected return on plan assets, amortization of prior service cost and gains or losses are required to be presented in other income. The Company adopted this standard on January 1, 2018.

Prior to January 1, 2018, all components of pension expense were recognized in operating income. The adoption of the standard impacted the Company's Statement of Operations for year ending December 31, 2017 by increasing operating expenses $0.2 million and increasing other income by the same amount. For the year ending December 31, 2016 the adoption decreased operating expenses by $1.4 million and decreased other income by the same amount. There was no impact on income before income taxes. The Company elected the practical expedient allowing the use of the amounts disclosed for the various components of net benefit cost in the pension and other postretirement benefit plans footnote as the basis for the retrospective application.

In August 2017, the FASB issued ASU 2017-12, "Derivatives and Hedging (Topic 815) – Targeted Improvements to Accounting for Hedging Activities" ("ASU 2017-12"). The standard: (a) expands and refines hedge accounting for both financial and non-financial risk components, (b) aligns the recognition and presentation of the effects of hedging instruments and hedge items in the financial statements, and (c) includes certain targeted improvements to ease the application of current guidance related to the assessment of hedge effectiveness. The guidance is effective for public business entities for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2018. The Company adopted ASU 2017-12 on January 1, 2019. There was not a material impact to the Company's Consolidated Financial Statements upon adoption.

In February 2018, the FASB issued ASU 2018-02 "Income Statement – Reporting Comprehensive Income (Topic 220): Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income." ("ASU 2018-02"). The standard gives entities the option to reclassify to retained earnings tax effects related to items in accumulated other comprehensive income that were impacted by the 2017 Tax Cuts and Jobs Act. The guidance is effective for all entities for fiscal years beginning after December 31, 2018 and interim periods within those fiscal years. Early adoption is permitted. The guidance may be applied in the period of adoption or retrospectively to each impacted

period. The Company has elected to early adopt ASU 2018-02 on its consolidated financial Statements and apply it to the period of adoption. The impact of the adoption results in a $0.8 million reclassification from accumulated other comprehensive income to retained earnings, which is offset by an equivalent valuation allowance, the net impact is zero.

In August 2018, the FASB issued ASU No. 2018-15, Intangibles - Goodwill and Other - Internal-Use Software (Subtopic 350-40): Customer's Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That Is a Service Contract (“ASU 2018-15”). This standard requires entities that are customers in cloud computing arrangements to defer implementation costs if they would be capitalized by the entity in software licensing arrangements under the internal-use software guidance. The guidance may be applied retrospectively or prospectively to implementation costs incurred after the date of adoption. ASU 2018-15 is effective for annual and interim reporting periods beginning after December 15, 2019, with early adoption permitted. The Company prospectively adopted this standard in the fourth quarter of 2018. At December 31, 2018, the Company capitalized $0.6 million of implementation costs and none of that amount was amortized during the quarter.

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3. REVENUE RECOGNITION

The Company adopted ASC 606 on January 1, 2018. The adoption of ASC 606 impacted the accounting for contract acquisition costs, multiyear retail wireless contracts with promotional discounts, and deferral of certain activation fees as further described below. As a result of the adoption, the company established contract asset and liability balances and began capitalizing and subsequently amortizing contract acquisition costs.

Contract Assets and Liabilities

The Company recognizes contract assets and liabilities on its balance sheet. Contract assets represent unbilled amounts typically resulting from retail wireless contracts with both a multiyear service period and a promotional discount. In these contracts the revenue recognized exceeds the amount billed to the customer. The current portion of the contract asset is recorded in prepayments and other current assets and the noncurrent portion is included in other assets on the Company's balance sheet. Contract liabilities consist of advance payments and billings in excess of revenue recognized. Retail revenue for postpaid customers is generally billed one month in advance and recognized over the period that the corresponding service is rendered to customers. To the extent the service is not provided by the reporting date the amount is recognized as a contract liability. Prepaid service, including mobile voice and data services, sold to customers is recorded as deferred revenue prior to the commencement of services. Contract liabilities are recorded in advanced payments and deposits on its balance sheets. Contract assets and liabilities consisted of the following (amounts in thousands):

	December 31, 2018	January 1, 2018	$ Change	% Change
Contract asset – current	$ 1,900	$ 1,176	$ 724	62%
Contract asset – noncurrent	802	453	349	77%
Contract liabilities	(13,787)	(9,912)	(3,875)	39%
Net contract liability	$ (11,085)	$ (8,283)	$ (2,802)	34%

The contract asset-current is included in prepayments and other current assets, the contract asset – noncurrent is included in other assets, and the contract liabilities are included in advance payments and deposits on the Company's balance sheet. The increase in the Company's net contract liability was due to the timing of customer prepayments and contract billings. During the year ended December 31, 2018, the Company recognized revenue of $8.0 million related to its January 1, 2018 contract liability and amortized $1.8 million of the January 1, 2018 contract asset into revenue. The Company did not recognize any revenue in the year ended December 31, 2018 related to performance obligations that were satisfied or partially satisfied in previous periods.

Contract Acquisition Costs

The December 31, 2018 balance sheet includes current contract acquisition costs of $1.4 million in prepayments and other current assets and long term contract acquisition costs of $1.0 million in other assets. During the year ended December 31, 2018 the Company amortized $1.6 million of contract acquisition cost.

Remaining Performance Obligations

Remaining performance obligations represent the transaction price allocated to unsatisfied performance obligations of certain multiyear retail wireless contracts that include a promotional discount. The transaction price allocated to unsatisfied performance obligations was $12.1 million at December 31, 2018. The Company expects to satisfy the remaining performance obligations and recognize the transaction price within 24 months. The Company has certain retail, wholesale, and renewable energy contracts where transaction price is allocated to remaining performance obligations. However, the Company omits these contracts from the disclosure by applying the right to invoice, one year or less, and wholly unsatisfied performance obligation practical expedients.

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Disaggregation

The Company's revenue is presented on a disaggregated basis in Note 16 based on an evaluation of disclosures outside the financial statements, information regularly reviewed by the chief operating decision maker for evaluating the financial performance of operating segments and other information that is used for performance evaluation and resource allocations. This includes revenue from wireline, wireless and renewable energy, as well as domestic versus international wireline and wireless services. This disaggregation of revenue depicts how the nature, amount, timing and uncertainty of revenue and cash flows are affected by economic factors.

Impacts of adoption in the current period

The Company adopted ASC 606 on January 1, 2018 using the modified retrospective method. The Company elected the practical expedient to apply the new guidance only to contracts that were not substantially complete at the adoption date. The cumulative effect of adopting ASC 606 resulted in a contract asset of $1.6 million of which $1.2 million was recorded in prepayments and other current assets and $0.4 million was recorded in other assets, a contract liability of $0.2 million recorded in advance payments and deposits, contract acquisition costs of $1.5 million of which $0.9 million was recorded in prepayments and other current assets and $0.6 million was recorded in other assets, and a deferred tax liability of $0.3 million with the offset of $1.5 million recorded to retained earnings and $1.1 million recorded to minority interest. The tables below identify changes to the Company’s financial statements as of December 31, 2018 and for the year then ended as a result of the adoption of ASC 606 as compared to previous revenue guidance (amounts in thousands):

Balance Sheet - December 31, 2018	Reported	Change	Under previous guidance
Prepayments and other current assets	$ 37,855	$ (3,319)	$ 34,536
Total current assets	275,765	(3,319)	272,446
Other assets	37,708	(1,785)	35,923
Total assets	1,107,304	(5,104)	1,102,200
Advance payments and deposits	20,574	(337)	20,237
Accrued taxes	31,795	(131)	31,664
Total current liabilities	140,650	(468)	140,182
Deferred income taxes	10,276	(302)	9,974
Total liabilities	283,980	(770)	283,210

Retained earnings	563,593	(2,481)	561,112
Minority interest	127,937	(1,853)	126,084
Total equity	823,324	(4,334)	818,990
Total liabilities and equity	$ 1,107,304	$ (5,104)	$ 1,102,200

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	Statement of Operations		
	Year ended December 31, 2018		
	Reported	Change	Under previous guidance
Wireless revenue	$ 198,824	$ (1,075)	$ 197,749
Total revenue	451,207	(1,075)	450,132
Sales, marketing and customer service	35,207	755	35,962
Total operating expenses	390,184	755	390,939
Income from operations	61,023	(1,830)	59,193
Income before taxes	53,742	(1,830)	51,912
Income tax provision	18,870	(131)	18,739
Net income	34,872	(1,699)	33,173
Net income attributable to non-controlling interests	(15,057)	706	(14,351)
Net income attributable to ATN International, Inc. stockholders	$ 19,815	$ (993)	$ 18,822

	Statement of Comprehensive Loss		
	Year ended December 31, 2018		
	Reported	Change	Under previous guidance
Net income	$ 34,872	$ (1,699)	$ 33,173
Other comprehensive loss, net of tax	(5,152)	—	(5,152)
Comprehensive loss	29,720	(1,699)	28,021
Less: Comprehensive income attributable to non-controlling interests	(15,057)	706	(14,351)
Comprehensive income (loss) attributable to ATN International, Inc.	$ 14,663	$ (993)	$ 13,670

Statement of Cash Flows - Year ended December 31, 2018

	Reported	Change (1)	Under previous guidance
Net income	$ 34,872	$ (1,699)	$ 33,173

Materials and supplies, prepayments and other current assets	$ 5,924	$ 1,243	$ 7,167
Accrued taxes	29,089	(131)	28,958
Accounts payable and accrued liabilities, advance payments and deposits and other current liabilities	(7,044)	(107)	(7,151)
Other assets	$ (238)	$ 694	$ 456

(1) The adoption of ASC 606 had no impact on operating cash flows, investing cash flows, financing cash flows or net change in total cash.

4. IMPACT OF HURRICANES IRMA AND MARIA

During September 2017, the economy, the Company's customer base and its operations in the U.S. Virgin Islands were severely impacted by the Hurricanes Irma and Maria. The Company's wireless and wireline networks as well as its commercial operations were severely damaged by these storms. As a result of the significant damage to the wireline network and the lack of consistent commercial power in the territory, the Company was unable to provide most of its wireline services, which comprise the majority of revenue in this business, subsequent to the Hurricanes and through a majority of 2018.

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During the year ended December 31, 2017, the Company recorded a net pre-tax loss within the Company's consolidated statement of operations of $4.0 million related to the impact of the Hurricanes. This loss consisted of $35.4 million for the write off of damaged assets, net of insurance recoveries of $34.6 million which were received in February 2018. This loss also included $3.2 million of additional operating expenses that were specifically incurred to address the impact of the Hurricanes.

During the year ended December 31, 2018, the Company received $15.5 million in additional funding from the Federal Communications Commission's ("FCC") Universal Service Fund ("USF") to further subsidize its operations in the U.S. Virgin Islands that was recorded as revenue. This level of additional funding is not expected to continue in future periods.

During the years ended December 31, 2017 and 2018, the Company spent $8.6 million and $80.2 million, respectively, for network restoration and resiliency enhancements which allowed the reconnection of a significant majority of affected households and businesses. The Company believes that the wireline network restoration work is substantially complete, however, returning the Company's revenue to pre-Hurricane levels may take significant time as a result of population movements, the economic impact the Hurricanes had on the market, and the Company's subscriber base's appetite for continued wireline services.

5. ACQUISITIONS AND DISPOSITIONS

International Telecom

Acquisitions

One Communications (formerly KeyTech Limited)

On May 3, 2016, the Company completed its acquisition of a controlling interest in One Communications Ltd. (formerly known as KeyTech Limited, "One Communications"), a publicly held Bermuda company listed on the Bermuda Stock Exchange ("BSX") that provides broadband and video services and other telecommunications services to residential and enterprise customers in Bermuda and the Cayman Islands (the "One Communications Acquisition"). Subsequent to the completion of the Company's acquisition, One Communications changed its legal name from KeyTech Limited and changed its "CellOne" and "Logic" trade names in Bermuda to "One Communications". Prior to the Company's acquisition, One Communications also owned a minority interest of approximately 43% in the

Company's previously held and consolidated subsidiary, Bermuda Digital Communications Ltd. ("BDC"), that provides wireless services in Bermuda. As part of the transaction, the Company contributed its ownership interest of approximately 43% in BDC and approximately $42 million in cash in exchange for a 51% ownership interest in One Communications. As part of the transaction, BDC was merged with and into a company within the One Communications group. The approximate 15% interest in BDC held in the aggregate by BDC's minority shareholders was converted into the right to receive common shares in One Communications. Following the transaction, BDC became wholly-owned by One Communications, and One Communications continues to be listed on the BSX. A portion of the cash proceeds that One Communications received upon closing was used to fund a one-time special dividend to One Communications' existing shareholders and to retire One Communications' subordinated debt. On May 3, 2016, the Company began consolidating the results of One Communications within its financial statements in its International Telecom segment.

The One Communications Acquisition was accounted for as a business combination of a controlling interest in One Communications in accordance with ASC 805, Business Combinations, and the acquisition of an incremental ownership interest in BDC in accordance with ASC 810, Consolidation. The total purchase consideration of $41.6

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million of cash was allocated to the assets acquired and liabilities assumed at their estimated fair values as of the date of the acquisition.

Consideration Transferred	
Cash consideration - One Communications	$ 34,518
Cash consideration - BDC	7,045
Total consideration transferred	41,563
Non-controlling interests - One Communications	32,909
Total value to allocate	$ 74,472
Value to allocate - One Communications	$ 67,427
Value to allocate - BDC	7,045
Purchase price allocation One Communications:	
Cash	8,185
Accounts receivable	6,451
Other current assets	3,241
Property, plant and equipment	100,892
Identifiable intangible assets	10,590
Other long term assets	3,464
Accounts payable and accrued liabilities	(16,051)
Advance payments and deposits	(6,683)
Current debt	(6,429)
Long term debt	(28,929)
Net assets acquired	74,731
Gain on One Communications bargain purchase	$ 7,304
Purchase price allocation BDC:	
Carrying value of BDC non-controlling interest acquired	2,940
Excess of purchase price paid over carrying value of non-controlling interest acquired	$ 4,105

The acquired property, plant and equipment is comprised of telecommunication equipment located in Bermuda and the Cayman Islands. The property, plant and equipment was valued using the income and cost approaches. Cash flows were discounted at an approximate 15% rate to determine fair value under the income approach. The property, plant and equipment have useful lives ranging from 3 to 18 years and the customer relationships acquired have useful lives ranging from 9 to 12 years. The fair value of the non-controlling interest was determined using the income approach and a discount rate of approximately 15%. The acquired receivables consist of trade receivables incurred in the ordinary course of business. The Company has subsequently collected the full amount of the receivables.

The purchase price and resulting bargain purchase gain are the result of the market conditions and competitive environment in which One Communications operates along with the Company's strategic position and resources in those same markets. Each of the Company and One Communications realized that their combined resources could

better serve customers in Bermuda. The bargain purchase gain is included in operating income for the year ended December 31, 2016.

The Company's income statement for the year ended December 31, 2016 includes $55.5 million of revenue and $2.8 million of income before taxes attributable to the One Communications Acquisition. The Company incurred $4.3 million of transaction related charges pertaining to legal, accounting and consulting services associated with the

transaction, of which $3.4 million was incurred during the year ended December 31, 2016 and $0.9 million was incurred during the year ended December 31, 2015.

Viya (formerly Innovative) Transaction

On July 1, 2016, the Company completed its acquisition of all of the membership interests of Caribbean Asset Holdings LLC ("CAH"), the holding company for the group of companies operating video services, Internet, wireless and landline services in the U.S. Virgin Islands, British Virgin Islands and St. Maarten (collectively, "Viya"), from the National Rural Utilities Cooperative Finance Corporation ("CFC"). In April 2017, the U.S. Virgin Islands operations and the Company's existing wireless operations rebranded their tradenames from "Innovative" and "Choice", respectively, to "Viya." The Company acquired the Viya operations for a contractual purchase price of $145.0 million, reduced by purchase price adjustments of $5.3 million (the "Viya Transaction"). In connection with the transaction, the Company financed $60.0 million of the purchase price with a loan from an affiliate of CFC, the Rural Telephone Finance Cooperative ("RTFC") on the terms and conditions of a Loan Agreement by and among RTFC, CAH and ATN VI Holdings, LLC, the parent entity of CAH and a wholly-owned subsidiary of the Company. The Company funded the remaining purchase price with (i) $51.9 million in cash paid to CFC, (ii) $22.5 million in additional cash paid directly to fund Viya' s pension in the fourth quarter of 2016, and (iii) $5.3 million to satisfy Viya' s other postretirement benefit plan liability. On July 1, 2016, the Company began consolidating the results of Viya within its financial statements in its International Telecom segment. Subsequent to the Viya Transaction, the Company sold the acquired businesses in St. Maarten and the British Virgin Islands, as further described in "Dispositions" below.

The Viya Transaction was accounted as a business combination in accordance with ASC 805. The consideration transferred to CFC of $111.9 million, and used for the purchase price allocation, differed from the contractual purchase price of $145.0 million due to certain GAAP purchase price adjustments including a reduction of $5.3 million related to working capital adjustments and the Company assuming pension and other postretirement benefit liabilities of $27.8 million as discussed above. The Company transferred $51.9 million in cash and $60.0 million in loan proceeds to CFC for total consideration of $111.9 million that was allocated to the assets acquired and liabilities assumed at their estimated fair values as of the date of the acquisition. The table below represents the allocation of the consideration transferred to the net assets of Viya based on their acquisition date fair values:

Consideration Transferred	$ 111,860
Non-controlling interests	221
Total value to allocate	112,081
Purchase price allocation:	
Cash	4,229
Accounts receivable	6,553
Materials & supplies	6,533
Other current assets	1,927
Property, plant and equipment	108,284
Telecommunication licenses	7,623

Goodwill	20,586
Intangible assets	7,800
Other assets	4,394
Accounts payable and accrued liabilities	(15,971)
Advance payments and deposits	(7,793)
Deferred tax liability	(2,935)
Pension and other postretirement benefit liabilities	(29,149)
Net assets acquired	$ 112,081

The acquired property, plant and equipment is comprised of telecommunication equipment located in the U.S Virgin Islands, British Virgin Islands and St. Maarten (subsequently disposed, see below). The property, plant and

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equipment was valued using the income and cost approaches. Cash flows were discounted between 14% and 25% based on the risk associated with the cash flows to determine fair value under the income approach. The property, plant and equipment have useful lives ranging from 1 to 18 years and the customer relationships acquired have useful lives ranging from 7 to 13 years. The fair value of the non-controlling interest was determined using the income approach with discount rates ranging from 15% to 25%. The acquired receivables consist of trade receivables incurred in the ordinary course of business. The Company has collected full amount of the receivables. The Company recorded a liability equal to the funded status of the plans in its purchase price allocation. Discount rates between 3.6% and 3.9% were used to determine the pension and postretirement benefit obligations.

The goodwill generated from the Viya Transaction is primarily related to value placed on the acquired employee workforces, service offerings, and capabilities of the acquired businesses as well as expected synergies from future combined operations. The goodwill is not deductible for income tax purposes.

The Company's income statement for the year ended December 31, 2016 includes $53.0 million of revenue and $1.5 million of income before taxes attributable to the Viya Acquisition. The Company incurred $4.1 million of transaction related charges pertaining to legal, accounting and consulting services associated with the transaction, of which $2.2 million was incurred during the year ended December 31, 2016 and $1.9 million was incurred during the year ended December 31, 2015.

Disposition

On August 18, 2017, the Company completed the sale of the Viya cable operations located in the British Virgin Islands. The company did not recognize a gain or loss on the transaction.

On January 3, 2017, the Company completed the sale of the Viya cable operations located in St. Maarten for $4.8 million and recognized a gain of $0.1 million on the transaction.

On December 15, 2016, the Company transferred control of its subsidiary in Aruba to another stockholder in a nonreciprocal transfer. Subsequent to that date, it no longer consolidated the results of the operations of the Aruba business. The Company did not recognize a gain or loss on the transaction.

The results of the British Virgin Islands, St. Maarten, and Aruba operations are not material to the Company's historical results of operations. Since the dispositions do not relate to a strategic shift in its operations, the historical results and financial position of the operations are presented within continuing operations.

U.S. Telecom

Acquisition

In July 2016, the Company acquired certain telecommunications fixed assets and the associated operations located in the western United States. The acquisition qualified as a business combination for accounting purposes. The Company transferred $9.1 million of cash consideration in the acquisition. The consideration transferred was allocated to $10.2 million of acquired fixed assets, $3.5 million of deferred tax liabilities, and $0.7 million to other net liabilities, and the resulting $3.1 million in goodwill which is not deductible for income tax purposes. Results of operations for the business are included in the U.S. Telecom segment and are not material to the Company's historical results of operations.

Disposition

On March 8, 2017, the Company completed the sale of its integrated voice and data communications and wholesale transport businesses in New England and New York for consideration of $25.9 million (the "Sovernet Transaction"). The consideration included $2.0 million of contingent consideration which represented the fair value of payments related to certain operational milestones of the disposed assets. The value of the contingent consideration was

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up to $4.0 million based on whether or not the operational milestones are achieved by December 31, 2017. The table below identifies the assets and liabilities transferred (amounts in thousands):

Consideration Received	$ 25,926
Assets and liabilities disposed	
Cash	1,821
Accounts receivable	1,696
Inventory	639
Prepayments and other current assets	1,034
Property, plant and equipment	25,294
Other assets	288
Accounts payable and accrued liabilities	(1,718)
Advance payments and deposits	(1,897)
Net assets disposed	27,157
Consideration less net assets disposed	(1,231)
Transaction costs	(1,156)
Loss	$ (2,387)

Prior to the closing of the transaction, the Company repurchased non-controlling interests from minority shareholders in a Sovernet subsidiary for $0.7 million. The non-controlling interest had a book value of zero. Additionally, the Company recorded a loss on deconsolidation of $0.5 million.

The Company incurred $1.2 million of transaction related charges pertaining to legal, accounting and consulting services associated with the transaction, of which $0.6 million were incurred during the year ended December 31, 2017 and $0.6 million were incurred during the year ended December 31, 2016. Since the Sovernet disposition does not relate to a strategic shift in its operations, the historic results and financial position of the operations are presented within continuing operations.

Subsequent to close of the Sovernet Transaction, management continually monitored and assessed the probability of earning the contingent consideration. In September 2017, based on progress toward achieving the operational milestones, and the December 31, 2017 deadline under which to do so, management determined that earning the contingent consideration was unlikely. As a result, the fair value of the contingent consideration was reduced to zero. The amount was recorded as a loss on disposition of assets within operating income during the year ended December 31, 2017. The disposed assets did not achieve the operational milestones by the December 31 deadline.

Prior to the Sovernet Transaction, in the second quarter of 2016, the Company recorded an impairment loss of $11.1 million on assets related to Sovernet. The impairment consisted of a $3.6 million impairment of property, plant and equipment and $7.5 million impairment of goodwill.

Renewable Energy

Acquisition

On April 7, 2016, the Company completed its acquisition of a solar power development portfolio in India (the “Vibrant Energy Acquisition”). The business operates under the name Vibrant Energy. The projects to be developed initially are located in the states of Andhra Pradesh and Telangana and are based on a commercial and industrial business model, similar to the Company’s existing renewable energy operations in the United States. As of April 7, 2016, the

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Company began consolidating the results of Vibrant Energy in its financial statements within its Renewable Energy segment.

The Vibrant Energy Acquisition was accounted for as a business combination in accordance with ASC 805. The total purchase consideration of $6.2 million was allocated to the assets acquired and liabilities assumed at their estimated fair values as of the date of the acquisition. The table below represents the allocation of the consideration transferred to the net assets of Vibrant Energy based on their acquisition date fair values (in thousands):

Consideration Transferred	$ 6,193
Purchase price allocation:	
Cash	136
Prepayments and other assets	636
Property, plant and equipment	7,321
Goodwill	3,279
Accounts payable and accrued liabilities	(5,179)
Net assets acquired	$ 6,193

The consideration transferred included $3.5 million paid at close of the transaction and $2.7 million of contingent consideration payable subsequent to that time, which was contingent upon the passage of time and achievement of production milestones that were considered probable. As of December 31, 2018, $1.4 million of the contingent consideration was paid, $0.2 million remains payable, and $1.1 million was not paid as the operational milestones were not achieved. The acquired property, plant and equipment is comprised of solar equipment and the accounts payable and accrued liabilities consists mainly of amounts payable for certain asset purchases. The fair value of the property, plant, and equipment was based on recent acquisition costs for the assets, given their recent purchase dates from third parties. The goodwill is not deductible for income tax purposes and primarily relates to the assembled workforce of the business acquired.

The Company incurred $11.4 million of transaction related charges pertaining to legal, accounting and consulting services associated with the transaction, of which $10.1 million was incurred during the year ended December 31, 2016 and $1.3 million was incurred during the year ended December 31, 2015.

Disposition

On November 6, 2018, the Company completed the sale of its U.S. solar business that owns and manages distributed generation solar power projects operated under the Ahana name in Massachusetts, California and New Jersey (the “U.S. Solar Operations”) to CleanCapital Holdco 4, LLC. The transaction has a total value of approximately $122.6 million, which includes a cash purchase price of $65.3 million and the assumption of approximately $57.3 million in

debt, and is subject to certain other post-closing adjustments (the “U.S. Solar Transaction”). The Company is finalizing working capital adjustments. Approximately $6.5 million of the purchase price will be held in escrow for a period of

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twelve months after the closing to secure the Company's indemnification obligation. The table below identifies the assets and liabilities transferred (amounts in thousands):

Consideration Received	$ 65,286
Assets and liabilities disposed	
Cash	3,049
Accounts receivable	1,248
Prepayments and other current assets	801
Property, plant and equipment	94,678
Restricted cash	8,407
Other assets	38
Current portion of long-term debt	(6,992)
Accounts payable and accrued liabilities	(938)
Accrued taxes	586
Long-term debt, excluding current portion	(48,038)
Net assets disposed	52,839
Consideration less net assets disposed	12,447
Transaction costs	(2,133)
Gain	$ 10,314

The Company allocated $1.1 million of the gain to non-controlling interests within the consolidated income statement. During the year ended December 31, 2018, the Company incurred $2.1 million of transaction related charges pertaining to legal, accounting and consulting services associated with the transaction. The U.S. Solar Operations do not qualify as a discontinued operation because the disposition does not represent a strategic shift that has a major effect on the Company's operations and financial results. As a result, the historical results are included in continuing operations.

Pro forma Results

The following table reflects unaudited pro forma operating results of the Company for the years ended December 31, 2016 and December 31, 2015 as if the One Communications and Viya Transactions occurred on January 1, 2015. Other acquisitions are not included in the pro forma amounts since the results are immaterial. The pro forma amounts adjust One Communications' and Viya's results to reflect the depreciation and amortization that would have been recorded assuming the fair value adjustments to property, plant and equipment and intangible assets had been applied from January 1, 2015. Also, the pro forma results were adjusted to reflect changes to the acquired entities' capital structure related to the transaction. One Communications' results reflect the retirement of $24.7 million of debt. Viya's results reflect the retirement of $185.8 million of debt and the addition of $60 million of purchase price debt. Finally, the Company's results were adjusted to reflect the Company's incremental ownership in BDC.

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The pro forma results for the year ended December 31, 2016 include $5.4 million of impairment charges recorded by One Communications and Viya prior to the Company's acquisition of the businesses and were recorded prior to ATN's acquisition of the entities. The pro forma results for the year ended December 31, 2015 include $168.7 million of impairment charges, $85.6 million recorded by One Communications and $83.1 million recorded by Viya. Both the 2016 and 2015 impairment charges were recorded prior to ATN's acquisition of the entities. Amounts are presented in thousands, except per share data.

	Year ended December 31,			
(unaudited)	2016		2015	
	As Reported	Pro-Forma	As Reported	Pro-Forma
Revenue	$ 457,003	$ 535,628	$ 355,369	$ 546,589
Net income (loss) attributable to ATN International, Inc. Stockholders	12,101	14,660	16,940	(97,102)
Earnings per share:				
Basic	0.75	0.91	1.06	(6.06)
Diluted	0.75	0.90	1.05	(6.02)

The unaudited pro forma data is presented for illustrative purposes only and is not necessarily indicative of the operating resulted that would have occurred if the acquisitions had been consummated on these dates or of future operating results of the combined company following this transaction.

6. ACCOUNTS RECEIVABLE:

As of December 31, 2018 and 2017, accounts receivable consist of the following (in thousands):

	2018	2017
Retail	$ 13,785	$ 19,530
Wholesale	40,982	39,022
Accounts receivable	54,767	58,552
Less: allowance for doubtful accounts	(16,462)	(15,023)
Total accounts receivable, net	$ 38,305	$ 43,529

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7. FIXED ASSETS:

As of December 31, 2018 and 2017, property, plant and equipment consisted of the following (in thousands):

	Useful Life (in Years)	2018	2017
Telecommunications equipment and towers	5 -15	$ 914,276	$ 774,548
Solar assets	20-23	57	113,218
Office and computer equipment	3 -10	77,085	76,706
Buildings	15-39	48,900	48,058
Transportation vehicles	3 -10	15,039	12,221
Leasehold improvements	Shorter of useful life or lease term	2,033	2,864
Land	—	14,728	12,516
Furniture and fixtures	5 -10	9,200	6,674
Total property, plant and equipment		1,081,318	1,046,805
Construction in progress		107,598	123,001
Total property, plant and equipment		1,188,916	1,169,806
Less: Accumulated depreciation		(562,064)	(526,660)
Net fixed assets		$ 626,852	$ 643,146

Depreciation and amortization of fixed assets, using the straight line method over the assets' estimated useful life, for the years ended December 31, 2018, 2017 and 2016 was $83.0 million, $83.3 million and $73.3 million, respectively. Included within telecommunication equipment and towers are certain right to use assets under capital lease with a cost of $27.7 million and $30.0 million and net book value of and $20.2 million and $24.4 million, as of December 31, 2018 and 2017, respectively. Remaining amounts due under the Indefeasible Rights of Use ("IRUs") are $1.3 million and $0.6 million as of December 31, 2018 and 2017, respectively.

For the years ended December 31, 2017 and 2016, amounts of capital expenditures were offset by grants of $1.5 million and $2.3 million, respectively. There was no such offset for the year ended December 31, 2018.

In 2018, the U.S. Telecom segment sold approximately 100 cell sites for $24.0 million. The disposed assets had a book value of $8.8 million and the Company recorded a gain of $15.2 million on the transaction.

8. GOODWILL AND INTANGIBLE ASSETS

Goodwill

The Company tests goodwill for impairment at each of its reporting units on an annual basis, which has been determined to be as of December 31st of each fiscal year. The Company's reporting units are one level below its operating segments. The Company also tests goodwill between annual tests if an event occurs or circumstances change that indicate that the fair value of a reporting unit may be below its carrying value.

The Company's qualitative goodwill impairment test includes, but is not limited to, assessing macroeconomic conditions, industry and market considerations, technological changes and trends, overall financial performance of the

reporting unit. The Company quantitative test for goodwill impairment involves a comparison of the estimated fair value of a reporting unit to its carrying amount, including goodwill. The Company determines the fair value of a reporting unit using a discounted cash flow ("DCF") analysis. Determining fair value requires the exercise of significant judgment, including judgments about appropriate discount rates, perpetual growth rates, and the amount and timing of expected future cash flows. Discount rates are based on a weighted average cost of capital ("WACC"), which represents the average rate a business must pay its providers of debt and equity. The cash flows employed in the DCF analysis were derived from internal earnings and forecasts and external market forecasts.

During 2018 and 2017, the Company performed qualitative assessments for all of its reporting units except for the 2017 trigger based impairment review in its International Telecom segment discussed below. During 2016, the Company performed a qualitative assessment for one reporting unit in its International Telecom segment and one reporting unit in its Renewable Energy segment and determined there was no impairment. Also in 2016, the company performed a quantitative assessment for one reporting unit in its International Telecom segment and one reporting unit in its US Telecom segment concluding no impairment was present.

The Company's annual impairment assessment of its goodwill for all reporting units as of December 31, 2018 determined that no impairment relating to its goodwill existed during the year ended December 31, 2018.

In the third quarter of 2017, the Company determined that the damage caused by the Hurricanes caused a triggering event requiring it to assess the related reporting unit's goodwill for impairment. After consideration of the disposals of fixed assets within the reporting unit, the impairment test for goodwill was performed by comparing the fair value of the reporting unit to its carrying amount. The Company calculated the fair value of the reporting unit by utilizing an income approach, with Level 3 valuation inputs, including a cash flow discount rate of 14.5%. Determining fair value requires the exercise of significant judgment, including judgments about appropriate discount rates, perpetual growth rates, and the amount and timing of expected future cash flows. The discount rate was based on a weighted average cost of capital, which represents the average rate the business would pay its providers of debt and equity. The cash flows employed in the discounted cash flow analysis were derived from internal and external forecasts. The impairment assessment concluded that no impairment was required for the goodwill because the fair value of the reporting unit exceeded its carrying amount.

During June 2016, as a result of recent industry consolidation activities and a review of strategic alternatives for the Company's U.S. Wireline business in the Northeast, the Company identified factors indicating the carrying amount of certain assets may not be recoverable. More specifically, the factors included the competitive environment, recent industry consolidation, and the Company's view of future opportunities in the market which began to evolve in the second quarter of 2016. On August 4, 2016, the Company entered into a stock purchase agreement to sell the majority of its U.S. Wireline business. The transaction was completed in March 2017.

As a result of this transaction and market developments, the Company determined it was appropriate to assess the reporting unit's assets for impairment. The reporting unit holds three types of assets for purposes of impairment testing: i) other assets such as accounts receivable and inventory, ii) long lived assets such as property plant and equipment, and iii) goodwill. Management first assessed the other assets for impairment and determined no impairment was appropriate. Second, the property, plant and equipment was assessed for impairment. The impairment test compared the undiscounted cash flows from the use and eventual disposition of the asset group to its carrying amount and determined the carrying amount was not recoverable. The impairment loss of $3.6 million was equal to the amount by which the carrying amount exceeded the fair value. Third management assessed goodwill for impairment and recorded an impairment of $7.5 million. The Company utilized the income approach, with Level 3 valuation inputs, which considered both the purchase agreement and cash flows discounted at a rate of 14% in its fair value calculations. In total, the Company recorded an impairment charge of $11.1 million. The impairment charge is included in income from operations for the year ended December 31, 2016.

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The table below disclosed goodwill recorded in each of the Company's segments and accumulated impairment changes (in thousands):

	U.S. Telecom	International Telecom	Renewable Energy	Consolidated
Balance at December 31, 2016	$ 35,268	$ 24,326	$ 3,279	$ 62,873
Acquisitions	—	1,097	—	1,097
Balance at December 31, 2017	35,268	25,423	3,279	63,970
Acquisitions	—	—	—	—
Balance at December 31, 2018	$ 35,268	$ 25,423	$ 3,279	$ 63,970

	U.S. Telecom	International Telecom	Renewable Energy	Consolidated
Balance at December 31, 2017				
Gross	$ 35,268	$ 25,423	$ 3,279	$ 63,970
Accumulated Impairment	—	—	—	—
Net	35,268	25,423	3,279	63,970
Balance at December 31, 2018				
Gross	35,268	25,423	3,279	63,970
Accumulated Impairment	—	—	—	—
Net	$ 35,268	$ 25,423	$ 3,279	$ 63,970

Telecommunications Licenses

The Company tests those telecommunications licenses that are indefinite lived for impairment on an annual basis, which has been determined to be as of December 31 of each fiscal year. The Company also tests telecommunication licenses that are indefinite lived between annual tests if an event occurs or circumstances change that indicate that the fair value of a reporting unit may be below its carrying value.

The Company's qualitative impairment test includes, but is not limited to, assessing macroeconomic conditions, industry and market considerations, technological changes and trends, overall financial performance, and legal and regulatory changes. The Company's quantitative test for impairment involves a comparison of the estimated fair value of an asset to its carrying amount. The Company determines the fair value of a reporting unit using a discounted cash flow analysis with Level 3 valuation inputs.

The Company performed qualitative assessments for its annual impairment assessment of its indefinite lived telecommunications licenses as of December 31, 2018 and determined that there were no indications of potential impairments. The Company performed quantitative and qualitative assessments for its annual impairment assessments of its indefinite lived telecommunications licenses as of December 31, 2017 and 2016 and determined that there no impairments were required.

In the third quarter of 2017, the Company determined that the damage caused by the Hurricanes caused a triggering event requiring us to assess the related reporting unit's indefinite lived telecommunications licenses for impairment. After consideration of the write-downs of fixed assets within the reporting unit, the impairment test for telecommunications licenses was performed by comparing the fair value of the asset to its carrying amount. The

Company performed a qualitative and quantitative analysis. The Company calculated the fair value by utilizing an income approach, with Level 3 valuation inputs, including a cash flow discount rate of 14.5%. Determining fair value requires the exercise of significant judgment, including judgments about appropriate discount rates, perpetual growth rates, and the amount and timing of expected future cash flows. The discount rate was based on a weighted average cost of capital, which represents the average rate the business would pay its providers of debt and equity. The cash flows

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employed in the discounted cash flow analysis were derived from internal and external forecasts. The impairment assessment concluded that no impairment was required for the indefinite lived telecommunication licenses because the fair value exceeded its carrying amount.

The changes in the carrying amount of the Company’s telecommunications licenses, by operating segment, for the three years ended December 31, 2018 were as follows (in thousands):

	U.S. Telecom	Int'l Telecom	Consolidated
Balance at December 31, 2016	$ 24,944	$ 23,347	$ 48,291
Acquired licenses	47,692	—	47,692
Dispositions	(31)	—	(31)
Balance at December 31, 2017	$ 72,605	$ 23,347	$ 95,952
Acquired licenses	485	—	485
Dispositions	(2,750)	—	(2,750)
Balance at December 31, 2018	$ 70,340	$ 23,347	$ 93,687

The licenses acquired during 2018 and 2017 are expected to be available for use into perpetuity.

Customer Relationships

The customer relationships, all of which are included in the International Telecom segment, are being amortized on an accelerated basis, over the expected period during which their economic benefits are to be realized. The Company recorded $2.4 million, $3.2 million, and $2.0 million of amortization related to customer relationships during year ended December 31, 2018, 2017, and 2016, respectfully.

Future amortization of customer relationships, in its International Telecom segment, is as follows (in thousands):

	Future Amortization
2019	$ 1,897
2020	1,528
2021	1,300
2022	1,143
2023	828
Thereafter	2,627
Total	$ 9,323

Other Intangible Assets

The Company has other intangible assets of $4.5 million consisting of $3.0 million of franchise rights and $1.5 million of tradenames in its International Telecom segment. These assets are recorded in other assets on the Company’s balance sheet as of December 31, 2018. In 2016, the Company assessed the value of a tradename and concluded that its book value exceeded its fair value. As a result, the Company recorded a non-cash impairment charge of $0.3

million during the year ended December 31, 2016.

9. LONG TERM DEBT

The Company has a credit facility with CoBank, ACB and a syndicate of other lenders to provide for a $225 million revolving credit facility (the “Credit Facility”) that includes (i) up to $10 million under the Credit Facility for standby or trade letters of credit, (ii) up to $25 million under the Credit Facility for letters of credit that are necessary or desirable to qualify for disbursements from the FCC’s mobility fund and (iii) up to $10 million under a Swingline sub-facility. The Credit Facility has a maturity date of December 31, 2019 and the Company currently expects to enter into a new agreement before the maturity date. The Credit Facility also provides for the incurrence by the Company of

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incremental term loan facilities, when combined with increases to revolving loan commitments, in an aggregate amount not exceed $200 million (the “Accordion”).

Amounts the Company may borrow under the Credit Facility bear interest at a rate equal to, at the Company’s option, either (i) the London Interbank Offered Rate (LIBOR) plus an applicable margin ranging between 1.50% to 1.75% or (ii) a base rate plus an applicable margin ranging from 0.50% to 0.75%. Swingline Loans will bear interest at the base rate plus the applicable margin for base rate loans. The base rate is equal to the higher of (i) 1.00% plus the higher of (x) the one-week LIBOR and (y) the one-month LIBOR; (ii) the federal funds effective rate (as defined in the Credit Facility) plus 0.50% per annum; and (iii) the prime rate (as defined in the Credit Facility). The applicable margin is determined based on the ratio (as further defined in the Credit Facility) of the Company’s indebtedness to EBITDA. Under the terms of the Credit Facility, the Company must also pay a fee ranging from 0.175% to 0.250% of the average daily unused portion of the Credit Facility over each calendar quarter.

The Credit Facility contains customary representations, warranties and covenants, including a financial covenant that imposes a maximum ratio of indebtedness to EBITDA as well as covenants limiting additional indebtedness, liens, guaranties, mergers and consolidations, substantial asset sales, investments and loans, sale and leasebacks, transactions with affiliates and fundamental changes. The Company’s investment in “unrestricted” subsidiaries is limited to $400 Million less the aggregate amount of certain dividend payments to its stockholders. Amounts borrowed under the Accordion are also subject to proforma compliance with a net leverage ratio financial covenant. As of December 31, 2018, the Company in compliance with all of the financial covenants of the Credit Facility.

As of December 31, 2018, the Company had no borrowings under the Credit Facility.

Ahana Debt

On December 24, 2014, in connection with the Ahana Acquisition, the Company assumed $38.9 million in long-term debt (the “Original Ahana Debt”). The Original Ahana Debt included multiple loan agreements with banks that bore interest at rates between 4.5% and 6.0%, matured at various times between 2018 and 2023 and were secured by certain solar facilities. Repayment of the Original Ahana Debt was being made in cash on a monthly basis until maturity.

The Original Ahana Debt also included a loan from Public Service Electric & Gas (the “PSE&G Loan”). The PSE&G Loan bore interest at 11.3%, matured in 2027, and was secured by certain solar facilities. Repayment of the Original Ahana Debt with PSE&G were able to be made in either cash or SRECs, at the Company’s discretion, with the value of the SRECs being fixed at the time of the loan’s closing. Historically, the Company had made all repayments of the PSE&G Loan using SRECs.

On December 19, 2016, Ahana's wholly owned subsidiary, Ahana Operations, issued $20.6 million in aggregate principal amount of 4.427% senior notes due 2029 (the "Series A Notes") and $45.2 million in aggregate principal amount of 5.327% senior notes due 2031 (the "Series B Notes" and collectively with the Series A Notes and the PSE&G Loan, the "Ahana Debt"). Interest and principal were payable semi-annually, until the respective maturity dates of March 31, 2029 (for the Series A Notes) and December 31, 2031 (for the Series B Notes). Cash flows generated by the solar projects that secured the Series A Notes and Series B Notes were only available for payment of such debt and were not available to pay other obligations or the claims of the creditors of Ahana or its subsidiaries. However, subject to certain restrictions, Ahana Operations held the right to the excess cash flows not needed to pay the Series A Notes and Series B Notes and other obligations arising out of the securitizations. The Series A Notes and Series B Notes were secured by certain assets of Ahana and were guaranteed by certain of its subsidiaries.

A portion of the proceeds from the issuances of the Series A Notes and Series B Notes was used to repay the Original Ahana Debt in full except for the PSE&G Loan which remained outstanding after the refinancing.

The Company capitalized $2.8 million of fees associated with the Series A Notes and Series B Notes which were recorded as a reduction to the debt carrying amount and was being amortized over the life of the notes.

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On November 6, 2018, the Company consummated the U.S. Solar Transaction, which included the transfer of the Original Ahana Debt, the Series A Notes and Series B Notes to the purchaser.

One Communications Debt

In connection with the One Communications Acquisition on May 3, 2016, the Company assumed $35.4 million in debt (the "One Communications Debt") in the form of a loan from HSBC Bank Bermuda Limited. The One Communications Debt was scheduled to mature in 2021, was bearing interest at the three-month LIBOR rate plus a margin of 3.25%, and was repaid quarterly. The One Communications Debt contained customary representations, warranties and affirmative and negative covenants (including limitations on additional debt, guaranties, sale of assets and liens) and a financial covenant that limited the maximum ratio of indebtedness less cash to annual operating cash flow.

On May 22, 2017, the Company amended and restated the One Communications Debt to increase the original facility by $8.6 million to $37.5 million. The amended and restated debt is scheduled to mature on May 22, 2022 and bears interest at the three month LIBOR rate plus an applicable margin rate ranging between 2.5% to 2.75% paid quarterly. The amended and restated One Communications Debt contains customary representations, warranties and affirmative and negative covenants (including limitations on additional debt, guaranties, sale of assets and liens) and financial covenants that limit the ratio of tangible net worth to long term debt and total net debt to EBITDA and require a minimum debt service coverage ratio (net cash generated from operating activities plus interest expense less net capital expenditures to debt repayments plus interest expense). The Company was in compliance with its covenants as of December 31, 2018.

As a condition of the amendment of the One Communications Debt, within 90 days of the refinance date the Company was required to enter into a hedging arrangement with a notional amount equal to at least 30% of the outstanding loan balance and a term corresponding to the maturity of the One Communications Debt. In July 2017, the Company entered into an amortizing interest rate swap. This swap has been designated as a cash flow hedge, had an original notional amount of $11.0 million, has an interest rate of 1.874%, and expires in March 2022. As of December 31, 2018, the swap has an unamortized balance of $9.6 million.

In connection with the amendment of the One Communications Debt, the Company increased the limit of its overdraft facility from $5.0 million to $10.0 million. This facility has an interest rate of three month LIBOR plus 1.75%.

The Company capitalized $0.3 million of fees in 2017 associated with the One Communications Debt, which is recorded as a reduction to the debt carrying amount and will be amortized over the life of the debt.

As of December 31, 2018, $31.9 million of the One Communications Debt was outstanding, there were no borrowings under the overdraft facility, and $0.2 million of the capitalized fees remain unamortized.

As of December 31, 2018, One Communications was in compliance with its financial covenants.

Viya Debt (formerly Innovative Debt)

On July 1, 2016, the Company and certain of its subsidiaries entered into a $60.0 million loan agreement (the “Viya Debt”) with Rural Telephone Finance Cooperative (“RTFC”). The Viya Debt agreement contains customary representations, warranties and affirmative and negative covenants (including limitations on additional debt, guaranties, sale of assets and liens) and a financial covenant that limits the maximum ratio of indebtedness to annual operating cash flow to 3.5 to 1.0 (the “Net Leverage Ratio”). This covenant is tested on an annual basis at the end of each fiscal year. Interest is paid quarterly at a fixed rate of 4.0% and principal repayment is not required until maturity on July 1, 2026. Prepayment of the Viya Debt may be subject to a fee under certain circumstances. The debt is secured by certain assets of the Company’s Viya subsidiaries and is guaranteed by the Company.   Earlier in 2018, the Company began funding the restoration of Viya’s network following the Hurricanes through an intercompany loan arrangement which exceeded certain limitations on Viya incurring additional debt. RTFC consented to these intercompany advances and increased the intercompany debt limit to $50.0 million. Subsequent to the end of the second quarter end, RTFC increased the limit to $75.0 million at the Company’s request due to an increase in the on-going restoration and

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resiliency costs. The Company was not in compliance with the Net Leverage Ratio covenant for the year ending December 31, 2018 and received a waiver from the RTFC on February 25, 2019

The Company paid a fee of $0.9 million in 2016 to lock the interest rate at 4% per annum over the term of the Viya debt. The fee was recorded as a reduction to the Viya debt carrying amount and will be amortized over the life of the loan.

As of December 31, 2018, $60.0 million of the Viya Debt remained outstanding and $0.7 million of the rate lock fee was unamortized.

10. GOVERNMENT GRANTS

Universal Service Fund

The Federal Universal Service Fund (‘USF’) is a subsidy program managed by the FCC. USF funds are disbursed to telecommunication providers through four programs: the High Cost Program; Low Income Program; Schools and Libraries Program (“E-Rate”); and Rural Health Care Program. The Company participates in High Cost Program, Low Income Program, Schools and Libraries Programs, and Rural Health Care Support programs as further described below. All of the funding programs are subject to certain operational and reporting compliance requirements. The Company believes it is in compliance will all applicable requirements.

The FCC’s Mobility Funds and Connect America Funds are administered through the High Cost Program. The High-Cost Support program subsidizes telecommunications services in rural and remote areas. The FCC created the Phase I Mobility Fund (“Phase I Mobility Fund”), a one-time award meant to support wireless coverage in underserved geographic areas in the United States.

The Company received $21.1 million of Phase I Mobility Fund support to its wholesale wireless business (the “Mobility Funds”) to be used to expand voice and broadband networks in certain geographic areas in order to offer either 3G or 4G service. Of these funds, $7.2 million was recorded as an offset to the cost of the property, plant, and equipment associated with these projects and, consequentially, a reduction of future depreciation expense. The remaining $13.9 million received offset operating expenses from inception of the program through part of the third quarter of 2018. The Mobility Funds projects and their operating results are included within the Company’s U.S. Telecom segment. As part of the receipt of the Mobility Funds, the Company committed to comply with certain additional FCC construction and other requirements. If the requirements are not met the funds may be subject to claw back provisions. The Company currently expects to comply with all applicable requirements related to these funds.

During the years ended December 31, 2018, 2017 and 2016, the Company recorded $16.5 million, $16.5 million, and $8.2 million, respectively, of revenue from High Cost Support in its International Telecom segment for its U.S. Virgin Islands operations. Also, during each year ended December 31, 2018, 2017 and 2016, the Company recorded $1.2 million of High Cost Support revenue in its US Telecom segment. The Company is subject to certain operational, reporting and construction requirements as a result of this funding and the Company believes that it is in compliance with all of these requirements. In addition, the Company recorded revenue of $15.5 million during the year ended December 31, 2018, from additional funding authorized by the FCC following the Hurricanes.

In August 2018, the Company was awarded $79.9 million over 10 years under the Connect America Fund Phase II Auction. The funding requires the Company to provide fixed broadband and voice services to certain eligible areas in the United States. The Company is subject to operational and reporting requirements under the program. The Company determined the award is a revenue grant and as a result will record the funding as revenue upon receipt. The Company expects to begin receiving funds under the Connect America Fund Phase II program during mid-2019.

The E-Rate program provides discounted telecommunication access to eligible schools and libraries. The E-Rate program awards (i) special construction funding to build network connectivity for eligible participants, and (ii) pays for discounted recurring charges for eligible broadband services. The special construction funding is used to reimburse construction costs and is distributed upon completion of a project. As of December 31, 2018, the Company was awarded

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approximately $15.4 million of E-Rate grants with construction completion obligations between June 2019 and June 2020. Once these projects are constructed the Company is obligated to provide service to the E-Rate program participants. The Company is in various stages of constructing the networks and has not received any of the funds. The Company expects to meet all requirements associated with these grants.

The Company also receives funding to provide discounted telecommunication services to eligible customers under the E-Rate, Lifeline, and Rural Health Care Support Programs. During the years ended December 31, 2018, 2017, and 2016 the Company recorded revenue of $8.2 million, $10.2 million, and $11.0 million, respectively, in the aggregate from these programs. The Company is subject to certain operational and reporting requirements under the above mentioned programs and it believes that it is in compliance with all of these requirements.

Tribal Bidding Credit

As part of the broadcast television spectrum incentive auction, the FCC implemented a tribal lands bidding credit to encourage deployment of wireless services utilizing 600 MHz spectrum on the lands of federally recognized tribes. The Company received a bidding credit of $7.4 million under this program in 2018. A portion of these funds will be used to offset network capital costs and a portion will be used to offset the costs of supporting the networks. The Company's current estimate is that it will use $5.4 million to offset capital costs and, consequently, reduce future depreciation expense and $2.0 million to offset the cost of supporting the network which will reduce future operating expense. The credits are subject to certain requirements, including deploying service by January 2021 and meeting minimum coverage metrics. If the requirements are not met the funds may be subject to claw back provisions. The Company currently expects to comply with all applicable requirements related to these funds.

11. EQUITY

Common Stock

The Company has paid quarterly dividends on its common stock since January 1999.

Treasury Stock

In September 2004, the Company's Board of Directors approved a $5.0 million stock buyback plan (the "2004 Repurchase Plan"). Through September 19, 2016, the Company repurchased $4.1 million of its common stock, under the 2004 Repurchase Plan.

On September 19, 2016, the Company's Board of Directors authorized the repurchase of up to $50.0 million of its common stock, from time to time, on the open market or in privately negotiated transactions (the "2016 Repurchase Plan"). The 2016 Repurchase Plan replaces the 2004 Repurchase Plan. As of December 31, 2018, the Company has $37.7 million available to be repurchased under the 2016 Repurchase Plan.

During the years ended December 31, 2018, 2017 and 2016, the Company repurchased the following shares under the 2004 Repurchase Plan and the 2016 Repurchase Plan:

Year ended December 31,	Shares Repurchased	Aggregate Cost (in thousands)	Average Repurchase Price
2018	30,427	$ 1,577	$ 51.82
2017	201,932	10,636	52.67
2016	32,407	2,195	64.72

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During the years ended December 31, 2018, 2017 and 2016, the Company repurchased the following shares from employees to satisfy tax withholding and stock options exercise obligations incurred in connection with the vesting of restricted stock awards and the exercise of stock options:

Year ended December 31,	Shares Repurchased	Aggregate Cost (in thousands)	Average Repurchase Price
2018	141,180	$ 10,859	$ 76.76
2017	32,814	2,348	71.54
2016	38,279	2,775	72.50

Stock Based Compensation

The Company reserved 2,000,000 shares for the grant of stock options, restricted stock awards, restricted stock units, stock equivalents and awards of shares of common stock that are not subject to restrictions or forfeiture. As of December 31, 2018, the Company has approximately 801,000 shares available for grants.

Stock Options

Stock options have a term of ten years and vest annually and ratably over a period of four years.

The following table summarizes stock option activity for the years ended December 31, 2018 and 2017:

	Year Ended December 31, 2018			
	Number of Options	Weighted Avg. Exercise Price	Weighted Average Remaining Contractual Term (Years)	Aggregate Intrinsic Value
Outstanding at January 1, 2018	200,021	$ 41.76		
Granted	—	—		
Exercised	(158,021)	39.95		
Outstanding at December 31, 2018	42,000	48.61	4.1	$ 823,515
Vested and expected to vest at December 31, 2018	42,000	48.61	4.1	$ 962,840
Exercisable at December 31, 2018	33,250	46.76	3.0	$ 823,515

	Year Ended December 31, 2017			
	Number of Options	Weighted Avg. Exercise Price	Weighted Average Remaining Contractual Term (Years)	Aggregate Intrinsic Value
Outstanding at January 1, 2017	225,822	$ 39.77		
Granted	10,000	52.97		
Exercised	(35,801)	32.29		

Outstanding at December 31, 2017	200,021	41.76	3.6	$ 2,780,253
Vested and expected to vest at December 31, 2017	200,021	41.76	3.6	$ 2,780,253
Exercisable at December 31, 2017	187,521	40.77	3.6	$ 2,757,353

The unvested options as of December 31, 2018 represent $0.1 million in unamortized stock based compensation which will be recognized over a weighted average term of 2.3 years.

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The following table summarizes information relating to options granted and exercised during the years ended December 31, 2018, 2017 and 2016 (in thousands, except fair value of options granted data):

	2018	2017	2016
Weighted-average fair value of options granted	$ —	$ 13.77	$ —
Aggregate intrinsic value of options exercised	5,927	936	1,591
Cash proceeds received upon exercise of options	72	1,030	649
Excess tax benefits from share-based compensation	—	—	591

The aggregate intrinsic value represents the total pre tax intrinsic value (the difference between the Company's closing common stock price on December 31st and the exercise price, multiplied by the number of the in the money stock options) that would have been received by the stock option holders had all stock options holders exercised their stock options on December 31st. The amount of aggregate intrinsic value will change based on the fair market value of the Company's common stock.

The estimated fair value of the options granted during the year ended December 31, 2017 was determined using a Black Scholes option pricing model, based on the following weighted average assumptions:

	2017	
Risk-free interest rate	1.79	%
Expected dividend yield	1.28	%
Expected life	4.00	years
Expected volatility	34.01	%

The Company did not grant any options during the years ended December 31, 2018 or 2016. The Company recognized $0.1 million, $0.1 million and $0.1 million, respectively, of stock compensation expense relating to the granted options during 2018, 2017, and 2016, respectively.

Restricted Stock

Restricted stock issued under the 2008 Equity Investment Plan vest ratably over four years.

The following table summarizes restricted stock activity during the year ended December 31, 2018:

	Shares	Weighted Avg. Fair Value
Unvested as of January 1, 2018	214,938	$ 68.62
Granted	111,474	59.52
Forfeited	(31,327)	66.53
Vested and issued	(94,432)	66.27
Unvested as of December 31, 2018	200,653	$ 65.21

The following table summarizes restricted stock activity during the year ended December 31, 2017:

	Shares	Weighted Avg. Fair Value
Unvested as of January 1, 2017	229,040	$ 67.13
Granted	95,095	68.09
Forfeited	(12,074)	69.71
Vested and issued	(97,123)	64.01
Unvested as of December 31, 2017	214,938	$ 68.62

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In connection with the grant of restricted shares, the Company recognized $6.1 million, $6.6 million and $6.2 million of compensation expense within its income statements for the years ended December 31, 2018, 2017, and 2016, respectively. In addition, the Company recognized $0.2 million, $0.3 million, and $0.1 million of compensation expense within its income statement for the year ended December 31, 2018, 2017 and 2016, respectively, for shares of the Company's subsidiaries granted to the management team of those subsidiaries.

The unvested shares as of December 31, 2018 represent $9.0 million in unamortized stock based compensation which will be recognized over a weighted average period of 2.5 years.

12. INCOME TAXES

Tax Reform

The Tax Cuts and Jobs Act of 2017 ("2017 Tax Act" also commonly referred to as U.S. tax reform), which was signed into law on December 22, 2017, has resulted in significant changes to the U.S. corporate income tax system and the U.S. Virgin Islands mirror code which replaces "United States" with "U.S. Virgin Islands" throughout the Internal Revenue Code. These changes include a U.S. federal statutory rate reduction from 35% to 21%, which results in a U.S. Virgin Islands rate change of 38.5% to 23.1% under the mirror tax code which allows for a 10% surcharge on the U.S. federal tax rate, 100% expensing of certain qualified capital investments, the elimination or reduction of the alternative minimum tax regime, certain domestic deductions and credits and limitations on the deductibility of interest expense and executive compensation.

The Tax Act also transitions international taxation from a worldwide system to a modified territorial system and includes two base erosion prevention measures on non-U.S. earnings, which has the effect of subjecting certain earnings of the Company's foreign subsidiaries to U.S. taxation as global intangible low taxed income ("GILTI") and eliminates the deduction of certain payments made to related foreign corporations, and imposes a minimum tax if greater than regular tax under the base-erosion and anti-abuse tax ("BEAT"). These changes became effective beginning in 2018. The Tax Act also includes a one-time mandatory deemed repatriation tax on accumulated foreign subsidiaries' previously untaxed foreign earnings ("the Transition Toll Tax").

Transition Toll Tax

The Tax Act eliminates the deferral of U.S. income tax on the historical unrepatriated earnings by imposing the Transition Toll Tax, which is a one-time mandatory deemed repatriation tax on undistributed foreign earnings. The Transition Toll Tax is assessed on the U.S. shareholder's share of the foreign corporation's accumulated foreign earnings that have not previously been taxed. Earnings in the form of cash and cash equivalents will be taxed at a rate of 15.5% and all other earnings will be taxed at a rate of 8.0%.

Due to the timing of the enactment and the complexity involved in applying the provisions of the Tax Act, the Company made reasonable estimates of the effects and recorded provisional amounts in its consolidated financial statements as of December 31, 2017. During 2018, the Company made adjustments to the provisional amounts, including a $3.2 million provision on the deemed repatriation of undistributed foreign earnings in addition to the $7.4 million provision recorded at year-end. The Company has completed its determination of the accounting implications for charges related to the Transition Toll Tax.

At December 31, 2018, the Company continues to assert its earnings are permanently reinvested outside the U.S.. Cash dividends from Guyana was made in 2018, however these distributions are not subject to Guyanese withholding tax and the U.S. state tax impact is minimal.

Effect on Deferred Tax Assets and Liabilities and other Adjustments

The Company’s deferred tax assets and liabilities are measured at the enacted tax rate expected to apply when these temporary differences are expected to be realized or settled. As the Company’s deferred tax liabilities exceed the balance of its deferred tax assets at the date of enactment, the Company recorded a tax benefit of $18.0 million in 2017,

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reflecting the decrease in the U.S. and U.S. Virgin Islands corporate income tax rates, including the state impact, net of federal benefit. An additional adjustment of $0.4 million was recorded in the three-month period ending September 30, 2018 for temporary differences finalized with the filing of the 2017 tax return. The Company has completed its accounting for the measurement of deferred taxes.

The BEAT provisions in the Tax Act eliminate the deduction of certain base-erosion payments made to related foreign corporations, and impose a minimum tax if greater than regular tax. The Company does not expect it will be subject to this tax and therefore have not included any tax impacts of BEAT in its consolidated financial statements for the year ended December 31, 2018. Based on the Company's calculation under the GILTI rules, it does not have an inclusion as of December 31, 2018.

Status of the Company's Assessment

In accordance with SAB 118, the Company has completed its determination of the accounting implications of the Tax Act as of December 22, 2018.

The components of income before income taxes for the years ended December 31, 2018, 2017 and 2016 are as follows (in thousands):

	2018	2017	2016
Domestic	$ 28,917	$ 25,232	$ 28,047
Foreign	24,825	22,321	17,327
Total	$ 53,742	$ 47,553	$ 45,374

The following is a reconciliation from the tax computed at statutory income tax rates to the Company's income tax expense for the years ended December 31, 2018, 2017, and 2016 (in thousands):

	2018	2017	2016
Tax computed at statutory U.S. federal income tax rates	$ 11,286	$ 16,644	$ 15,782
Non-controlling interest	(1,114)	(2,887)	(2,893)
Foreign tax rate differential	(2,716)	(6,621)	(3,074)
Over (under) provided in prior periods	(4,683)	(18)	1,069
Nondeductible expenses	1,610	929	1,134
Goodwill Impairment	—	—	2,622
Capitalized transactions costs	62	53	3,138
Change in tax reserves	10,657	4,433	2,561
State Taxes, net of federal benefit	1,674	1,075	1,853
Change in valuation allowance	1,539	6,137	(7,292)

Foreign tax credit expiration	—	—	4,179
Refund Claim for Domestic Production Deduction	235	(3,382)	—
Tax Cuts and Jobs Act of 2017	(148)	(10,639)	—
Capital loss	15	(6,990)	—
Other, net	453	(75)	2,081
Total Income Tax Expense	$ 18,870	$ (1,341)	$ 21,160

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The components of income tax expense (benefit) for the years ended December 31, 2018, 2017 and 2016 are as follows (in thousands):

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	2018	2017	2016
Current:			
United States—Federal	$ 24,546	$ 375	$ 15,763
United States—State	4,506	500	505
Foreign	13,060	11,289	10,528
Total current income tax expense	$ 42,112	$ 12,164	$ 26,796
Deferred:			
United States—Federal	$ (17,947)	$ (10,892)	$ (1,880)
United States—State	(2,832)	950	(291)
Foreign	(2,463)	(3,563)	(3,465)
Total deferred income tax expense (benefit)	$ (23,242)	$ (13,505)	$ (5,636)
Consolidated:			
United States—Federal	$ 6,599	$ (10,517)	$ 13,883
United States—State	1,674	1,450	214
Foreign	10,597	7,726	7,063
Total income tax expense (benefit)	$ 18,870	$ (1,341)	$ 21,160

The significant components of deferred tax assets and liabilities are as follows as of December 31, 2018 and 2017 (in thousands):

	2018	2017
Deferred tax assets:		
Receivables reserve	$ 3,087	$ 1,524
Temporary differences not currently deductible for tax	9,035	7,869
Deferred compensation	784	1,446
Pension	635	245
Net operating losses	29,496	26,685
Tax Credits	645	8,969
Total deferred tax asset	43,682	46,738
Deferred tax liabilities:		
Property, plant and equipment, net	14,608	35,630
Intangible assets, net	5,959	5,817
Total deferred tax liabilities	20,567	41,447
Valuation allowance	(31,442)	(35,829)
Net deferred tax liabilities	$ (8,327)	$ (30,538)

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Deferred tax assets and liabilities are reflected in the accompanying consolidated balance sheets as follows (in thousands):

	2018	2017
Deferred tax assets:		
Current	$ —	$ —
Long term	1,949	1,194
Total deferred tax asset	$ 1,949	$ 1,194
Deferred tax liabilities:		
Current	$ —	$ —
Long term	(10,276)	(31,732)
Total deferred tax liabilities	$ (10,276)	$ (31,732)
Net deferred tax liabilities	$ (8,327)	$ (30,538)

The Company's effective tax rate for the year ended December 31, 2018 and 2017 was 35.1% and (2.8)%, respectively. The effective tax rate for the year ended December 31, 2018 was primarily impacted by the following items: (i) a $10.6 million net increase of unrecognized tax positions, (ii) a $4.7 million net benefit to record a return to accrual adjustment, (iii) a $1.2 million benefit to recognize a capital loss carryover due to capital gains on sales of wireless licenses, (iv) a $1.4 million net benefit to record a valuation allowance release on an indefinite lived intangible asset, (v) a $1.7 million provision associated with the intercompany sale of assets from the U.S. to the U.S. Virgin Islands, and (vi) the mix of income generated among the jurisdictions in which the Company operates along with the exclusion of losses in jurisdictions where the Company cannot benefit from those losses as required by ASC 740-270-30-36(a), primarily in the U.S. Virgin Islands and India.

The effective tax rate for the year ended December 31, 2017 was primarily impacted by the following items: (i) a $10.6 million benefit for the net impact of the 2017 Tax Act which includes lowering the U.S. corporate income tax rate to 21% effective in 2018 resulting in an $18.0 million benefit from the remeasurement of the deferred tax assets and liabilities, which was partially offset by a provision of $7.4 million on the deemed repatriation of undistributed foreign earnings (ii) a $3.9 million benefit for the net capital transactions related to the Company’s businesses in New England, New York, the British Virgin Islands, and St. Maarten, (iii) a $3.4 million benefit for an amended return refund claim filed for tax year 2013, (iv) a $4.4 million increase (net) in unrecognized tax benefits related to current year and prior year positions, (v) a $6.1 million provision (net) to record the change in valuation allowance and, (vi) the mix of income generated among the jurisdictions in which the Company operates.

As of December 31, 2018, the Company estimated that it had gross federal and foreign net operating loss (“NOL”) carryforwards of $1.2 million and $115.8 million respectively. Of these, $64.0 million will expire between 2024 and 2037 and $53.1 million may be carried forward indefinitely.

The Company assesses available positive and negative evidence to estimate if sufficient future taxable income will be generated to realize the existing deferred tax assets. A significant piece of negative evidence evaluated is cumulative losses incurred in certain reporting jurisdictions over the three-year period ended December 31, 2018. Other negative

evidence examined includes, but is not limited to, losses expected in early future years, a history of tax benefits expiring unused, uncertainties whose unfavorable resolution would adversely affect future results, and brief carryback, carry forward periods. On the basis of this evaluation, the Company believed it was more likely than not that the benefit from some of these federal, state, and foreign deferred taxes would not be realized.

In recognition of this risk at December 31, 2018 the Company has provided a valuation allowance against certain foreign deferred tax assets of $31.4 million. The foreign valuation allowance primarily relates to foreign net operating losses of $29.1 million, while the remaining $2.3 million is on other net foreign deferred tax assets which the Company does not expect to be able to realize. At December 31, 2017, the Company’s federal and foreign NOL carryforward valuation allowances were $1.9 million and $24.3 million, respectively. The federal foreign tax credit valuation allowance was $8.2 million and the remaining valuation allowance of $1.4 million was applied to the other foreign deferred taxes for entities with a full valuation allowance at December 31, 2017.

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As of December 31, 2018, the Company has approximately $119.7 million of undistributed earnings of its foreign subsidiaries, which are considered to be indefinitely reinvested. As such, the Company has not provided deferred tax on those earnings. The Company received $51.6 million of cash distributions from GTT in 2018 but does not anticipate dividends in the future.

The Company had unrecognized tax benefits (including interest and penalty) of $34.7 million as of December 31, 2018, $24.1 million as of December 31, 2017 and, $20.0 million as of December 31, 2016. The net increase of the reserve during the year ended December 31, 2018 was attributable to an increase in tax positions for prior periods of $8.8 million, a net increase in tax positions for the current period of $3.4 million and partially offset by a lapse in statute of a prior year position of $1.6 million.

The following shows the activity related to unrecognized tax benefits (not including interest and penalty) during the three years ended December 31, 2018 (in thousands):

Gross unrecognized tax benefits at December 31, 2015	$ 17,216
Increase in unrecognized tax benefits taken during a prior period	561
Increase in unrecognized tax benefits taken during the current period	2,321
Lapse in statute of limitations	(1,673)
Settlements	(521)
Gross unrecognized uncertain tax benefits at December 31, 2016	17,904
Increase in unrecognized tax benefits taken during a prior period	—
Increase in unrecognized tax benefits taken during the current period	3,394
Lapse in statute of limitations	(2)
Settlements	(335)
Gross unrecognized uncertain tax benefits at December 31, 2017	20,961
Increase in unrecognized tax benefits taken during a prior period	7,293
Increase in unrecognized tax benefits taken during the current period	3,408
Lapse in statute of limitations	(1,430)
Settlements	—
Gross unrecognized uncertain tax benefits at December 31, 2018	$ 30,232

The Company's accounting policy is to classify interest and penalties related to income tax matters as part of income tax expense. The accrued amounts for interest and penalties are $4.5 million as of December 31, 2018, and $3.1 million as of December 31, 2017, and $2.1 million as of December 31, 2016.

All $34.7 million of gross unrecognized uncertain tax benefits (including interest and penalty) would impact the effective tax rate if recognized.

The Company and its subsidiaries file income tax returns in the U.S. and in various, state and local and foreign jurisdictions. The statute of limitations related to the consolidated U.S. federal income tax return is closed for all tax years up to and including 2012. The federal tax audits are closed through 2014. There are no tax audits currently in progress. The expiration of the statute of limitations related to the various state and foreign income tax returns that the Company and subsidiaries file varies by jurisdiction.

13. RETIREMENT PLANS

The Company has noncontributory defined benefit pension plans for eligible employees of its GTT and Viya subsidiaries who meet certain age and employment criteria. The Company also has a noncontributory defined medical, dental, vision, and life benefit plan for eligible employees of its Viya subsidiary who meet certain age and employment criteria. The Company acquired the Viya plans as a result of the July 2016 Viya Acquisition. The Company reviews the funded status of its pension plans and makes contributions based on that analysis. The benefits are based on the

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participants' compensation during their employment and the credited service years earned by participants. The Company funds the other postretirement benefit plans as benefits are paid.

The weighted average rates assumed in the actuarial calculations for the pension and other postretirement benefit plans are as follows as of December 31, 2018, 2017 and 2016:

	2018	2017	2016
Discount Rate – Pension Benefit Obligation	4.7 %	4.2 %	4.6 %
Discount Rate – Pension Benefit Cost	4.3 %	4.6 %	4.3 %
Discount Rate – Postretirement Benefit Obligation	4.5 %	3.9 %	4.3 %
Discount Rate – Postretirement Benefit Cost	3.9 %	4.3 %	3.9 %
Annual salary increase	6.5 %	6.5 %	6.5 %
Expected long-term return on plan assets	6.1 %	6.1 %	6.3 %

The expected long term rate of return on plan assets was determined based on several factors including input from pension investment consultants, projected long term returns of equity and bond indices, and historical returns over the life of the related obligations of the fund. The Company, in conjunction with its pension investment consultants, reviews its asset allocation periodically and rebalances its investments when appropriate in an effort to earn the expected long term returns. The Company will continue to evaluate its long term rate of return assumptions at least annually and will adjust them as necessary.

The annual salary increase assumption reflects the Company's estimated long term average rate of salary increases. The assumption is not applicable to the Viya pension and other postretirement plans as the obligations associated with these plans are not dependent on participant's salaries.

The discount rate was determined based on a review of market data including yields on high quality corporate bonds with maturities approximating the remaining life of the project benefit obligations.

The other postretirement benefit plans healthcare cost trend assumptions is based on health care trend rates. The 2019 assumed medical health care cost trend rate is 6% trending to an ultimate rate of 4% in 2073. The 2019 and ultimate assumed dental care cost trend rate is 4%. The effect of a one-percentage-point increase in the assumed health care cost trend rates for each future year on the accumulated postretirement benefit obligation for health care benefits and the aggregate of the service and interest cost components of net periodic postretirement health care benefit cost is shown below:

	2018		2017	
	Accumulated postretirement benefit obligation	Service cost plus interest cost	Accumulated postretirement benefit obligation	Service cost plus interest cost
At trend	4,013	308	5,308	389
At trend + 1%	4,305	338	5,723	429
Dollar Impact	292	30	415	40
Percentage Impact	7.3 %	9.7 %	7.8 %	10.3 %

At trend – 1%	3,755	282	4,944	355
Dollar Impact	(258)	(26)	(364)	(34)
Percentage Impact	(6.4) %	(8.4) %	(6.9) %	(8.7) %

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Changes during the year in the projected benefit obligations and in the fair value of plan assets are as follows for 2018 and 2017 (in thousands):

	2018		2017	
	Pension Benefits	Postretirement Benefits	Pension Benefits	Postretirement Benefits
Projected benefit obligations:				
Balance at beginning of year:	$ 80,355	$ 5,307	$ 76,119	$ 5,108
Service cost	1,794	147	1,676	183
Interest cost	3,279	161	3,388	206
Benefits and settlements paid	(4,524)	(360)	(3,942)	(367)
Actuarial (gain) loss	(4,295)	(272)	3,114	177
Experience (gain) loss	291	(971)	—	—
Balance at end of year	$ 76,900	$ 4,012	$ 80,355	$ 5,307
Plan net assets:				
Balance at beginning of year:	$ 80,892	$ —	$ 75,331	$ —
Actual return on plan assets	(730)	—	8,789	—
Company contributions	1,830	360	842	367
Benefits and settlements paid	(4,462)	(360)	(4,070)	(367)
Balance at end of year	$ 77,530	$ —	$ 80,892	$ —
Over/ (Under) funded status of plan	$ 630	$ (4,012)	$ 537	$ (5,307)

The Company reports an asset or liability on its balance equal to the funded status of its pension and other postretirement benefit plans. Plans in an overfunded status are aggregated and recorded as a net benefit asset in other assets. Plans in an underfunded status are aggregated and recorded as a net benefit liability in other liabilities. The funded status of the Company's pension and other retirement benefit plans is below (in thousands):

	2018			2017		
	GTT Pension Benefit	Viya Pension Benefit	Postretirement Benefits	GTT Pension Benefit	Viya Pension Benefit	Postretirement Benefits
Projected benefit obligation	$ 14,712	$ 62,188	$ 4,012	$ 13,205	$ 67,150	$ 5,307
Plan Net Assets	14,105	63,425	—	10,307	70,585	—
Over/ (Under) funded status of plan	$ (607)	$ 1,237	$ (4,012)	$ (2,898)	$ 3,435	$ (5,307)

The Company's investment policy for its pension assets is to have a reasonably balanced investment approach, with a long term bias toward debt investments. The Company's strategy allocates plan assets among equity, debt and other assets to achieve long term returns without significant risk to principal. The GTT pension fund has limitations from investing in the equity, debt or other securities of the employer, its subsidiaries or associates of the employer or any company of which the employer is a subsidiary or an associate. Furthermore, the GTT plan must invest between 70% - 80% of its total plan assets within Guyana.

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The fair values for the pension plan's net assets, by asset category, at December 31, 2018 are as follows (in thousands):

Asset Category	Total	Level 1	Level 2	Level 3
Cash, cash equivalents, money markets and other	$ 5,173	$ 5,173	$ —	$ —
Common stock	23,052	18,760	4,292	—
Mutual funds - fixed income	16,444	—	16,444	—
Mutual funds - equities	13,099	4,748	8,351	—
Fixed income securities	18,095	—	18,095	—
Other	1,667	1,177	—	490
Total	$ 77,530	$ 29,858	$ 47,182	$ 490

The fair values for the pension plan's net assets, by asset category, at December 31, 2017 are as follows (in thousands):

Asset Category	Total	Level 1	Level 2	Level 3
Cash, cash equivalents, money markets and other	$ 6,363	$ 6,363	$ —	$ —
Common stock	28,467	25,312	3,155	—
Mutual funds - equities	9,248	9,248	—	—
Exchange traded funds - equities	904	904	—	—
Fixed income securities	35,414	—	35,414	—
Annuities	496	—	—	496
Total	$ 80,892	$ 41,827	$ 38,569	$ 496

The plan's weighted average asset allocations at December 31, 2018 and 2017, by asset category are as follows:

	2018	2017
Cash, cash equivalents, money markets and other	7 %	8 %
Common stock	30	35
Mutual funds - fixed income	21	—
Mutual funds - equities	17	11
Fixed income securities	23	44
Other	2	2
Total	100 %	100 %

Amounts recognized on the Company's consolidated balance sheets consist of (in thousands):

	As of December 31,			
	2018		2017	
	Pension benefits	Postretirement benefits	Pension benefits	Postretirement benefits
Accrued and current liabilities	$ —	$ 271	$ —	$ 392
Other Liabilities	744	3,742	2,898	4,915

Other Assets	1,375	—	3,435	—
Accumulated other comprehensive income, net of tax	938	1,350	2,953	174

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Amounts recognized in accumulated other comprehensive loss consist of (in thousands):

	As of December 31,			
	2018		2017	
	Pension benefits	Postretirement benefits	Pension benefits	Postretirement benefits
Net actuarial gain	$ 30	$ 1,350	$ 1,408	$ 174
Accumulated other comprehensive income, pre-tax	30	1,350	1,408	174
Accumulated other comprehensive income, net of tax	938	1,350	2,953	174

Components of the plan's net periodic pension cost are as follows for the years ended December 31, 2018, 2017 and 2016 (in thousands):

	2018		2017		2016	
	Pension benefits	Postretirement benefits	Pension benefits	Postretirement benefits	Pension benefits	Postretirement benefits
Service cost	$ 1,794	$ 147	$ 1,676	$ 183	$ 1,308	$ 97
Interest cost	3,279	161	3,388	206	2,002	97
Expected return on plan assets	(4,835)	—	(4,470)	—	(2,024)	—
Amortization of actuarial (gain) loss	121	(67)	716	—	1,271	—
Curtailment	—	—	—	—	128	—
Net periodic pension cost	$ 359	$ 241	$ 1,310	$ 389	$ 2,685	$ 194

The Company does not plan to make any contributions to its pension and postretirement benefit plans during the year ending December 31, 2019.

The following estimated benefits, which reflect expected future service, as appropriate, are expected to be paid over the next ten years as indicated below (in thousands):

Fiscal Year	Pension Benefits	Postretirement Benefits
2019	$ 5,022	$ 277
2020	4,292	255
2021	4,452	237
2022	5,079	261
2023	4,355	236
2024-2028	23,534	1,535
	$ 46,734	$ 2,801

14. COMMITMENTS AND CONTINGENCIES

Regulatory and Litigation Matters

The Company and its subsidiaries are subject to certain regulatory and legal proceedings and other claims arising in the ordinary course of business, some of which involve claims for damages and taxes that are substantial in amount. The Company believes that, except for the items discussed below, for which the Company is currently unable to

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predict the final outcome, the disposition of proceedings currently pending will not have a material adverse effect on the Company's financial position or results of operations.

The Company's Guyana subsidiary, GTT, holds a license to provide domestic fixed services and international voice and data services in Guyana on an exclusive basis until December 2030. Since 2001, the Government of Guyana has stated its intention to introduce additional competition into Guyana's telecommunications sector. In connection therewith, the Company and GTT have met on several occasions with officials of the Government of Guyana to discuss potential modifications of GTT's exclusivity and other rights under the existing agreement and license. On July 18, 2016, the Guyana Parliament passed telecommunications legislation, and on August 5, 2016, the legislation was signed into law that introduces material changes to many features of Guyana's existing telecommunications regulatory regime with the intention of creating a more competitive market. The legislation does not have the effect of terminating the Company's exclusive license. Instead the legislation as passed requires the Minister of Telecommunications to conduct further proceedings and issue implementing orders to enact the various provisions of the legislation, including the issuance of competing licenses. The Company cannot predict the manner in which or when the legislation will be implemented by the Minister of Telecommunications.

In January 2018 the Government of Guyana and the Company met to discuss modifications of the Company's exclusivity rights and other rights under its existing agreement and license. Those discussions are on-going, however, there can be no assurance that those discussions will be concluded before the Government issues new licenses contemplated by the legislation or at all, or that such discussions will satisfactorily address the Company's contractual exclusivity rights. Although the Company believes that it would be entitled to damages or other compensation for any involuntary termination of its contractual exclusivity rights, it cannot guarantee that the Company would prevail in a proceeding to enforce its rights or that its actions would effectively halt any unilateral action by the Government.

Historically, GTT has been subject to other litigation proceedings and disputes in Guyana that, while not conclusively resolved, to the Company's knowledge have not been the subject of discussions or other significant activity in the last five years. It is possible, but the Company believes unlikely, that these disputes, as discussed below, may be revived. The Company believes that none of these additional proceedings would, in the event of an adverse outcome, have a material impact on the Company's consolidated financial position, results of operation or liquidity.

In a letter dated September 8, 2006, the National Frequency Management Unit ("NFMU") agreed that total spectrum fees in Guyana should not increase for the years 2006 and 2007. However, that letter implied that spectrum fees in 2008 and onward may be increased beyond the amount GTT agreed to with the Government. GTT has objected to the NFMU's proposed action and reiterated its position that an increase in fees prior to development of an acceptable methodology would violate the Government's prior agreement. In 2011, GTT paid the NFMU $2.6 million representing payments in full for 2008, 2009 and 2010. However, by letter dated November 23, 2011, the NFMU stated that it did not concur with GTT's inference that the amount was payment in full for the specified years as it was NFMU's continued opinion that the final calculation for spectrum fees was not agreed upon and was still an outstanding issue. By further letter dated November 24, 2011, the NFMU further rejected a proposal that was previously submitted jointly by GTT and another communications provider that outlined a recommended methodology for the calculation of these fees. The NFMU stated that it would prepare its own recommendation for

consideration by the Minister of Telecommunications, who would decide the matter. GTT has paid undisputed spectrum fees according to the methodology used for its 2011 payments, and has reserved amounts payable according to this methodology. There have been limited further discussions on this subject and GTT has not had the opportunity to review any recommendation made by the NFMU to the Minister.

In November 2007, Caribbean Telecommunications Limited ("CTL") filed a complaint in the U.S. District Court for the District of New Jersey against GTT and ATN claiming breach of an interconnection agreement for domestic cellular services in Guyana and related claims. CTL asserted over $200 million in damages. GTT and ATN moved to dismiss the complaint on procedural and jurisdictional grounds. On January 26, 2009, the court granted the motions to dismiss the complaint on the grounds asserted. In November 2009 and again in April 2013, CTL filed and then abandoned a similar claim against GTT and the Public Utility Commission in the High Court of Guyana. CTL once more filed a similar claim against the Company in December 2017, seeking damages of $25 million; however, this matter was dismissed in May 2018. CTL made an untimely filing for an appeal thereafter, which the court subsequently denied. The Company continues to believe this claim is without merit and intends to vigorously defend against it.

On May 8, 2009, a GTT competitor, Digicel, filed a lawsuit in Guyana challenging the legality of GTT's exclusive license rights under Guyana's constitution. Digicel initially filed this lawsuit against the Attorney General of Guyana. On May 13, 2009, GTT petitioned to intervene in the suit in order to oppose Digicel's claims and GTT's petition was granted on May 18, 2009. GTT filed an answer to the charge on June 22, 2009. The case remains pending. The Company believes that any legal challenge to GTT's exclusive license rights granted in 1990 is without merit and the Company intends to defend vigorously against such legal challenge.

GTT has filed several lawsuits in the High Court of Guyana asserting that, despite its denials, Digicel is engaged in international bypass in violation of GTT's exclusive license rights, the interconnection agreement between the parties, and the laws of Guyana. GTT is seeking injunctive relief to stop the illegal bypass activity and money damages. Digicel filed counterclaims alleging that GTT has violated the terms of the interconnection agreement and Guyana laws. These suits, filed in 2010 and 2012, have been consolidated with Digicel's constitutional challenge described above and is scheduled to proceed to trial in the second quarter of 2019. GTT intends to prosecute these matters vigorously.

GTT is also involved in several legal claims regarding its tax filings with the Guyana Revenue Authority dating back to 1991 regarding the deductibility of intercompany advisory fees as well as other tax assessments. The Company maintains that any liability GTT might be found to have with respect to the disputed tax assessments, totaling $44.1 million, would be offset in part by the amounts necessary to ensure that GTT's return on investment was no less than 15% per annum for the relevant periods. The Company believes that some adverse outcome is probable and has accordingly accrued $5.0 million as of December 31, 2018 for these matters.

Lease Commitments and Other Obligations

The Company leases approximately 2.5 million square feet for its operations centers, administrative offices and retail stores as well as certain tower sites under non cancelable operating leases. The Company's obligations for payments under these leases are as follows at December 31, 2018 (in thousands):

2019	$ 21,941
2020	18,813
2021	12,406
2022	8,466
2023	4,142
Thereafter	5,991
Total obligations under operating leases	$ 71,759

Rent expense for the years ended December 31, 2018, 2017 and 2016 was $21.1 million, $20.9 million and $19.8 million, respectively.

15. RELATED PARTY TRANSACTIONS

In October 2014, the Company's U.S. Virgin Islands business, Choice Communications, LLC ("Choice"), entered into a tower lease with Tropical Tower Ltd ("Tropical Tower"), an entity 90% owned by Cornelius B. Prior, Jr., the former Chairman of the Company's Board of Directors. When aggregated with amounts that Choice currently pays to Tropical Tower for an existing tower lease entered into in April 2012, Choice will pay approximately $117,000 per year in rental payments to Tropical Tower. Each tower lease has an initial term of five years, with two additional five-year renewal periods and has provisions for an increase in rent by 5% each year. The Company's Audit Committee reviewed the specific structure and terms of the October 2014 lease, as negotiated by Choice management, and unanimously approved the arrangement described above in accordance with the terms of the Company's Related Person Transaction Policy.

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16. SEGMENT REPORTING

The Company has the following three reportable and operating segments: i) U.S. Telecom, ii) International Telecom, and iii) Renewable Energy.

The following tables provide information for each operating segment (in thousands):

For the Year Ended December 31, 2018

	U.S. Telecom	International Telecom	Renewable Energy	Corporate and Other (1)	Consolidated
Revenue					
Wireless	$ 108,878	$ 89,946	$ —	$ —	$ 198,824
Wireline	6,602	223,623	—	—	230,225
Renewable Energy	—	—	22,158	—	22,158
Total Revenue	115,480	313,569	22,158	—	451,207
Depreciation and amortization	24,615	48,889	6,589	5,626	85,719
Non-cash stock-based compensation	—	88	105	6,227	6,420
Operating income (loss)	36,813	45,022	13,440	(34,252)	61,023

For the Year Ended December 31, 2017

	U.S. Telecom	International Telecom	Renewable Energy	Corporate and Other (1)	Consolidated
Revenue					
Wireless	$ 143,028	$ 89,473	$ —	$ —	$ 232,501
Wireline	12,695	215,132	—	—	227,827
Renewable Energy	—	—	20,865	—	20,865
Total Revenue	155,723	304,605	20,865	—	481,193
Depreciation and amortization	25,601	50,007	6,668	4,658	86,934
Non-cash stock-based compensation	—	188	114	6,675	6,977
Operating income (loss)	55,317	28,308	5,179	(33,496)	55,308

For the Year Ended December 31, 2016

	U.S. Telecom	International Telecom	Renewable Energy	Corporate and Other (1)	Consolidated

Revenue					
Wireless	$ 150,044	$ 94,360	$ —	$ —	$ 244,404
Wireline	26,683	163,915	—	—	190,598
Renewable Energy	—	—	22,001	—	22,001
Total Revenue	176,727	258,275	22,001	—	457,003
Depreciation and amortization	24,470	40,493	4,987	6,030	75,980
Non-cash stock-based compensation	—	22	114	6,274	6,410
Operating income (loss)	49,078	36,910	(246)	(34,472)	51,270

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	U.S. Telecom	International Telecom	Renewable Energy	Corporate and Other (1)	Consolidated
December 31, 2018					
Cash, Cash equivalents, and Investments	$ 19,118	$ 32,390	$ 62,678	$ 78,043	$ 192,229
Total current assets	36,801	75,304	80,553	83,107	275,765
Fixed assets, net	78,102	482,770	45,599	20,381	626,852
Goodwill	35,269	25,421	3,280	—	63,970
Total assets	172,634	622,454	130,427	181,789	1,107,304
Total current liabilities	15,783	82,575	3,465	38,827	140,650
Total debt	—	90,970	12	—	90,982
December 31, 2017					
Cash, Cash equivalents, and Investments	$ 19,585	$ 110,700	$ 8,120	$ 76,627	$ 215,032
Total current assets	40,975	190,396	18,060	93,497	342,928
Fixed assets, net	99,462	367,485	158,447	17,752	643,146
Goodwill	35,269	25,421	3,280	—	63,970
Total assets	200,142	629,007	192,406	184,050	1,205,605
Total current liabilities	41,248	91,887	14,754	13,816	161,705
Total debt	—	94,577	61,215	—	155,792

Capital Expenditures

Year ended December 31,	U.S. Telecom	International Telecom	Renewable Energy	Corporate and Other (1)	Consolidated
2018	$ 13,389	$ 160,013 (2)	$ 4,515	$ 8,004	$ 185,921
2017	22,230	80,912	32,738	6,491	142,371

(1) Reconciling items refer to corporate overhead expenses and consolidating adjustments.

(2) Includes $80.2 million of expenditures used to rebuild the Company’s damaged networks in the U.S. Virgin Islands which was impacted by the Hurricanes. These expenditures were financed, in part, by the $34.6 million of insurance proceeds the Company received during the first quarter of 2018.

The table below identifies the Company’s revenues and long-lived assets by geographic location. The Company attributes revenue to geographic location based on location of the customer (in thousands):

2018	2017	2016

	Revenues	Long-Lived Assets	Revenues	Long-Lived Assets	Revenues	Long-Lived Assets
U.S.	$ 132,288	$ 234,514	$ 173,632	$ 358,032	$ 198,300	$ 265,528
Guyana	102,056	151,084	93,524	129,909	91,653	132,609
U.S Virgin Islands	79,785	216,173	83,194	137,018	58,431	110,773
Bermuda	103,281	137,992	127,244	165,243	83,006	94,976
Other Foreign Countries	33,797	91,774	3,599	71,282	25,613	76,575
	$ 451,207	$ 831,538	$ 481,193	$ 861,484	$ 457,003	$ 680,461

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17. QUARTERLY FINANCIAL DATA (UNAUDITED)

Following is a summary of the Company's quarterly results of operations for the years ended December 31, 2018 and 2017 (in thousands):

	2018 Consolidated for the Three Months Ended			
	March 31	June 30	September 30	December 31
Total revenue	$ 104,475	$ 117,788	$ 121,138	$ 107,806
Operating expenses	100,266	102,035	90,395	97,488
Income from operations	4,209	15,753	30,743	10,318
Other income (expense), net	(2,591)	(2,885)	(2,823)	1,018
Income from continuing operations before income taxes	1,618	12,868	27,920	11,336
Income taxes	3,921	2,088	7,010	5,851
Net income (loss)	(2,303)	10,780	20,910	5,485
Net income attributable to non-controlling interests, net of tax	(3,252)	(3,564)	(3,887)	(4,354)
Net income (loss) attributable to ATN International, Inc. stockholders	$ (5,555)	$ 7,216	$ 17,023	$ 1,131
Net income (loss) per weighted average basic share attributable to ATN International, Inc. stockholders				
Total	(0.35)	0.45	1.07	0.07
Net income (loss) per weighted average diluted share attributable to ATN International, Inc. stockholders				
Total	(0.35)	0.45	1.07	0.07

	2017 Consolidated for the Three Months Ended			
	March 31	June 30	September 30	December 31
Total revenue	$ 128,115	$ 123,245	$ 122,132	$ 107,701
Operating expenses	110,359	107,442	141,697	66,387
Income from operations	17,756	15,803	(19,565)	41,314
Other income (expense), net	(3,044)	(2,298)	(2,295)	(118)
Income (loss) from continuing operations before income taxes	14,712	13,505	(21,860)	41,196
Income taxes	3,128	2,596	(884)	(6,181)
Net income (loss)	11,584	10,909	(20,976)	47,377
Net income attributable to non-controlling interests, net of tax	(4,725)	(5,026)	(3,784)	(3,871)
Net income (loss) attributable to ATN International, Inc. stockholders	$ 6,859	$ 5,883	$ (24,760)	$ 43,506
Net income (loss) per weighted average basic share attributable to ATN International, Inc. stockholders				

Total	0.42	0.36	(1.53)	2.71
Net income (loss) per weighted average diluted share attributable to ATN International, Inc. stockholders				
Total	0.42	0.36	(1.53)	2.71

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SCHEDULE II

ATN INTERNATIONAL, INC. AND SUBSIDIARIES

VALUATION AND QUALIFYING ACCOUNTS

(Amounts in Thousands)

	Balance at Beginning of Year	Purchase Price Accounting	Charged to Costs and Expenses	Deductions	Balance at End of Year
YEAR ENDED, December 31, 2016					
Description:					
Valuation allowance on foreign tax credit carryforwards	$ 4,180	$ —	$	$ 4,180	$ —
Valuation allowance on foreign net operating losses and other deferred taxes	1,672	41,941	217	1,922	41,908
Valuation allowance on state net operating losses	1,962	—	—	1,409	553
Allowance for doubtful accounts	9,294	—	5,095	1,240	13,149
	$ 17,108	$ 41,941	$ 5,312	$ 8,751	$ 55,610
YEAR ENDED, December 31, 2017					
Description:					
Valuation allowance on foreign tax credit carryforwards	$ —	$ —	$ 8,226	$ —	$ 8,226
Valuation allowance on capital loss carryforwards	—	—	1,881	—	1,881
Valuation allowance on foreign net operating losses and other deferred taxes	41,908	—	839	17,025	25,722
Valuation allowance on state net operating losses	553	—	—	553	—
Allowance for doubtful accounts	13,149	—	3,993	2,119	15,023
	$ 55,610	$ —	$ 14,939	$ 19,697	$ 50,852
YEAR ENDED, December 31, 2018					
Description:					
Valuation allowance on foreign tax credit carryforwards	$ 8,226	$ —	$ (8,226)	$ —	$ —
Valuation allowance on capital loss carryforwards	1,881	—	(1,881)	—	—
Valuation allowance on foreign net operating losses and other deferred taxes	25,722	—	5,877	157	31,442
Allowance for doubtful accounts	15,023	—	5,134	3,695	16,462
	$ 50,852	$ —	$ 904	$ 3,852	$ 47,904