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

FORM 10-K

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

For the fiscal year ended December 31, 2019

OR

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

For the transition period from to

Commission file number 000-22418

ITRON, INC.
(Exact name of registrant as specified in its charter)

Washington	91-1011792
(State of Incorporation)	(I.R.S. Employer Identification Number)

2111 N Molter Road, Liberty Lake, Washington 99019
(509) 924-9900
(Address and telephone number of registrant's principal executive offices)

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

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common stock, no par value	ITRI	NASDAQ Global Select Market

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

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

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

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

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes ☒ No ☐

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

Large accelerated filer	☒	Accelerated filer	☐
Non-accelerated filer	☐(Do not check if a smaller reporting company)	Smaller reporting company	☐
		Emerging growth company	☐

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

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

As of June 28, 2019 (the last business day of the registrant's most recently completed second fiscal quarter), the aggregate market value of the shares of common stock held by non-affiliates of the registrant (based on the closing price for the common stock on the NASDAQ Global Select Market) was $2,437,476,482.

As of January 31, 2020, there were outstanding 39,956,068 shares of the registrant's common stock, no par value, which is the only class of common stock of the registrant.

DOCUMENTS INCORPORATED BY REFERENCE

The information called for by Part III is incorporated by reference to the definitive Proxy Statement for the Annual Meeting of Shareholders of the Company to be held on May 7, 2020.

Itron, Inc.

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In this Annual Report on Form 10-K, the terms "we," "us," "our," "Itron," and the "Company" refer to Itron, Inc.

Certain Forward-Looking Statements

This document contains forward-looking statements concerning our operations, financial performance, revenues, earnings growth, liquidity, and other items. This document reflects our current plans and expectations and is based on information currently available as of the date of this Annual Report on Form 10-K. When we use the words "expect," "intend," "anticipate," "believe," "plan," "project," "estimate," "future," "objective," "may," "will," "will continue," and similar expressions, they are intended to identify forward-looking statements. Forward-looking statements rely on a number of assumptions and estimates. These assumptions and estimates could be inaccurate and cause our actual results to vary materially from expected results. You should not solely rely on these forward-looking statements as they are only valid as of the date of this Annual Report on Form 10-K. We do not have any obligation to publicly update or revise any forward-looking statement in this document. For a complete description of risks and uncertainties, refer to Item 1A: "Risk Factors" included in this Annual Report on Form 10-K.

PART I

ITEM 1: BUSINESS

Available Information

Documents we provide to the Securities and Exchange Commission (SEC) are available free of charge under the Investors section of our website at *www.itron.com* as soon as practicable after they are filed with or furnished to the SEC. In addition, these documents are available at the SEC's website (*http://www.sec.gov*), at the SEC's Headquarters at 100 F Street, NE, Washington, DC 20549, or by calling 1-800-SEC-0330.

General

Itron enables utilities and cities to safely, securely and reliably deliver critical infrastructure services to communities in more than 100 countries. Our proven portfolio of smart networks, software, services, devices, and sensors helps our customers better manage their operations in the energy, water, and smart city space. We are among the leading technology and services companies offering end-to-end device solutions, networked solutions, and outcomes-based products and services. Our comprehensive offerings measure, manage, and provide data analytics and services to utilities and municipalities that enable them to responsibly and efficiently manage resources.

We have over 40 years of experience in supporting utilities and municipalities in the management of their data and critical infrastructure needs. Incorporated in 1977 with a focus on meter reading technology, we entered the electricity meter manufacturing business with the acquisition of Schlumberger Electricity Metering in 2004. In 2007, we expanded our presence in global meter manufacturing and systems with the acquisition of Actaris Metering Systems SA. In 2017, we completed our acquisition of Comverge by purchasing the stock of its parent, Peak Holding Corp. (Comverge), which enabled us to offer integrated cloud-based demand response, energy efficiency, and customer engagement solutions. In 2018, we strengthened our ability to deliver a broader set of solutions and to increase the pace of growth and innovation in the utility, smart city, and Industrial Internet of Things (IIoT) markets with the acquisition of Silver Spring Networks, Inc. (SSNI).

The following is a discussion of our major products, our markets, and our operating segments. Refer to Item 7: "Management's Discussion and Analysis of Financial Condition and Results of Operations" and Item 8: "Financial Statements and Supplementary Data" for specific segment results.

Our Business

We are a technology and service company, which is a leader in the IIoT. We offer solutions that enable utilities and municipalities to safely, securely and reliably operate their critical infrastructure. Our solutions include the deployment of smart networks, software, services, devices, sensors, and data analytics that allow our customers to manage assets, secure revenue, lower operational costs, improve customer service, improve safety, and enable efficient management of valuable resources. Our comprehensive solutions and data analytics address the unique challenges facing the energy, water, and municipality sectors, including increasing demand on resources, non-technical loss, leak detection, environmental and regulatory compliance, and improved operational reliability.

We offer a portfolio of products, software, and services to our customers that can be a standalone, one-time purchase or an end-to-end solution that can be recurring over multiple years. The portfolio includes hardware products used for measurement, control, or sensing with and without communications capability; a combination of endpoints and network infrastructure designed and sold as a complete solutions that acquires and transports application specific data; value added services, software, and products that organize, analyze and interpret data to gain insights, make decisions, and inform actions. We offer managed services, software-as-a-service (SaaS), technical support services, licensing hardware technology, and consulting services.

Industry Drivers
Utility and municipalities are undergoing an evolution of how they operate critical infrastructure, manage scarce resources, and interact with their customers. Efficiently managing resources within energy, water, and cities is a top priority globally, as increasing populations and resource consumption continues to stress an aging infrastructure. The growing demand for energy, water, and municipal services coupled with the proliferation of renewable energy sources, smart communicating devices, sensors, and multiple data producing technologies is forcing providers to rethink how they operate and service their communities. This evolution comes at a time when utilities and municipalities are challenged by cost constraints, regulatory requirements, environmental concerns, safety, and resource scarcity. Itron provides its customers with a solution-based offering to safely, securely, and reliably optimize their critical infrastructure to improve the efficiency of their services and to better understand their customers with near real-time knowledge of their resource usage. An added benefit of our solutions is the utility or municipality can empower their customers to understand and have control over their resource usage, allowing for better management and conservation of valuable resources.

Our Operating Segments
We operate under the Itron brand worldwide and manage and report under three operating segments: Device Solutions, Networked Solutions, and Outcomes. The following discussion provides a description of each of the three segments:

Device Solutions – This segment primarily includes hardware products used for measurement, control, or sensing that do not have communications capability embedded for use with our broader Itron systems, i.e., hardware-based products not part of a complete "end-to-end" solution. Examples from the Device Solutions portfolio include: standard endpoints that are shipped without Itron communications, such as our standard gas meters, electricity IEC meters, and water meters, in addition to our heat and allocation products; communicating meters that are not a part of an Itron solution such as Smart Spec meters; and the implementation and installation of non-communicating devices, such as gas regulators.

Networked Solutions – This segment primarily includes a combination of communicating devices (smart meters, modules, endpoints, and sensors), network infrastructure, and associated application software designed and sold as a complete solution for acquiring and transporting robust application-specific data. Networked Solutions combines the majority of the assets from the recently acquired SSNI organization with our legacy Itron networking products and software and the implementation and installation of communicating devices into one operating segment. Examples from the Networked Solutions portfolio include: communicating measurement, control, or sensing endpoints such as our Itron® and OpenWay® Riva meters, Itron traditional ERT® technology, Intelis smart gas or water meters, 500G gas communication modules, 500W water communication modules; GenX networking products, network modules and interface cards; and specific network control and management software applications. The IIoT solutions supported by this segment include automated meter reading (AMR), advanced metering infrastructure (AMI), smart grid and distribution automation (DA), and smart street lighting and smart city solutions.

Outcomes – This segment primarily includes our value-added, enhanced software and services in which we manage, organize, analyze, and interpret data to improve decision making, maximize operational profitability, drive resource efficiency, and deliver results for consumers, utilities, and smart cities. Outcomes places an emphasis on delivering to Itron customers high-value, turn-key, digital experiences by leveraging the footprint of our Device Solutions and Networked Solutions segments. The revenues from these offerings are primarily recurring in nature and would include any direct management of Device Solutions, Networked Solutions, and other products on behalf of our end customers. Examples from the Outcomes portfolio include: our meter data management and analytics offerings; our managed service solutions including network-as-a-service and platform-as-a-service, forecasting software and services; and any consulting-based engagement. Within the Outcomes segment, we also identify new business models, including performance-based contracting, to drive broader portfolio offerings across utilities and cities.

Bookings and Backlog of Orders

Bookings for a reported period represent customer contracts and purchase orders received during the period for hardware, software, and services that have met certain conditions, such as regulatory and/or contractual approval. Total backlog represents committed but undelivered products and services for contracts and purchase orders at period-end. Twelve-month backlog represents the portion of total backlog that we estimate will be recognized as revenue over the next 12 months. Backlog is not a complete measure of our future revenues as we also receive significant book-and-ship orders, as well as frame contracts. Bookings and backlog may fluctuate significantly due to the timing of large project awards. In addition, annual or multi-year contracts are subject to rescheduling and cancellation by customers due to the long-term nature of the contracts. Beginning total backlog, plus bookings, minus revenues, will not equal ending total backlog due to miscellaneous contract adjustments, foreign currency fluctuations, and other factors. Total bookings and backlog include certain contracts with termination for convenience clauses, which will not agree to the total transaction price allocated to the remaining performance obligations disclosed in Item 8: "Financial Statements and Supplementary Data, Note 18: Revenues".

Year Ended	**Total Bookings**	**Total Backlog**	**12-Month Backlog**
In millions			
December 31, 2019	$ 2,551	$ 3,207	$ 1,499
December 31, 2018	2,515	3,173	1,349
December 31, 2017	1,993	1,750	931

Sales and Distribution

We use a combination of direct and indirect sales channels in our operating segments. A direct sales force is utilized for large electric, natural gas, and water utilities, with which we have long-established relationships. For smaller utilities, we typically use an indirect sales force that consists of distributors, sales representatives, partners, and meter manufacturer representatives.

No single customer represented more than 10% of total revenues for the years ended December 31, 2019, 2018, and 2017. Our 10 largest customers accounted for approximately 31% of total revenues in the years ended December 31, 2019 and 2018 and 33% in 2017.

Manufacturing

Our products require a wide variety of components and materials, which are subject to price and supply fluctuations. We enter into standard purchase orders in the ordinary course of business, which can include purchase orders for specific quantities based on market prices, as well as open-ended agreements that provide for estimated quantities over an extended shipment period, typically up to one year at an established unit cost. Although we have multiple sources of supply for many of our material requirements, certain components and raw materials are supplied by limited or sole-source vendors, and our ability to perform certain contracts depends on the availability of these materials. Refer to Item 1A: "Risk Factors," for further discussion related to manufacturing and supply risks.

Our manufacturing facilities are located throughout the world, an overview of which is presented in Item 2: "Properties". While we manufacture and assemble a portion of our products, we outsource the manufacturing of many products to various manufacturing partners. This approach allows us to reduce our costs related to our manufacturing overhead and inventory and also allows us to adjust more quickly to changing end-customer demand. These manufacturing partners assemble our products using design specifications, quality assurance programs, and standards that we establish and procure components and assemble our products based on demand forecasts. These forecasts represent our estimates of future demand for our products based upon historical trends and analysis from our sales and product management functions, as adjusted for overall market conditions.

Partners

In connection with delivering products and systems to our customers, we frequently partner with third-party vendors to provide hardware, software, or services, e.g., meter installation and communication network equipment and infrastructure. Our ability to perform on our contractual obligations with our customers is dependent on these partners meeting their obligations to us. Refer to Item 1A: "Risk Factors," for further discussion related to third-party vendors and strategic partners.

Research and Development

Our research and development is focused on both improving existing technology and developing innovative new technology for electricity, natural gas, water and heat meters, sensing and control devices, data collection software, communication technologies, data warehousing, software applications, and the IIoT. We invested approximately $202 million, $208 million, and $169 million in research and development in 2019, 2018 and 2017, which represented 8% of total revenues for 2019, 9% of total revenues for 2018, and 8% of total revenues for 2017.

Workforce
As of December 31, 2019, we had approximately 7,900 people in our workforce, including 6,700 permanent employees. We have not experienced significant employee work stoppages and consider our employee relations to be good.

Competition
We enable utilities and cities to safely, securely, and reliably deliver critical infrastructure services to communities in more than 100 countries. Our portfolio of smart networks, software, services, meters, and sensors help our customers better manage electricity, gas, water, and city infrastructure resources for the people they serve. Consequently, we operate within a large and complex competitive landscape, and our competitors range from small to large established companies. Some of our competitors have diversified product portfolios and participate in multiple geographic markets, while others focus on specific regional markets and/or certain types of products, including some low-cost suppliers based in China and India. Our competitors in China have an increasing presence in other markets around the world; however, excluding the Asia Pacific region this competition does not currently represent a major market share in our global operating regions. Our primary competitors include Badger Meter, Inc.; Landis+Gyr; Roper Technologies, Inc.; Aclara Inc.; Elster Inc.; and Xylem, Inc. (Sensus).

We believe that our competitive advantage is based on our in-depth knowledge of the industries we serve, our capacity to innovate, and our ability to provide complete end-to-end integrated solutions. We are a global leader in the IIoT category, an industry leader in communication modules deployed, a leading industry innovator, a leader in electricity, gas and water end-to-end solutions, and a global leader in meters under managed services. We continue to serve our established customer relationships, and expand upon our track record of delivering reliable, accurate, and long-lived products and services. Due to the fragmented nature of the IIoT and Smart Cities markets, we also consider opportunities to partner with other companies to collaboratively deliver end-to-end solutions to our customers. Refer to Item 1A: "Risk Factors" for a discussion of the competitive pressures we face.

Strategic Alliances
We pursue strategic alliances with other companies in areas where collaboration can produce product advancement and acceleration of entry into new markets. The objectives and goals of a strategic alliance can include one or more of the following: technology exchange, research and development, joint sales and marketing, or access to new geographic markets. Refer to Item 1A: "Risk Factors" for a discussion of risks associated with strategic alliances.

Intellectual Property
Our patents and patent applications cover a range of technologies, which relate to standard metering, smart metering solutions and technology, meter data management software, knowledge application solutions, and IIoT. We also rely on a combination of copyrights, patents, and trade secrets to protect our products and technologies. Disputes over the ownership, registration, and enforcement of intellectual property rights arise in the ordinary course of our business. While we believe patents and trademarks are important to our operations and, in aggregate, constitute valuable assets, no single patent or trademark, or group of patents or trademarks, is critical to the success of our business. We license some of our technology to other companies, some of which are our competitors.

Environmental Regulations
In the ordinary course of our business we use metals, solvents, and similar materials that are stored on-site. We believe that we are materially in compliance with environmental laws, rules, and regulations applicable to the operation of our business.

INFORMATION ABOUT OUR EXECUTIVE OFFICERS

Set forth below are the names, ages, and titles of our executive officers as of February 26, 2020.

Name	Age	Position
Thomas L. Deitrich	53	President and Chief Executive Officer
Joan S. Hooper	62	Senior Vice President and Chief Financial Officer
Michel C. Cadieux	62	Senior Vice President, Human Resources
Sarah E. Hlavinka	55	Senior Vice President, General Counsel and Corporate Secretary
Sharelynn F. Moore	46	Senior Vice President, Networked Solutions
Donald L. Reeves	52	Senior Vice President, Outcomes
Justin K. Patrick	47	Senior Vice President, Devices Solutions

Thomas L. Deitrich is President and Chief Executive Officer and a member of our Board of Directors. Mr. Deitrich was appointed to his current position and to the Board of Directors in August 2019. Mr. Deitrich joined Itron in October 2015, serving as Itron’s Executive Vice President and Chief Operating Officer until August 2019. From 2012 to September 2015, Mr. Deitrich was Senior Vice President and General Manager for Digital Networking at Freescale Semiconductor, Inc. (Freescale), and he served as the Senior Vice President and General Manager of Freescale's RF, Analog, Sensor, and Cellular Products Group from 2009 to 2012. Mr. Deitrich had other roles of increasing responsibility at Freescale from 2006 to 2009. Prior to Freescale, Mr. Deitrich worked for Flextronics, Sony-Ericsson/Ericsson, and GE.

Joan S. Hooper is Senior Vice President and Chief Financial Officer. Ms. Hooper was appointed to this role in June 2017. Prior to joining Itron, Ms. Hooper was Chief Financial Officer of CHC Helicopter from 2011 to July 2015. Following Ms. Hooper's departure from CHC, CHC filed a voluntary petition of relief under Chapter 11 of the U.S. Bankruptcy Code in May 2016, and CHC emerged from bankruptcy in March 2017. Prior to CHC, she held several finance executive positions at Dell, Inc. from 2003 to 2010, including Vice President and Chief Financial Officer for its Global Public and Americas business units, Vice President of Corporate Finance and Chief Accounting Officer.

Michel C. Cadieux is Senior Vice President, Human Resources and has been so since joining Itron in February 2014. From 2008 to 2012, Mr. Cadieux was Senior Vice President of Human Resources and Security at Freescale Semiconductor, Inc. (Freescale). Mr. Cadieux has more than 30 years leading HR organizations in global technology and manufacturing companies including Betz Laboratories, the Hudson Bay Company, ING Bank of Canada, Advanced Micro Devices/ATI, and Freescale.

Sarah E. Hlavinka is Senior Vice President, General Counsel and Corporate Secretary. Ms. Hlavinka was appointed to this role in August 2018. Prior to joining Itron, Ms. Hlavinka served as Executive Vice President, General Counsel and Secretary at Xerox Corporation from 2017 to 2018. Prior to Xerox Corporation, Ms. Hlavinka was Executive Vice President, General Counsel and Secretary at ABM Industries Incorporated, a leading provider of integrated facility services from 2007 to 2017.

Sharelynn F. Moore is Senior Vice President, Networked Solutions, where she is responsible for Itron’s networking platforms and smart cities strategy. Ms. Moore was appointed to this role in July 2017. Ms. Moore joined Itron in December 2001. From 2012 to 2017, Ms. Moore was Itron’s Vice President of Global Marketing and Public Affairs, and from 2001 to 2012, she held additional marketing and product management roles at Itron. Prior to joining Itron, Ms. Moore held marketing and product management roles at Avista Corp. and Micron Technology, Inc.

Donald L. Reeves is Senior Vice President, Outcomes, where he is responsible for Itron’s software and services offerings, delivery teams, managed services operations and customer support. Mr. Reeves was appointed to this role in September 2019. Mr. Reeves joined Itron in January 2018 as part of Itron’s acquisition of Silver Spring Networks, Inc. (SSNI), and from 2016 to 2018, he was SSNI’s Chief Technology Officer. From 2005 to 2016, Mr. Reeves held several managed services and engineering positions at SSNI. Prior to joining SSNI, Mr. Reeves served as Vice President of Engineering at Black Pearl from 2003 to 2004, and was Vice President of Engineering at Commerce One from 2001 to 2003, and prior to that held leadership positions at several startup technology companies.

Justin K. Patrick is Senior Vice President, Device Solutions, where he is responsible for Itron’s strategy to become a leading global provider of measurement, safety and operational devices for utilities and cities. Mr. Patrick joined Itron in January 2020. From 2018 to 2020, Mr. Patrick was Vice President & General Manager, Residential Products at Johnson Controls International (JCI). Before that role, he was Vice President & General Manager, Variable Refrigerant Flow Systems and Ductless from 2014 to 2017, and Director, Channel Strategy and Marketing from 2010 to 2014 at JCI. Prior to his time at JCI, Mr. Patrick held a sales leadership role at the Auer Steel and Heating Supply Company, and at Carrier Corporation he had roles of increasing responsibility culminating in general management. Prior to his civilian career, Mr. Patrick served as a Surface Warfare Officer in the United States Navy.

ITEM 1A: RISK FACTORS

We are dependent on the utility industry, which has experienced volatility in capital spending.

We derive the majority of our revenues from sales of products and services to utilities. Purchases of our products may be deferred as a result of many factors, including economic downturns, slowdowns in new residential and commercial construction, customers' access to capital upon acceptable terms, the timing and availability of government subsidies or other incentives, utility specific financial circumstances, mergers and acquisitions, regulatory decisions, weather conditions, and fluctuating interest rates. We have experienced, and may in the future experience, variability in operating results on an annual and a quarterly basis as a result of these factors.

The shifting in, and increasing complexity of, our products and services mix involves risks.

Our market is characterized by increasing complexity driven by evolving technology, increased industry regulatory pressures, and the emergence of new competitive products, all of which impact the manner in which our products and services are designed, developed, marketed and delivered. The shift in, and increasing complexity of, our products and services mix involves judgment and entails risks. In order to successfully design and develop more complex offerings, we must anticipate the right products, solutions, and technologies that will meet estimated market demands. These estimates may prove wrong. Additionally, our complex offerings may contain defects when they are first introduced; their release may be delayed due to unforeseen difficulties during product and service design and development; or have reliability, quality or compatibility problems. We may not be able to successfully design workarounds. Any shift in, or increased complexity of, our products and services mix may not be easily understood or adopted by our current or future customers, who may be reluctant to buy, or may delay purchases of, our products and services.

Additionally, our evolving product mix could cause us to incur substantial additional costs if we needed to materially improve our manufacturing infrastructure, develop new systems to deliver our services, or fundamentally change the way in which we deliver services. Also, if one of our new offerings were competitive to our prior offerings and represented an adequate or superior alternative, customers could decide to abandon prior offerings that produce higher revenue or better margins than the new offering. Therefore, the adaptation to new technologies or standards or the development and launch of new products or services could result in lower revenue, lower margins and/or higher costs, which could unfavorably impact our financial performance.

We depend on our ability to develop competitive products.

Our future success will depend, in part, on our ability to continue to develop, design and manufacture competitive products and services, and to enhance and sustain our existing products and services, keep pace with technological advances and changing customer requirements, gain international market acceptance, and manage other factors in the markets in which we sell our products and services. Product and service development will require continued investment in order to maintain our competitive position, and the periods in which we incur significant research and development costs may drive variability in our quarterly results. We may not have the necessary capital, or access to capital at acceptable terms, to make these investments. We have made, and expect to continue to make, substantial investments in technology development. However, we may experience unforeseen problems in the development or performance of our technologies or products, which can prevent us from meeting our research and development schedules. New products often require certifications or regulatory approvals before the products can be used and we cannot be certain that our new products will be approved in a timely manner, or at all. Finally, we may not achieve market acceptance of our new products and services.

We depend on certain key vendors, strategic partners, and other third parties.

Certain of our products, subassemblies, and system components including most of our circuit boards are procured from limited or sole sources. We cannot be certain that we will not experience operational difficulties with these sources, including reductions in the availability of production capacity, errors in complying with product specifications, insufficient quality control, failures to meet production deadlines, increases in manufacturing costs, vendors' access to capital and increased lead times. Additionally, our manufacturers may experience disruptions in their manufacturing operations due to equipment breakdowns, labor strikes or shortages, natural disasters, component or material shortages, cost increases or other similar problems. Further, in order to minimize their inventory risk, our manufacturers might not order components from third-party suppliers with adequate lead time, thereby impacting our ability to meet our demand forecast. If we fail to manage our relationship with our manufacturers effectively, or if they experience operational difficulties, our ability to ship products to our customers and distributors could be impaired and our competitive position and reputation could be harmed. In the event that we receive shipments of products that fail to comply with our technical specifications or that fail to conform to our quality control standards, and we are not able to obtain replacement products in a timely manner, we risk revenue losses from the inability to sell those products, increased administrative and shipping costs, and lower profitability. Additionally, if defects are not discovered until after consumers purchase our products, they could lose confidence in the technical attributes of our products and our business could be harmed. Although arrangements with these partners may contain provisions for warranty expense reimbursement, we may remain responsible to the consumer for warranty service in the event of product defects and could experience an unanticipated product defect or warranty liability. While we rely on partners to adhere to its supplier code of conduct, material violations of the supplier code of conduct could occur.

Delays in the availability of or shortages in raw materials and component parts used in the manufacture of our products could unfavorably impact our revenues and results of operations.

We are impacted by the availability and prices of raw materials and component parts used in the manufacturing process of our products. The inability to obtain adequate supplies of raw materials and component parts at favorable prices could have a material adverse effect on our business, financial condition, or results of operations, including by reducing revenue, decreasing profit margins, and by unfavorably impacting timely deliveries to customers, which could result in damages or penalties to be paid under the terms of some of the contracts with our customers. Since we do not control the production of these raw materials and component parts, there may be delays caused by an interruption in the production or transportation of these materials for reasons that are beyond our control. World commodity markets, inflation, and tariffs may also affect raw material and component part prices.

Utility industry sales cycles can be lengthy and unpredictable.

The industries in which we sell our products and services, in particular the utility industry are subject to substantial government regulation. For example, regulations have often influenced the frequency of customer meter replacements. Sales cycles for our standalone meter products have typically been based on annual or biennial bid-based agreements. Utilities place purchase orders against these agreements as their inventories decline, which can create fluctuations in our sales volumes.

Sales cycles for smart metering solutions are generally long and unpredictable due to several factors, including budgeting, purchasing, and regulatory approval processes that can take several years to complete. Our utility customers typically issue requests for quotes and proposals, establish evaluation processes, review different technical options with vendors, analyze performance and cost/benefit justifications, and perform a regulatory review, in addition to applying the normal budget approval process. Today, governments around the world are implementing new laws and regulations to promote increased energy efficiency, slow or reverse growth in the consumption of scarce resources, reduce carbon dioxide emissions, and protect the environment. Many of the legislative and regulatory initiatives encourage utilities to develop a smart grid infrastructure, and some of these initiatives provide for government subsidies, grants, or other incentives to utilities and other participants in their industry to promote transition to smart grid technologies. If government regulations regarding the smart grid and smart metering are delayed, revised to permit lower or different investment levels in metering infrastructure, or terminated altogether, this could have a material adverse effect on our results of operation, cash flow, and financial condition.

Our customer contracts are complex and contain provisions that could cause us to incur penalties, be liable for damages, and/or incur unanticipated expenses with respect to the functionality, deployment, operation, and availability of our products and services.

In addition to the risk of unanticipated warranty or recall expenses, our customer contracts may contain provisions that could cause us to incur penalties, be liable for damages, including liquidated damages, or incur other expenses if we experience difficulties with respect to the functionality, deployment, operation, and availability of our products and services. Some of these contracts contain long-term commitments to a set schedule of delivery or performance. If we failed in our estimated schedule or we fail in our management of the project, this may cause delays in completion. In the event of late deliveries, late or improper installations or operations, failure to meet product or performance specifications or other product defects, or interruptions or delays in our managed service offerings, our customer contracts may expose us to penalties, liquidated damages, and other liabilities. In the event we were to incur contractual penalties, such as liquidated damages or other related costs that exceed our expectations, our business, financial condition, and operating results could be materially and adversely affected. Further, we could be required to recognize a current-period reduction of revenue related to a specific component of a customer contract at the time we determine the products and/or services to be delivered under that component would result in a loss due to expected revenues estimated to be less than expected costs. Depending on the amounts of the associated revenues (if any) and the costs, this charge could be material to our results of operations in the period it is recognized.

If we are unable to maintain a high level of customer satisfaction, demand for our services could suffer.

We believe that our success depends on our ability to understand and address our customers' requirements and concerns. This includes our ability to effectively articulate and demonstrate to customers how our products and services meet their needs, deliver our products timely as committed, and with a sufficient level of quality. If we are unable to do so, we could face customer dissatisfaction, dilution of our brand, decreased overall demand for our services, and loss of revenue. In addition, our inability to meet customer performance and service expectations may damage our reputation and could consequently limit our ability to retain existing customers and attract new customers, which would adversely affect our ability to generate revenue and unfavorably impact our operating results.

We face increasing competition.

We face competitive pressures from a variety of companies in each of the markets we serve. Some of our present and potential future competitors have, or may have, substantially greater financial, marketing, technical, or manufacturing resources and, in some cases, have greater name recognition, customer relationships, and experience. Some competitors may enter markets we serve and sell products and services at lower prices in order to gain or grow market share. Our competitors may be able to respond more quickly to new or emerging technologies and changes in customer requirements. They may also be able to devote greater resources to the development, promotion, and sale of their products and services than we can. Some competitors have made, and others may make, strategic acquisitions or establish cooperative relationships among themselves or with third parties that enhance their ability to address the needs of our prospective customers. It is possible that new competitors or alliances among current and new competitors may emerge and rapidly gain significant market share. Other companies may also drive technological innovation and develop products and services that are equal in quality and performance or superior to our products and services, which could reduce our market position, reduce our overall sales, and require us to invest additional funds in new technology development. In addition, there is a risk that low-cost providers will expand their presence in our markets, improve their quality, or form alliances or cooperative relationships with our competitors, thereby contributing to future price erosion. Some of our products and services may become commoditized, and we may have to adjust the prices of some of our products to stay competitive. Further, some utilities may purchase meters separately from the communication devices. The specifications for such meters may require interchangeability, which could lead to further commoditization of the meter, driving prices lower and reducing margins. Should we fail to compete successfully with current or future competitors, we could experience material adverse effects on our business, financial condition, results of operations, and cash flows.

Our current and expected level and terms of indebtedness could adversely affect our ability to raise additional capital to fund our operations and take advantage of new business opportunities and prevent us from meeting our obligations under our debt instruments, and our ability to service our indebtedness is dependent on our ability to generate cash, which is influenced by many factors beyond our control.

In December 2017, we issued $300 million aggregate principal amount of 5.00% senior notes due 2026 (December Notes). The December Notes were issued pursuant to an indenture, dated as of December 22, 2017 (Indenture), among Itron, the guarantors from time to time party thereto and U.S. Bank National Association, as trustee. In January 2018, we issued an additional $100 million aggregate principal amount of 5.00% senior notes due 2026 pursuant to the Indenture (January Notes; collectively with the December Notes, the Senior Notes). Proceeds from the Senior Notes were used to finance the Silver Spring Networks, Inc. (SSNI) acquisition, refinance existing indebtedness related to the SSNI acquisition, pay related fees and expenses, and for general corporate purposes.

Also in January 2018, we entered into a credit agreement providing for committed credit facilities in the amount of $1.2 billion, which we amended in October 2019 (as amended, the 2018 credit facility). The 2018 credit facility consists of a U.S. dollar term loan in the amount of $650 million and a multicurrency revolving credit facility in the committed amount of $500 million.

This substantial indebtedness could have important consequences to us, including:

- increasing our vulnerability to general economic and industry conditions;
- requiring a substantial portion of our cash flow used in operations to be dedicated to the payment of principal and interest on our indebtedness, therefore reducing our liquidity and our ability to use our cash flow to fund our operations, capital expenditures and future business opportunities;
- exposing us to the risk of increased interest rates, and corresponding increased interest expense, as borrowings under the 2018 credit facility would be at variable rates of interest;
- limiting our ability to obtain additional financing for working capital, capital expenditures, debt service requirements, acquisitions, and general corporate or other purposes; and

- limiting our ability to adjust to changing marketplace conditions and placing us at a competitive disadvantage compared with our competitors who may have less debt.

Our ability to make scheduled payments on and to refinance our indebtedness depends on, and is subject to, our financial and operating performance, which is influenced, in part, by general economic, financial, competitive, legislative, regulatory, counterparty business, and other risks that are beyond our control, including the availability of financing in the U.S. banking and capital markets. We cannot assure you that our business will generate sufficient cash flow from operations or that future borrowings will be available to us in an amount sufficient to enable us to service our debt to refinance our debt or to fund our other liquidity needs on commercially reasonable terms or at all.

If we are unable to meet our debt service obligations or to fund our other liquidity needs, we will need to restructure or refinance all or a portion of our debt, which could cause us to default on our debt obligations and impair our liquidity. Our ability to restructure or refinance our debt will depend on the condition of the capital markets and our financial condition at such time. Even if refinancing indebtedness is available, any refinancing of our indebtedness could be at higher interest rates and may require us to comply with more onerous covenants that could further restrict our business operations.

Moreover, in the event of a default under any of our indebtedness the holders of the defaulted debt could elect to declare all the funds borrowed to be due and payable, together with accrued and unpaid interest, which in turn could result in cross defaults under our other indebtedness. The lenders under the 2018 credit facility could also elect to terminate their commitments thereunder and cease making further loans, and such lenders could institute foreclosure proceedings against their collateral, and we could be forced into bankruptcy or liquidation. If we breach our covenants under the 2018 credit facility, we would be in default thereunder. Such lenders could exercise their rights, as described above, and we could be forced into bankruptcy or liquidation.

Our variable rate indebtedness subjects us to interest rate risk, which could cause our debt service obligations to increase significantly.

The 2018 credit facility will bear, and other indebtedness we may incur in the future may bear, interest at a variable rate. As a result, at any given time interest rates on the 2018 credit facility and any other variable rate debt could be higher or lower than current levels. If interest rates increase, our debt service obligations on our variable rate indebtedness may increase even though the amount borrowed remains the same, and therefore net income and associated cash flows, including cash available for servicing our indebtedness, may correspondingly decrease. While we continually monitor and assess our interest rate risk and have entered into derivative instruments to manage such risk, these instruments could be ineffective at mitigating all or a part of our risk, including changes to the applicable margin under our 2018 credit facility.

Our 2018 credit facility and Senior Notes limit our ability and the ability of many of our subsidiaries to take certain actions.

Our 2018 credit facility and Senior Notes place restrictions on our ability, and the ability of many of our subsidiaries, dependent on meeting specified financial ratios, to, among other things:

- incur more debt;
- make certain investments;
- enter into transactions with affiliates;
- merge or consolidate;
- pay dividends, make distributions, and repurchase capital stock;
- create liens;
- enter into sale lease-back transactions;
- transfer or sell assets.

Our 2018 credit facility contains other customary covenants, including the requirement to meet specified financial ratios and provide periodic financial reporting. Our ability to borrow will depend on the satisfaction of these covenants. Events beyond our control can affect our ability to meet those covenants. Our failure to comply with obligations under our borrowing arrangements may result in declaration of an event of default. An event of default, if not cured or waived, may permit acceleration of required payments against such indebtedness. We cannot be certain we will be able to remedy any such defaults. If our required payments are accelerated, we cannot be certain that we will have sufficient funds available to pay the indebtedness or that we will have the ability to raise sufficient capital to replace the indebtedness on terms favorable to us or at all. In addition, in the case of an event of default under our secured indebtedness such as our 2018 credit facility, the lenders may be permitted to foreclose on our assets securing that indebtedness. As a result of these restrictions, we will be limited as to how we conduct our business and we may be unable to raise additional debt or equity financing to compete effectively or to take advantage of new business opportunities. The terms of any future indebtedness we may incur could include more restrictive covenants. We cannot assure you that we will be able to maintain compliance with these covenants in the future and, if we fail to do so that we will be able to obtain waivers from the lenders and/or amend the covenants.

Despite our current level of indebtedness, we may be able to incur substantially more debt and enter into other transactions, which could further exacerbate the risks to our financial condition described above.

We may be able to incur significant additional indebtedness in the future. Although the credit agreement that currently governs our 2018 credit facility, the Senior Notes, and other debt instruments contain restrictions on the incurrence of additional indebtedness and entering into certain types of other transactions, these restrictions are subject to a number of qualifications and exceptions. Additional indebtedness incurred in compliance with these restrictions could be substantial. These restrictions also do not prevent us from incurring obligations, such as certain trade payables that do not constitute indebtedness as defined under our debt instruments. To the extent we incur additional indebtedness or other obligations, the risks described in the immediately preceding risk factor and others described herein may increase.

The alteration or discontinuation of LIBOR may adversely affect our borrowing costs.

Certain of our interest rate derivatives and a portion of our indebtedness bear interest at variable interest rates, primarily based on LIBOR, which may be subject to regulatory guidance and/or reform that could cause interest rates under our current or future debt agreements to perform differently than in the past or cause other unanticipated consequences. In July 2017, the Chief Executive of the U.K. Financial Conduct Authority (the FCA), which regulates LIBOR, announced that the FCA will no longer persuade or compel banks to submit rates for the calculation of LIBOR after 2021. Such announcement indicates that the continuation of LIBOR on the current basis cannot and will not be guaranteed after 2021. At this time, it is not possible to predict the effect any discontinuance, modification or other reforms to LIBOR or any other reference rate, or the establishment of alternative reference rates will have on the Company. However, if LIBOR ceases to exist or if the methods of calculating LIBOR change from their current form, the Company’s borrowing costs may be adversely affected.

Our acquisitions, divestitures, and investments have risks.

In pursuing our business strategy, we may conduct discussions, evaluate companies, and enter into agreements regarding possible acquisitions, divestitures, and equity investments. We have recently completed acquisitions and may make investments in the future, both within and outside of the United States. We may also, if appropriate opportunities present themselves, make divestitures. Acquisitions, investments, and divestitures involve numerous risks such as the diversion of senior management's attention; unsuccessful integration of the acquired or disintegration of the divested entity's personnel, operations, technologies, and products; unidentified or identified but unindemnified pre-closing liabilities; incurrence of significant expenses to meet an acquiree's customer contractual commitments; lack of market acceptance of new services and technologies; difficulties in operating businesses in international legal jurisdictions; or transaction-related or other litigation, and other liabilities. Failure to adequately address these issues could result in the diversion of resources and adversely impact our ability to manage our business. In addition, acquisitions and investments in third parties may involve the assumption of obligations, significant write-offs, or other charges associated with the acquisition. Impairment of an investment, goodwill, or an intangible asset may result if these risks were to materialize. For investments in entities that are not wholly owned by Itron, such as joint ventures, a loss of control as defined by U.S. generally accepted accounting principles (GAAP) could result in a significant change in accounting treatment and a change in the carrying value of the entity. There can be no assurances that an acquired business will perform as expected, accomplish our strategic objectives, or generate significant revenues, profits, or cash flows. Any divestiture could result in disruption to other parts of our business, potential loss of employees or customers, exposure to unanticipated liabilities or result in ongoing obligations and liabilities to us following any such divestiture. For example, in connection with a divestiture, we may enter into transition services agreements or other strategic relationships, including long-term commercial arrangements, sales arrangements, or agree to provide certain indemnities to the purchaser in any such transaction, which may result in additional expense and may adversely affect our financial condition and results of operations.

We may face adverse publicity, consumer or political opposition, or liability associated with our products.

The safety and security of the power grid and natural gas and water supply systems, the accuracy and protection of the data collected by meters and transmitted via the smart grid, concerns about the safety and perceived health risks of using radio frequency communications, and privacy concerns of monitoring home appliance energy usage have been the focus of recent adverse publicity. Unfavorable publicity and consumer opposition may cause utilities or their regulators to delay or modify planned smart grid initiatives. Smart grid projects may be, or may be perceived as, unsuccessful.

Our products are complex and may contain defects or experience failures due to any number of issues in design, materials, deployment, and/or use. If any of our products contain a defect, a compatibility or interoperability issue, or other types of errors, we may have to devote significant time and resources to identify and correct the issue. We provide product warranties for varying lengths of time and establish allowances in anticipation of warranty expenses. In addition, we recognize contingent liabilities for additional product-failure related costs. These warranty and related product-failure allowances may be inadequate due to product defects and unanticipated component failures, as well as higher than anticipated material, labor, and other costs we may incur to replace projected product failures. A product recall or a significant number of product returns could be expensive; damage our reputation and relationships with utilities, meter and communication vendors, and other third-party vendors; result in the loss of business to competitors; or result in litigation. We may incur additional warranty expenses in the future with respect to new or established products, which could materially and adversely affect our operations and financial position.

We may be subject to claims that there are adverse health effects from the radio frequencies utilized in connection with our products. If these claims prevail, our customers could suspend implementation or purchase substitute products, which could cause a loss of sales.

Changes in tax laws, valuation allowances, and unanticipated tax liabilities could adversely affect our effective income tax rate and profitability.

We are subject to income tax in the United States and numerous foreign jurisdictions. Significant judgment is required in evaluating our tax positions and determining our provision for income taxes. During the ordinary course of business, there are many transactions and calculations for which the ultimate tax determination is uncertain. We establish reserves for tax-related uncertainties based on estimates of whether, and the extent to which, additional taxes will be due. These reserves may be established when we believe that certain positions might be challenged despite our belief that our tax return positions are fully supportable. We adjust these reserves in light of changing facts and circumstances. The provision for income taxes includes the impact of reserve positions and changes to reserves that are considered appropriate, as well as valuation allowances when we determine it is more likely than not that a deferred tax asset cannot be realized. In addition, future changes in tax laws in the jurisdictions in which we operate could have a material impact on our effective income tax rate and profitability. We regularly assess all of these matters to determine the adequacy of our tax provision, which is subject to significant judgment.

The Organization for Economic Cooperation and Development guidance under the Base Erosion and Profit Shifting (BEPS) initiatives aim to minimize perceived tax abuses and modernize global tax policy. The Anti-Tax Avoidance Directives (ATAD), issued by the Council of the European Union, provide further recommendations for legislative changes under these tax policies. Additional recommendations will be forthcoming. More countries are beginning to implement legislative changes based on these BEPS recommendations and ATAD measures.

On December 22, 2017, the United States enacted comprehensive tax reform commonly referred to as the Tax Cuts and Jobs Act (Tax Act). The Tax Act makes significant changes to the way the U.S. taxes corporations. Clarifying proposed and final Treasury regulations have been issued throughout 2018 and 2019, for which we are continuing to evaluate the impact on our business. In addition, a number of U.S. states have not yet updated their laws to take into account the new federal legislation. As a result, there may be further impacts of the new law on our results of operations. It is possible that U.S. tax reform, or interpretations provided, could change and could have an adverse effect on us, and such effect could be material.

Disruption and turmoil in global credit and financial markets, which may be exacerbated by the inability of certain countries to continue to service their sovereign debt obligations, and the possible unfavorable implications of such events for the global economy, may unfavorably impact our business, liquidity, operating results, and financial condition.

The current economic conditions, including volatility in the availability of credit and foreign exchange rates and extended economic slowdowns, have contributed to the instability in some global credit and financial markets. Additionally, at-risk financial institutions in certain countries may, without forewarning, seize a portion of depositors' account balances. The seized funds would be used to recapitalize the at-risk financial institution and would no longer be available for the depositors' use. If such seizure were to occur at financial institutions where we have funds on deposit, it could have a significant impact on our overall liquidity. While the ultimate outcome of these events cannot be predicted, it is possible that such events may have an unfavorable impact on the global economy and our business, liquidity, operating results, and financial condition.

We are subject to international business uncertainties, obstacles to the repatriation of earnings, and foreign currency fluctuations.

A substantial portion of our revenues is derived from operations conducted outside the United States. International sales and operations may be subjected to risks such as the imposition of government controls, government expropriation of facilities, lack of a well-established system of laws and enforcement of those laws, access to a legal system free of undue influence or corruption, political instability, terrorist activities, restrictions on the import or export of critical technology, currency exchange rate fluctuations, and adverse tax burdens. Lack of availability of qualified third-party financing, generally longer receivable collection periods than those commonly practiced in the United States, trade restrictions, changes in tariffs, labor disruptions, difficulties in staffing and managing international operations, difficulties in imposing and enforcing operational and financial controls at international locations, potential insolvency of international distributors, preference for local vendors, burdens of complying with different permitting standards and a wide variety of foreign laws, and obstacles to the repatriation of earnings and cash all present additional risk to our international operations. Fluctuations in the value of international currencies may impact our operating results due to the translation to the U.S. dollar as well as our ability to compete in international markets. International expansion and market acceptance depend on our ability to modify our technology to take into account such factors as the applicable regulatory and business environment, labor costs, and other economic conditions. In addition, the laws of certain countries do not protect our products or technologies in the same manner as the laws of the United States. Further, foreign regulations or restrictions, e.g., opposition from unions or works councils, could delay, limit, or disallow significant operating decisions made by our management, including decisions to exit certain businesses, close certain manufacturing locations, or other restructuring actions. There can be no assurance that these factors will not have a material adverse effect on our future international sales and, consequently, on our business, financial condition, and results of operations.

We may engage in future restructuring activities and incur additional charges in our efforts to improve profitability. We also may not achieve the anticipated savings and benefits from current or any future restructuring projects.

We have implemented multiple restructuring projects to adjust our cost structure, and we may engage in similar restructuring activities in the future. These restructuring activities reduce our available employee talent, assets, and other resources, which could slow research and development, impact ability to respond to customers, increase quality issues, temporarily reduce manufacturing efficiencies, and limit our ability to increase production quickly. In addition, delays in implementing restructuring projects, unexpected costs, unfavorable negotiations with works councils, changes in governmental policies, or failure to meet targeted improvements could change the timing or reduce the overall savings realized from the restructuring project.

Business interruptions could adversely affect our business.

Our worldwide operations could be subject to hurricanes, tornadoes, earthquakes, floods, fires, extreme weather conditions, medical epidemics or pandemics, or other natural or man-made disasters or business interruptions. The occurrence of any of these business disruptions could seriously harm our business, financial condition, and results of operations.

Our key manufacturing facilities are concentrated, and in the event of a significant interruption in production at any of our manufacturing facilities, considerable expense, time, and effort could be required to establish alternative production lines to meet contractual obligations, which would have a material adverse effect on our business, financial condition, and results of operations.

We may encounter strikes or other labor disruptions that could adversely affect our financial condition and results of operations.

We have significant operations throughout the world. In a number of countries outside the U.S., our employees are covered by collective bargaining agreements. As the result of various corporate or operational actions, which our management has undertaken or may be made in the future, we could encounter labor disruptions. These disruptions may be subject to local media coverage, which could damage our reputation. Additionally, the disruptions could delay our ability to meet customer orders and could adversely affect our results of operations. Any labor disruptions could also have an impact on our other employees. Employee morale and productivity could suffer, and we may lose valued employees whom we wish to retain.

Asset impairment could result in significant changes that would adversely impact our future operating results.

We have significant inventory, intangible assets, long-lived assets, and goodwill that are susceptible to valuation adjustments as a result of changes in various factors or conditions, which could impact our results of operations or and financial condition. Factors that could trigger an impairment of such assets include the following:

- reduction in the net realizable value of inventory, which becomes obsolete or exceeds anticipated demand;
- changes in our organization or management reporting structure, which could result in additional reporting units, requiring greater aggregation or disaggregation in our analysis by reporting unit and potentially alternative methods/assumptions of estimating fair values;
- underperformance relative to projected future operating results;
- changes in the manner or use of the acquired assets or the strategy for our overall business;
- unfavorable industry or economic trends; and

- decline in our stock price for a sustained period or decline in our market capitalization below net book value.

We are subject to a variety of litigation that could adversely affect our results of operations, financial condition, and cash flows.

From time to time, we are involved in litigation that arises from our business. In addition, parties to these lawsuits may bring claims against our customers, which, in some instances, could result in an indemnification of the customer by us. Litigation may also relate to, among other things, product failure or product liability claims, contractual disputes, employment matters, or securities litigation. Litigation can be expensive to defend and can divert the attention of management and other personnel for long periods of time, regardless of the ultimate outcome. We may be required to pay damage awards or settlements or become subject to equitable remedies that could adversely affect our financial condition and results of operations. While we currently maintain insurance coverage, such insurance may not provide adequate coverage against potential claims.

We may face losses associated with alleged unauthorized use of third-party intellectual property.

We may be subject to claims or inquiries regarding alleged unauthorized use of a third-party's intellectual property. An adverse outcome in any intellectual property litigation or negotiation could subject us to significant liabilities to third parties, require us to license technology or other intellectual property rights from others, require us to comply with injunctions to cease marketing or the use of certain products or brands, or require us to redesign, re-engineer, or rebrand certain products or packaging, any of which could affect our business, financial condition, and results of operations. If we are required to seek licenses under patents or other intellectual property rights of others, we may not be able to acquire these licenses at acceptable terms, if at all. In addition, the cost of responding to an intellectual property infringement claim, in terms of legal fees, expenses, and the diversion of management resources, whether or not the claim is valid, could have a material adverse effect on our business, financial condition, and results of operations.

If our products infringe the intellectual property rights of others, we may be required to indemnify our customers for any damages they suffer. We generally indemnify our customers with respect to infringement by our products of the proprietary rights of third parties. Third parties may assert infringement claims against our customers. These claims may require us to initiate or defend protracted and costly litigation on behalf of our customers, regardless of the merits of these claims. If any of these claims succeed, we may be forced to pay damages on behalf of our customers or may be required to obtain licenses for the products they use. If we cannot obtain all necessary licenses on commercially reasonable terms, our customers may be forced to stop using our products.

We are affected by the availability and regulation of radio spectrum and interference with the radio spectrum that we use.

A significant number of our products use radio spectrum, which are subject to regulation by the Federal Communications Commission (FCC) in the United States. The FCC may adopt changes to the rules for our licensed and unlicensed frequency bands that are incompatible with our business. In the past, the FCC has adopted changes to the requirements for equipment using radio spectrum, and it is possible that the FCC or the U.S. Congress will adopt additional changes.

Although radio licenses are generally required for radio stations, Part 15 of the FCC's rules permits certain low-power radio devices (Part 15 devices) to operate on an unlicensed basis. Part 15 devices are designed for use on frequencies used by others. These other users may include licensed users, which have priority over Part 15 users. Part 15 devices cannot cause harmful interference to licensed users and must be designed to accept interference from licensed radio devices. In the United States, our smart metering solutions are typically Part 15 devices that transmit information to (and receive information from, if applicable) handheld, mobile, or fixed network systems pursuant to these rules.

We depend upon sufficient radio spectrum to be allocated by the FCC for our intended uses. As to the licensed frequencies, there is some risk that there may be insufficient available frequencies in some markets to sustain our planned operations. The unlicensed frequencies are available for a wide variety of uses and may not be entitled to protection from interference by other users who operate in accordance with FCC rules. The unlicensed frequencies are also often the subject of proposals to the FCC requesting a change in the rules under which such frequencies may be used. If the unlicensed frequencies become crowded to unacceptable levels, restrictive, or subject to changed rules governing their use, our business could be materially adversely affected.

We have committed, and will continue to commit, significant resources to the development of products that use particular radio frequencies. Action by the FCC could require modifications to our products. The inability to modify our products to meet such requirements, the possible delays in completing such modifications, and the cost of such modifications all could have a material adverse effect on our future business, financial condition, and results of operations.

Outside of the United States, certain of our products require the use of RF and are subject to regulations in those jurisdictions where we have deployed such equipment. In some jurisdictions, radio station licensees are generally required to operate a radio transmitter and such licenses may be granted for a fixed term and must be periodically renewed. In other jurisdictions, the rules permit certain low power devices to operate on an unlicensed basis. Our smart metering solutions typically transmit to (and receive information from, if applicable) handheld, mobile, or fixed network reading devices in license-exempt bands pursuant to rules regulating such use. In Europe, we generally use the 169 megahertz (MHz), 433/4 MHz, and 868 MHz bands. In the rest of the world, we primarily use the 433/4 MHz, 920 MHz and 2.4000-2.4835 gigahertz (GHz) bands, as well as other local license-exempt bands. To the extent we introduce new products designed for use in the United States or another country into a new market, such products may require significant modification or redesign in order to meet frequency requirements and other regulatory specifications. In some countries, limitations on frequency availability or the cost of making necessary modifications may preclude us from selling our products in those countries. In addition, new consumer products may create interference with the performance of our products, which could lead to claims against us.

We may be unable to adequately protect our intellectual property.

While we believe that our patents and other intellectual property have significant value, it is uncertain that this intellectual property or any intellectual property acquired or developed by us in the future will provide meaningful competitive advantages. There can be no assurance that our patents or pending applications will not be challenged, invalidated, or circumvented by competitors or that rights granted thereunder will provide meaningful proprietary protection. Moreover, competitors may infringe our patents or successfully avoid them through design innovation. To combat infringement or unauthorized use of our intellectual property, we may need to commence litigation, which can be expensive and time-consuming. In addition, in an infringement proceeding a court may decide that a patent or other intellectual property right of ours is not valid or is unenforceable, or may refuse to stop the other party from using the technology or other intellectual property right at issue on the grounds that it is non-infringing or the legal requirements for an injunction have not been met. Policing unauthorized use of our intellectual property is difficult and expensive, and we cannot provide assurance that we will be able to prevent misappropriation of our proprietary rights, particularly in countries that do not protect such rights in the same manner as in the United States.

We have pension benefit obligations, which could have a material impact on our earnings, liabilities, and shareholders' equity and could have significant adverse impacts in future periods.

We sponsor both funded and unfunded defined benefit pension plans for our international employees, primarily in Germany, France, India, Indonesia, and Italy. Our general funding policy for these qualified pension plans is to contribute amounts sufficient to satisfy regulatory funding standards of the respective countries for each plan.

The determination of pension plan expense, benefit obligation, and future contributions depends heavily on market factors such as the discount rate and the actual return on plan assets. We estimate pension plan expense, benefit obligation, and future contributions to these plans using assumptions with respect to these and other items. Changes to those assumptions could have a significant effect on future contributions as well as on our annual pension costs and/or result in a significant change to shareholders' equity.

A number of key personnel are critical to the success of our business.

Our success depends in large part on the efforts of our highly qualified technical and management personnel and highly skilled individuals in all disciplines. The loss of one or more of these employees and the inability to attract and retain qualified replacements could have a material adverse effect on our business. In addition, as our products and services become more technologically complex, it could become especially difficult to recruit or retain personnel with unique in-demand skills and knowledge, whom we would expect to become recruiting targets for our competitors and for other companies relying on similar talent. There is no assurance that we will be able to recruit or retain qualified personnel, and this failure could diminish our ability to develop and deliver new products and services, which could cause our operations and financial results to be unfavorably impacted.

If we are unable to protect our information technology infrastructure and network against data corruption, cyber-based attacks or network security incidents caused by unauthorized access, we could be exposed to an increase risk of customer liability and reputational damage.

We rely on various information technology systems to capture, process, store, and report data and interact with customers, vendors, and employees. Despite taking security steps to secure all information and transactions, our information technology systems, and those of our third-party providers, may be subject to corruption from cyber-attacks, or other network security incidents. Any unauthorized access to data could result in misappropriation of the data or disruption of operations. In addition, hardware operating system software, and applications that we procure from third parties may contain defects in design or manufacturing that could interfere with the operation of the systems. Misuse of internal applications; theft of intellectual property, trade secrets, or other corporate assets; and inappropriate disclosure of confidential or personal information could stem from such incidents.

In addition, an increasing number of our products and services connect to and are part of the IIoT, the Internet, and public cloud services. As such, the products and services we offer may involve the transmission of large amounts of sensitive and proprietary information over public and private communications networks, as well as the processing and storage of confidential and personal customer data. While we attempt to provide adequate security measures to safeguard our products and services, techniques used to gain unauthorized access to or to sabotage systems are constantly evolving and therefore, may not be recognized until launched against a target. Unauthorized access, remnant data exposure, computer viruses, denial of service attacks, accidents, employee error or malfeasance, intentional misconduct by computer "hackers", and other disruptions can occur. This can lead to gaps in infrastructure, hardware and software vulnerabilities, and security controls. The exposed or unprotected data can (i) interfere with the delivery of services to our customers, (ii) impede our customers' ability to do business, or (iii) compromise the security of systems and data, which exposes information to unauthorized third-parties. Like many companies, we are the target of cyber-attacks of varying degrees on a regular basis. Although such cyber-attacks have not had a material adverse effect on our operating results, there can be no assurance of a similar result in future security incidents.

Security incidents that occur could expose us to an increased risk of lawsuits, loss of existing or potential customers, harm to our reputation and increases in our security costs. Depending on the jurisdiction, security incidents could trigger notice requirements to impacted individuals and regulatory investigations leading to penalties and increased reputational harm.

Any such operational disruption and/or misappropriation of information could result in lost sales, unfavorable publicity, or business delays and could have a material adverse effect on our business.

We may not realize the expected benefits from strategic alliances.

We have several strategic alliances with large and complex organizations and other companies with which we work to offer complementary products and services. There can be no assurance we will realize the expected benefits from these strategic alliances. If successful, these relationships may be mutually beneficial and result in shared growth. However, alliances carry an element of risk because, in most cases, we must both compete and collaborate with the same company from one market to the next. Should our strategic partnerships fail to perform, we could experience delays in research and development or experience other operational difficulties.

We rely on information technology systems.

Our industry requires the continued operation of sophisticated information technology systems and network infrastructures, which may be subject to disruptions arising from events that are beyond our control. We are dependent on information technology systems, including, but not limited to, networks, applications, and outsourced services. We continually enhance and implement new systems and processes throughout our global operations.

We offer managed services and software utilizing several data center facilities located worldwide. Any damage to, or failure of, these systems could result in interruptions in the services we provide to our utility customers. As we continue to add capacity to our existing and future data centers, we may move or transfer data. Despite precautions taken during this process, any delayed or unsuccessful data transfers may impair the delivery of our services to our utility customers. We also sell vending and pre-payment systems with security features that, if compromised, may lead to claims against us.

We have a primary enterprise resource planning (ERP) system that maintains sales and transactional information to facilitate processes. This system may require updates and upgrades periodically that could be expensive and time consuming undertakings. Successful upgrades and updates provide many benefits, while unsuccessful upgrades and updates may cost us significant time and resources.

The failure of these systems to operate effectively, problems with transitioning to upgraded or replacement systems, or a breach in security of these systems due to computer viruses, hacking, acts of terrorism, and other causes could materially and adversely affect our business, financial condition, and results of operations by harming our ability to accurately forecast sales demand, manage our supply chain and production facilities, achieve accuracy in the conversion of electronic data and records, and report financial and management information on a timely and accurate basis. In addition, due to the systemic internal control features within ERP systems, we may experience difficulties that could affect our internal control over financial reporting.

Changes in environmental regulations, violations of such regulations, or future environmental liabilities could cause us to incur significant costs and could adversely affect our operations.

Our business and our facilities are subject to numerous laws, regulations, and ordinances governing, among other things, the storage, discharge, handling, emission, generation, manufacture, disposal, remediation of, and exposure to toxic or other hazardous substances, and certain waste products. Many of these environmental laws and regulations subject current or previous owners or operators of land to liability for the costs of investigation, removal, or remediation of hazardous materials. In addition, these laws and regulations typically impose liability regardless of whether the owner or operator knew of, or was responsible for, the presence of any hazardous materials and regardless of whether the actions that led to the presence were conducted in compliance with the law. In the ordinary course of our business, we use metals, solvents, and similar materials, which are stored on-site. The waste created by the use of these materials is transported off-site on a regular basis by unaffiliated waste haulers. Many environmental laws and regulations require generators of waste to take remedial actions at, or in relation to, the off-site disposal location even if the disposal was conducted in compliance with the law. The requirements of these laws and regulations are complex, change frequently, and could become more stringent in the future. Failure to comply with current or future environmental regulations could result in the imposition of substantial fines, suspension of production, alteration of our production processes, cessation of operations, or other actions, which could materially and adversely affect our business, financial condition, and results of operations. There can be no assurance that a claim, investigation, or liability would not arise with respect to these activities, or that the cost of complying with governmental regulations in the future, either for an individual claim or in aggregate of multiple claims, would not have a material adverse effect on us.

We are exposed to counterparty default risks with our financial institutions and insurance providers.

If one or more of the depository institutions in which we maintain significant cash balances were to fail, our ability to access these funds might be temporarily or permanently limited, and we could face material liquidity problems and financial losses.

The lenders of our 2018 credit facility consist of several participating financial institutions. Our revolving line of credit allows us to provide letters of credit in support of our obligations for customer contracts and provides additional liquidity. If our lenders are not able to honor their line of credit commitments due to the loss of a participating financial institution or other circumstance, we would need to seek alternative financing, which may not be under acceptable terms, and therefore could adversely impact our ability to successfully bid on future sales contracts and adversely impact our liquidity and ability to fund some of our internal initiatives or future acquisitions.

Our international sales and operations are subject to complex laws relating to foreign corrupt practices and anti-bribery laws, among many others, and a violation of, or change in, these laws could adversely affect our operations.

The Foreign Corrupt Practices Act in the United States requires United States companies to comply with an extensive legal framework to prevent bribery of foreign officials. The laws are complex and require that we closely monitor local practices of our overseas offices. The United States Department of Justice continues to heighten enforcement of these laws. In addition, other countries continue to implement similar laws that may have extra-territorial effect. In the United Kingdom, where we have operations, the U.K. Bribery Act imposes significant oversight obligations on us and could impact our operations outside of the United Kingdom. The costs for complying with these and similar laws may be significant and could require significant management time and focus. Any violation of these or similar laws, intentional or unintentional, could have a material adverse effect on our business, financial condition, or results of operations.

Changes in accounting principles and guidance could result in unfavorable accounting charges or effects.

We prepare our consolidated financial statements in accordance with GAAP. These principles are subject to interpretation by the Securities and Exchange Commission (SEC) and various bodies formed to create and interpret appropriate accounting principles and guidance. A change in these principles or guidance, or in their interpretations, may have a material effect on our reported results, as well as our processes and related controls, and may retroactively affect previously reported results.

If we fail to maintain an effective system of internal controls, we may not be able to accurately report our financial results, prevent fraud, or maintain investor confidence.

Effective internal controls are necessary for us to provide reliable and accurate financial reports and effectively prevent fraud. We have devoted significant resources and time to comply with the internal control over financial reporting requirements of the

Sarbanes-Oxley Act. In addition, Section 404 under the Sarbanes-Oxley Act requires that our auditors attest to the design and operating effectiveness of our controls over financial reporting. Our compliance with the annual internal control report requirement for each fiscal year will depend on the effectiveness of our financial reporting, data systems, and controls across our operating subsidiaries. Furthermore, an important part of our growth strategy has been, and will likely continue to be, the acquisition of complementary businesses, and we expect these systems and controls to become increasingly complex to the extent that we integrate acquisitions and our business grows. Likewise, the complexity of our transactions, systems, and controls may become more difficult to manage. In addition, new accounting standards may have a significant impact on our financial statements in future periods, requiring new or enhanced controls. We cannot be certain that we will ensure that we design, implement, and maintain adequate controls over our financial processes and reporting in the future, especially for acquisition targets that may not have been required to be in compliance with Section 404 of the Sarbanes-Oxley Act at the date of acquisition.

Failure to implement new controls or enhancements to controls, difficulties encountered in control implementation or operation, or difficulties in the assimilation of acquired businesses into our control system could result in additional errors, material misstatements, or delays in our financial reporting obligations. Inadequate internal controls could also cause investors to lose confidence in our reported financial information, which could have an unfavorable effect on the trading price of our stock and our access to capital.

We are subject to regulatory compliance.

We are subject to various governmental regulations in all of the jurisdictions in which we conduct business. Failure to comply with current or future regulations could result in the imposition of substantial fines, suspension of production, alteration of our production processes, cessation of operations, or other actions, which could materially and adversely affect our business, financial condition, and results of operations.

Regulations related to "conflict minerals" may force us to incur additional expenses, may result in damage to our business reputation, and may adversely impact our ability to conduct our business.

The SEC has adopted rules regarding disclosure for companies that use certain minerals and derivative metals (referred to as "conflict minerals," regardless of their actual country of origin) in their products. Some of these metals are commonly used in electronic equipment and devices, including our products. These requirements require companies to investigate, disclose and report whether or not such metals originated from the Democratic Republic of Congo or adjoining countries and required due diligence efforts. We may not be able to sufficiently verify the origins for all minerals used in our products, and our reputation may suffer if we determine that our products contain conflict minerals that are not determined to be conflict free or if we are unable to sufficiently verify the origins for all conflict minerals used in our products. There are costs associated with complying with these disclosure requirements, including for diligence to determine the sources of conflict minerals used in our products and related components, and other potential changes to products, processes or sources of supply as a consequence of such verification activities. Further interpretation and implementation of these rules could adversely affect the sourcing, supply, and pricing of materials used in our products.

ITEM 1B: UNRESOLVED STAFF COMMENTS

None.

ITEM 2: PROPERTIES

We own our headquarters facility, which is located in Liberty Lake, Washington.

The following table lists our major manufacturing facilities by region and location:

Region	Location
North America	Oconee, SC (O) Waseca, MN (L)
Europe, Middle East, and Africa	Chasseneuil, France (O) Macon, France (O) Massy, France (L) Reims, France (O) Karlsruhe, Germany (O) Oldenburg, Germany (O) Godollo, Hungary (O) Asti, Italy (O)
Asia/Pacific	Bekasi, Indonesia (O)
Latin America	Americana, Brazil (O)

(O) - Manufacturing facility is owned
(L) - Manufacturing facility is leased

Our principal properties are in good condition, and we believe our current facilities are sufficient to support our operations. Our major manufacturing facilities are owned, while smaller factories are typically leased.

In addition to our manufacturing facilities, we have numerous sales offices, research and development facilities, and distribution centers, which are located throughout the world.

ITEM 3: LEGAL PROCEEDINGS

None.

ITEM 4: MINE SAFETY DISCLOSURES

Not applicable.

PART II

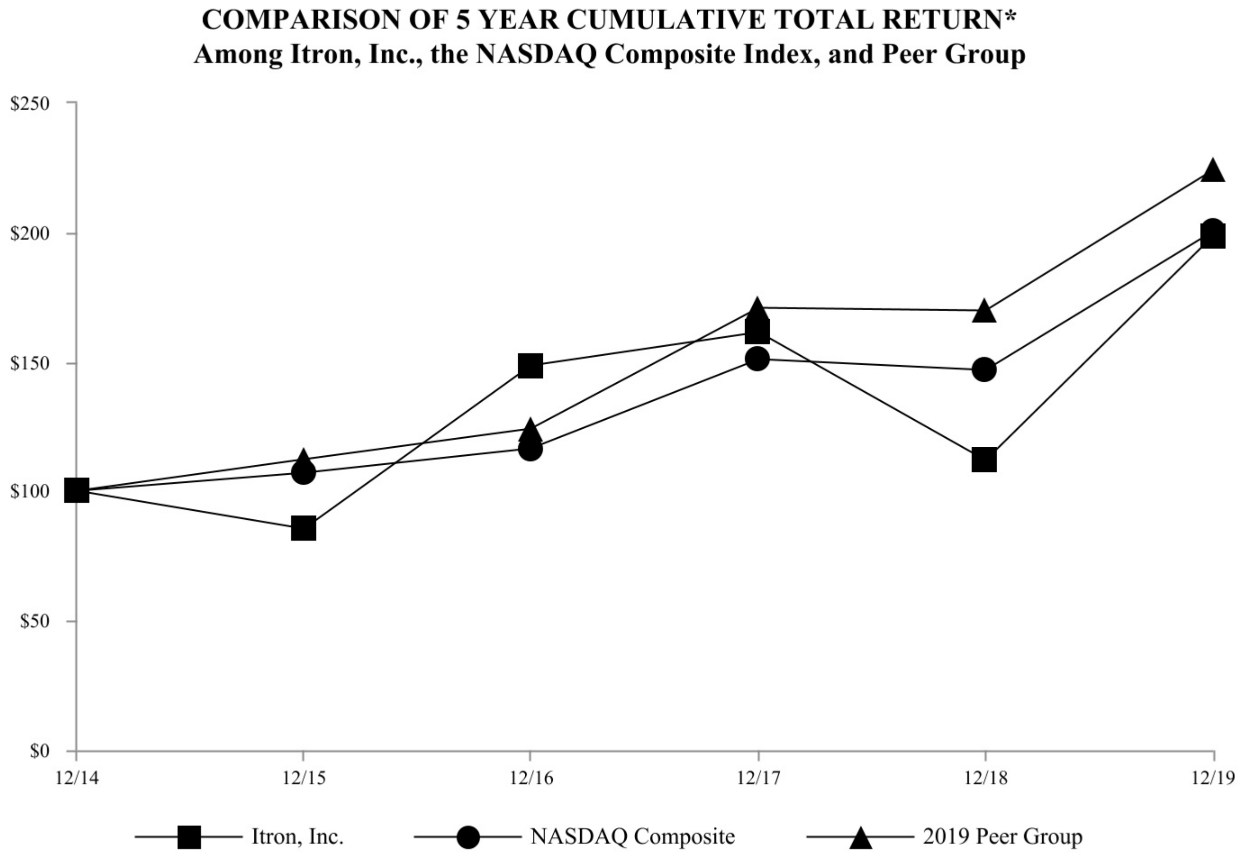
ITEM 5: MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES

Market Information for Common Stock

Our common stock is traded on the NASDAQ Global Select Market under the symbol "ITRI".

Performance Graph

The following graph compares the five-year cumulative total return to shareholders on our common stock with the five-year cumulative total return of our peer group of companies used for the year ended December 31, 2019 and the NASDAQ Composite Index.



* $100 invested on 12/31/14 in stock or index, including reinvestment of dividends.
Fiscal years ending December 31.

The performance graph above is being furnished solely to accompany this Report pursuant to Item 201(e) of Regulation S-K and is not being filed for purposes of Section 18 of the Securities Exchange Act of 1934, as amended, and is not to be incorporated by reference into any of our filings, whether made before or after the date hereof, regardless of any general incorporation language in such filing.

The above presentation assumes $100 invested on December 31, 2014 in the common stock of Itron, Inc., the peer group, and the NASDAQ Composite Index, with all dividends reinvested. With respect to companies in the peer group, the returns of each such corporation have been weighted to reflect relative stock market capitalization at the beginning of each annual period plotted. The historical stock prices shown above for our common stock are not necessarily indicative of future price performance.

Each year, we reassess our peer group to identify global companies that are either direct competitors or have similar industry and business operating characteristics. Our 2019 peer group includes the following publicly traded companies: Badger Meter, Inc., Landis+Gyr, Mueller Water Products, Inc., Roper Technologies, Inc., and Xylem, Inc (Sensus).

Issuer Repurchase of Equity Securities

Period	Total Number of Shares Purchased [1]	Average Price Paid per Share	Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs	Maximum Dollar Value of Shares that May Yet Be Purchased Under the Plans or Programs
				In thousands
October 1, 2019 through October 31, 2019	—	$ —	—	$ 25,000
November 1, 2019 through November 30, 2019	7,821	78.57	—	25,000
December 1, 2019 through December 31, 2019	3,641	84.47	—	25,000
Total	11,462		—	

(1) Shares purchased represent shares transferred to us by certain employees who vested in restricted stock units and used shares to pay all, or a portion of, the related taxes. On March 14, 2019, Itron's Board authorized a new repurchase program of up to $50 million of our common stock over a 12-month period. Repurchases are made in the open market or in privately negotiated transactions and in accordance with applicable securities laws.

Holders

At January 31, 2020, there were 183 holders of record of our common stock. This does not include persons whose stock is in nominee or accounts through brokers.

Dividends

Since the inception of the Company, we have not declared or paid cash dividends. We intend to retain future earnings for the development of our business and do not anticipate paying cash dividends in the foreseeable future.

ITEM 6: SELECTED CONSOLIDATED FINANCIAL DATA

The selected consolidated financial data below is derived from our consolidated financial statements as of December 31, 2019 and 2018, and for the three years ended December 31, 2019 included in this Annual Report on Form 10-K. The financial data as of December 31, 2017, 2016 and 2015 and for the two years ended December 31, 2016 were derived from financial statements not included herein. You should read this information together with Item 7: "Management's Discussion and Analysis of Financial Condition and Results of Operations" and Item 8: "Financial Statements and Supplementary Data". Historical results are not necessarily indicative of future performance.

	Year Ended December 31,				
In thousands, except per share data	**2019**	**2018[4]**	**2017[3]**	**2016[2]**	**2015**
Consolidated Statements of Operations Data					
Revenues	$ 2,502,470	$ 2,376,117	$ 2,018,197	$ 2,013,186	$ 1,883,533
Cost of revenues	1,750,151	1,645,798	1,341,446	1,350,654	1,326,848
Gross profit	752,319	730,319	676,751	662,532	556,685
Operating income (loss)	132,683	(49,692)	154,877	100,993	52,846
Net income (loss) attributable to Itron, Inc.	49,006	(99,250)	57,298	31,770	12,678
Earnings (loss) per common share - Basic	$ 1.24	$ (2.53)	$ 1.48	$ 0.83	$ 0.33
Earnings (loss) per common share - Diluted	$ 1.23	$ (2.53)	$ 1.45	$ 0.82	$ 0.33
Weighted average common shares outstanding - Basic	39,556	39,244	38,655	38,207	38,224
Weighted average common shares outstanding - Diluted	39,980	39,244	39,387	38,643	38,506
Consolidated Balance Sheets Data					
Working capital[1]	$ 325,860	$ 243,434	$ 341,959	$ 319,420	$ 281,166
Total assets	2,707,841	2,608,982	2,106,147	1,577,811	1,680,316
Total debt, net	932,482	1,016,623	613,260	304,523	370,165
Total Itron, Inc. shareholders' equity	776,538	712,663	786,416	631,604	604,758
Other Financial Data					
Cash provided by operating activities	$ 172,840	$ 109,755	$ 191,354	$ 115,842	$ 73,350
Cash used in investing activities	(48,180)	(862,658)	(148,179)	(47,528)	(48,951)
Cash provided by (used in) financing activities	(97,519)	395,821	301,959	(63,023)	7,740
Capital expenditures	(60,749)	(59,952)	(49,495)	(43,543)	(43,918)

(1) Working capital represents current assets less current liabilities.

(2) During 2016, we incurred costs of $49.1 million related to restructuring projects to restructure various company activities in order to improve operational efficiencies, reduce expenses, and improve competitiveness.

(3) During 2017, cash used in investing activities included $100 million paid for the acquisition of Comverge by purchasing the stock of its parent, Peak Holding Corp. In addition, cash provided by financing activities included the issuance of $300 million of senior notes as part of the financing of the acquisition of Silver Spring Networks, Inc.

(4) During 2018, we incurred costs of $77.2 million related to restructuring projects to restructure various company activities in order to improve operational efficiencies, reduce expenses and improve competitiveness. Refer to Item 8: "Financial Statements and Supplementary Data, Note 13: Restructuring" for further disclosures regarding the restructuring charges.

Cash used in investing activities included $803.1 million paid for acquisitions including the acquisition of Silver Spring Networks, Inc. (SSNI). In addition, cash provided by financing activities included the issuance of $100 million of senior notes. We also incurred $91.9 million in acquisition and integration costs in connection with the SSNI acquisition, which are classified in Sales, general and administrative expenses in the Consolidated Statements of Operations.

On January 1, 2018, we adopted Accounting Standards Codification (ASC) 606 using the modified retrospective method. Refer to Item 8: "Financial Statements and Supplementary Data, Note 18: Revenues" for the complete impact of the adoption of ASC 606.

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

The following discussion and analysis compares the change in the consolidated financial statements for fiscal years 2019 and 2018 and should be read in conjunction with Item 8: "Financial Statements and Supplementary Data". For comparisons of fiscal years 2018 and 2017, see our Management's Discussion and Analysis of Financial Condition and Results of Operations in Part II, Item 7 of our 2018 Annual Report on Form 10-K, filed with the SEC on February 28, 2019, and incorporated herein by reference.

Overview

We are a technology and service company, which is a leader in the Industrial Internet of Things (IIoT). We offer solutions that enable utilities and municipalities to safely, securely and reliably operate their critical infrastructure. Our solutions include the deployment of smart networks, software, services, devices, sensors, and data analytics that allow our customers to manage assets, secure revenue, lower operational costs, improve customer service, improve safety, and enable efficient management of valuable resources. Our comprehensive solutions and data analytics address the unique challenges facing the energy, water, and municipality sectors, including increasing demand on resources, non-technical loss, leak detection, environmental and regulatory compliance, and improved operational reliability.

We operate under the Itron brand worldwide and manage and report under three operating segments: Device Solutions, Networked Solutions, and Outcomes. The product and operating definitions of the three segments are as follows:

Device Solutions – This segment primarily includes hardware products used for measurement, control, or sensing that do not have communications capability embedded for use with our broader Itron systems, i.e., hardware-based products not part of a complete "end-to-end" solution. Examples from the Device Solutions portfolio include: standard endpoints that are shipped without Itron communications, such as our standard gas meters, electricity IEC meters, and water meters, in addition to our heat and allocation products; communicating meters that are not a part of an Itron solution such as Smart Spec meters; and the implementation and installation of non-communicating devices, such as gas regulators.

Networked Solutions – This segment primarily includes a combination of communicating devices (smart meters, modules, endpoints, and sensors), network infrastructure, and associated application software designed and sold as a complete solution for acquiring and transporting robust application-specific data. Networked Solutions combines the majority of the assets from the recently acquired SSNI organization with our legacy Itron networking products and software and the implementation and installation of communicating devices into one operating segment. Examples from the Networked Solutions portfolio include: communicating measurement, control, or sensing endpoints such as our Itron® and OpenWay® Riva meters, Itron traditional ERT® technology, Intelis smart gas or water meters, 500G gas communication modules, 500W water communication modules; GenX networking products, network modules and interface cards; and specific network control and management software applications. The IIoT solutions supported by this segment include automated meter reading (AMR), advanced metering infrastructure (AMI), smart grid and distribution automation (DA), and smart street lighting and smart city solutions.

Outcomes – This segment primarily includes our value-added, enhanced software and services in which we manage, organize, analyze, and interpret data to improve decision making, maximize operational profitability, drive resource efficiency, and deliver results for consumers, utilities, and smart cities. Outcomes places an emphasis on delivering to Itron customers high-value, turn-key, digital experiences by leveraging the footprint of our Device Solutions and Networked Solutions segments. The revenues from these offerings are primarily recurring in nature and would include any direct management of Device Solutions, Networked Solutions, and other products on behalf of our end customers. Examples from the Outcomes portfolio include: our meter data management and analytics offerings; our managed service solutions including network-as-a-service and platform-as-a-service, forecasting software and services; and any consulting-based engagement. Within the Outcomes segment, we also identify new business models, including performance-based contracting, to drive broader portfolio offerings across utilities and cities.

We have three measures of segment performance: revenues, gross profit (margin), and operating income (margin). Intersegment revenues are minimal. Certain operating expenses are allocated to the operating segments based upon internally established allocation methodologies. Interest income, interest expense, other income (expense), the income tax provision (benefit), and certain corporate operating expenses are neither allocated to the segments nor included in the measures of segment performance.

Non-GAAP Measures

The following discussion includes financial information prepared in accordance with accounting principles generally accepted in the United States (GAAP), as well as certain adjusted or non-GAAP financial measures such as constant currency, free cash flow, non-GAAP operating expenses, non-GAAP operating income, non-GAAP net income, adjusted EBITDA, and non-GAAP diluted earnings per share (EPS). We believe that non-GAAP financial measures, when reviewed in conjunction with GAAP financial measures, can provide more information to assist investors in evaluating current period performance and in assessing future performance. For these reasons, our internal management reporting also includes non-GAAP measures. We strongly encourage investors and shareholders to review our financial statements and publicly-filed reports in their entirety and not to rely on any single financial measure. Non-GAAP measures as presented herein may not be comparable to similarly titled measures used by other companies.

In our discussions of the operating results below, we sometimes refer to the impact of foreign currency exchange rate fluctuations, which are references to the differences between the foreign currency exchange rates we use to convert operating results from local currencies into U.S. dollars for reporting purposes. We also use the term "constant currency," which represents results adjusted to exclude foreign currency exchange rate impacts. We calculate the constant currency change as the difference between the current period results translated using the current period currency exchange rates and the comparable prior period's results restated using current period currency exchange rates. We believe the reconciliations of changes in constant currency provide useful supplementary information to investors in light of fluctuations in foreign currency exchange rates.

Refer to the *Non-GAAP Measures* section below on pages 39-41 for information about these non-GAAP measures and the detailed reconciliation of items that impacted free cash flow, non-GAAP operating expense, non-GAAP operating income, non-GAAP net income, adjusted EBITDA, and non-GAAP diluted EPS in the presented periods.

Total Company Highlights

Highlights and significant developments for the year ended December 31, 2019

- Revenues were $2.5 billion compared with $2.4 billion last year, an increase of $126.4 million, or 5%.
- Gross margin was 30.1% compared with 30.7% last year.
- Operating expenses decreased $160.4 million, or (21)%, compared with 2018.
- Net income attributable to Itron, Inc. was $49.0 million compared with net loss attributable to Itron, Inc. of $99.3 million in 2018.
- Adjusted EBITDA increased $34.2 million, or 15%, to $270.0 million compared with 2018.
- GAAP diluted EPS was $1.23 compared with diluted loss per share of $2.53 in 2018.
- Non-GAAP diluted EPS was $3.32 compared with $2.65 in 2018.
- Total backlog was $3.2 billion, and twelve-month backlog was $1.5 billion at December 31, 2019.

Credit Facility Amendment

On October 18, 2019, we amended our 2018 credit facility by entering into the First Amendment to the credit agreement entered on January 5, 2018. This amendment extended the maturity date to October 18, 2024 and re-amortized the term loan based on the new balance as of the amendment date. The amendment also modified the required interest payments and made it based on total net leverage instead of total leverage. Amounts not borrowed under the revolver are subject to a commitment fee, which is paid in arrears on the last day of each fiscal quarter, ranging from 0.15% to 0.25% and drawn amounts are subject to a margin ranging from 1.00% to 1.75%.

Stock Repurchase Authorization

On March 14, 2019, Itron's Board of Directors authorized the Company to repurchase up to $50 million of our common stock over a 12-month period (the 2019 Stock Repurchase Program). Following the announcement of the program and through December 31, 2019, we repurchased 529,396 shares at an average share price of $47.22 (including commissions) for a total of $25 million. The remaining $25 million may be repurchased by March 13, 2020. As of February 26, 2020, no purchases had been made in 2020.

Silver Spring Networks, Inc. Acquisition

On January 5, 2018, we completed the acquisition of Silver Spring Networks, Inc. (SSNI) by purchasing all outstanding shares for $16.25 per share, resulting in a total purchase price, net of cash, of $809.2 million. SSNI provided standards-based wireless connectivity platforms and solutions to utilities and cities. The acquisition continues our focus on expanding management services and software-as-a-service solutions, which allows us to provide more value to our customers by optimizing devices, network technologies, outcomes and analytics.

We continue to implement the integration plan associated with this acquisition. For the year ended December 31, 2019, we recognized $26.6 million of acquisition and integration related expenses. We estimate annualized savings of $50 million at the conclusion of the integration plan, which we expect to substantially complete by the end of 2020. For further discussion of the acquisition, refer to Item 8: "Financial Statements and Supplementary Data, Note 17: Business Combinations".

2018 Restructuring Projects

On February 22, 2018, our Board of Directors approved a restructuring plan (the 2018 Projects) to continue our efforts to optimize our global supply chain and manufacturing operations, research and development, and sales and marketing organizations. We recognized restructuring expense of $9.3 million related to the 2018 Projects during the year ended December 31, 2019, and we anticipate an additional $13.5 million to be recognized in future periods, with the substantial portion recognized throughout 2020. At the conclusion of the 2018 Projects, we anticipate annualized savings of $45 million to $50 million. For further discussion of restructuring activities, refer to Item 8: "Financial Statements and Supplementary Data, Note 13: Restructuring".

Total Company GAAP and Non-GAAP Highlights and Unit Shipments

In thousands, except margin and per share data	Year Ended December 31, 2019	% Change	2018
GAAP			
Revenues			
Product revenues	$ 2,220,395	6%	$ 2,095,458
Service revenues	282,075	1%	280,659
Total revenues	2,502,470	5%	2,376,117
Gross profit	752,319	3%	730,319
Operating expenses	619,636	(21)%	780,011
Operating income (loss)	132,683	NM	(49,692)
Other income (expense)	(59,651)	—%	(59,459)
Income tax benefit (provision)	(20,617)	NM	12,570
Net income (loss) attributable to Itron, Inc.	49,006	NM	(99,250)
Non-GAAP[(1)]			
Non-GAAP operating expenses	$ 519,954	(4)%	$ 539,199
Non-GAAP operating income	232,365	22%	191,120
Non-GAAP net income attributable to Itron, Inc.	132,795	26%	105,731
Adjusted EBITDA	270,023	15%	235,826
GAAP Margins and Earnings Per Share			
Gross margin			
Product gross margin	28.5 %		29.5 %
Service gross margin	42.4 %		39.7 %
Total gross margin	30.1 %		30.7 %
Operating margin	5.3 %		(2.1)%
Earnings (loss) per common share - Basic	$ 1.24		$ (2.53)
Earnings (loss) per common share - Diluted	$ 1.23		$ (2.53)
Non-GAAP Earnings Per Share[(1)]			
Non-GAAP diluted EPS	$ 3.32		$ 2.65

(1) These measures exclude certain expenses that we do not believe are indicative of our core operating results. See pages 39-41 for information about these non-GAAP measures and reconciliations to the most comparable GAAP measures.

Endpoints Summary

Our revenue is driven significantly by sales of endpoints. We classify our endpoints into two categories:

- *Standard Endpoints* – an Itron product delivered primarily via our Device Solutions segment. The majority of our standard endpoint devices are used for delivery and metrology in the electricity, water, and gas distribution industries and have no built-in remote reading communication technology. However, some standard endpoint devices are shipped with non-Itron communications capabilities and are not a part of an Itron solution, such as Smart Spec meters, and are classified as a standard endpoint.

- *Networked Endpoints* – an Itron product with the capability of one-way communication or two-way communication of data including remote device configuration and upgrade (consisting primarily of our OpenWay® or Gen X technology). This primarily includes Itron devices used in electricity, water, and gas distribution industries. Networked endpoints also include smart communication modules and network interface cards (NICs). NICs are communicating modules that can be sold separately from the device directly to our customers or to third party manufacturers for use in endpoints such as electric, water, and gas meters; streetlights and smart city devices; sensors or another standard device that the end customer would like to connect to our OpenWay or Gen X Networked Solutions. These endpoints are primarily delivered via our Networked Solutions segment.

A summary of our endpoints shipped is as follows:

	Year Ended December 31,	
Units in thousands	**2019**	**2018**
Itron Endpoints		
Standard endpoints [1]	21,800	23,290
Networked endpoints [1]	16,070	14,610
Total endpoints	37,870	37,900

[1] As of the second quarter of 2019, we have refined the definition of a standard and a networked endpoint to more closely align to the segment performance of Device Solutions and Networked Solutions as reported in the Operating Segment Results section below. The quantities presented for the year ended December 31, 2018 and for the three months ended March 31, 2019, as included in the year ended December 31, 2019, have been recast to align with the refined definitions of standard and networked endpoints. The total endpoints shipped for each period is unchanged.

Results of Operations

Revenues and Gross Margin

The actual results of and effects of changes in foreign currency exchange rates on revenues and gross profit were as follows:

	Year Ended December 31,		Effect of Changes in Foreign Currency Exchange Rates	Constant Currency Change[1]	Total Change
In thousands	**2019**	**2018**			
Total Company					
Revenues	$ 2,502,470	$ 2,376,117	$ (54,540)	$ 180,893	$ 126,353
Gross profit	752,319	730,319	(12,568)	34,568	22,000

[1] Constant currency change is a non-GAAP financial measure and represents the total change between periods excluding the effect of changes in foreign currency exchange rates.

Revenues

Revenues increased $126.4 million in 2019 compared with 2018. Product revenues increased $124.9 million in 2019, primarily in North America as well as in our Asia Pacific region. This was partially offset by reduced product revenues in our Latin America and Europe, Middle East, and Africa (EMEA) regions during 2019. Service revenues increased $1.4 million in 2019 as compared with 2018, which was primarily driven by increases in North America and Asia Pacific regions. This was partially offset by reduced service revenues in our EMEA region during 2019. Changes in currency exchange rates unfavorably impacted revenues by $54.5 million in 2019.

No single customer represented more than 10% of total revenues for the years ended December 31, 2019 and 2018. Our 10 largest customers accounted for 31% of total revenues in 2019 and 2018.

Gross Margin

Gross margin was 30.1% for 2019, compared with 30.7% in 2018. Our gross margin associated with product sales decreased to 28.5% in 2019 from 29.5% in 2018 due to lower margin sales in Asia Pacific, North America, and EMEA. Gross margin associated with our service revenues increased to 42.4% from 39.7% in 2018 due to higher margin sales in our Latin America, North America and EMEA regions.

Refer to Operating Segment Results section below for further detail on total company revenues and gross margin.

Operating Expenses

The actual results of and effects of changes in foreign currency exchange rates on operating expenses were as follows:

In thousands	Year Ended December 31, 2019	Year Ended December 31, 2018	Effect of Changes in Foreign Currency Exchange Rates	Constant Currency Change[(1)]	Total Change
Total Company					
Sales, general and administrative	$ 346,872	$ 423,210	$ (8,369)	$ (67,969)	$ (76,338)
Research and development	202,200	207,905	(1,190)	(4,515)	(5,705)
Amortization of intangible assets	64,286	71,713	(642)	(6,785)	(7,427)
Restructuring	6,278	77,183	(7,106)	(63,799)	(70,905)
Total Operating expenses	$ 619,636	$ 780,011	$ (17,307)	$ (143,068)	$ (160,375)

(1) Constant currency change is a non-GAAP financial measure and represents the total change between periods excluding the effect of changes in foreign currency exchange rates.

Operating expenses decreased $160.4 million for the year ended December 31, 2019 as compared with the same period in 2018. This was primarily due to a decrease of $70.9 million in restructuring expense, driven by elevated 2018 restructuring expense following the announcement of the 2018 restructuring plan, and a decrease of $65.3 million in acquisition and integration costs, which are classified within sales, general and administrative expenses.

Other Income (Expense)

The following table shows the components of other income (expense):

In thousands	Year Ended December 31, 2019	% Change	2018
Interest income	$ 1,849	(14)%	$ 2,153
Interest expense	(46,822)	(8)%	(51,157)
Amortization of prepaid debt fees	(5,631)	(20)%	(7,046)
Other income (expense), net	(9,047)	165%	(3,409)
Total Other income (expense)	$ (59,651)	—%	$ (59,459)

Total other income (expense) for the year ended December 31, 2019 was a net expense of $59.7 million compared with $59.5 million in 2018.

The change in other income (expense), net, for the year ended December 31, 2019 as compared with the same period in 2018 was primarily the result of $2.9 million decrease in interest expense for the credit facility and $1.4 million decrease in amortization expense for prepaid debt fees, offset by a legal settlement gain of $2.5 million recognized in the second quarter of 2018 and the effect of recognized foreign currency exchange gains and losses due to transactions denominated in a currency other than the reporting entity's functional currency.

Income Tax Provision

Our income tax provision (benefit) was $20.6 million and $(12.6) million for the years ended December 31, 2019 and 2018, respectively. Our tax rate of 28% for the year ended December 31, 2019 differed from the U.S. federal statutory tax rate of 21% due primarily to the level of profit or losses in domestic and foreign jurisdictions, research and development tax credits, state income taxes, adjustments to valuation allowances, and uncertain tax positions, among other items.

For additional discussion related to income taxes, see Item 8: "Financial Statements and Supplementary Data, Note 11: Income Taxes".

Operating Segment Results

For a description of our operating segments, refer to Item 8: "Financial Statements and Supplementary Data, Note 16: Segment Information". The following tables and discussion highlight significant changes in trends or components of each operating segment:

	Year Ended December 31,		
In thousands	2019	% Change	2018
Segment revenues			
Device Solutions	$ 858,881	(8)%	$ 933,365
Networked Solutions	1,417,254	16%	1,224,144
Outcomes	226,335	4%	218,608
Total revenues	$ 2,502,470	5%	$ 2,376,117

	Year Ended December 31,			
	2019		2018	
In thousands	*Gross Profit*	*Gross Margin*	*Gross Profit*	*Gross Margin*
Segment gross profit and margin				
Device Solutions	$ 152,562	17.8%	$ 187,254	20.1%
Networked Solutions	518,749	36.6%	482,471	39.4%
Outcomes	81,008	35.8%	60,594	27.7%
Total gross profit and margin	$ 752,319	30.1%	$ 730,319	30.7%

	Year Ended December 31,		
In thousands	2019	% Change	2018
Segment operating expenses			
Device Solutions	$ 54,809	(3)%	$ 56,266
Networked Solutions	121,424	—%	121,692
Outcomes	37,205	(15)%	43,960
Corporate unallocated	406,198	(27)%	558,093
Total operating expenses	$ 619,636	(21)%	$ 780,011

	Year Ended December 31,			
	2019		2018	
In thousands	*Operating Income (Loss)*	*Operating Margin*	*Operating Income (Loss)*	*Operating Margin*
Segment operating income (loss) and operating margin				
Device Solutions	$ 97,753	11.4%	$ 130,988	14.0%
Networked Solutions	397,325	28.0%	360,779	29.5%
Outcomes	43,803	19.4%	16,634	7.6%
Corporate unallocated	(406,198)		(558,093)	
Total operating income (loss) and operating margin	$ 132,683	5.3%	$ (49,692)	(2.1)%

Device Solutions:

The effects of changes in foreign currency exchange rates and the constant currency changes in certain Device Solutions segment financial results were as follows:

In thousands	Year Ended December 31, 2019	Year Ended December 31, 2018	Effect of Changes in Foreign Currency Exchange Rates	Constant Currency Change[(1)]	Total Change
Device Solutions Segment					
Revenues	$ 858,881	$ 933,365	$ (43,278)	$ (31,206)	$ (74,484)
Gross profit	152,562	187,254	(9,329)	(25,363)	(34,692)
Operating expenses	54,809	56,266	(913)	(544)	(1,457)

(1) Constant currency change is a non-GAAP financial measure and represents the total change between periods excluding the effect of changes in foreign currency exchange rates.

Revenues
Revenues decreased by $74.5 million in 2019, or (8)%, compared with 2018 of which $43.3 million were due to foreign exchange rate changes. The overall decrease was a result of lower product sales in EMEA, partially offset by improvements in North America sales.

Gross Margin
Gross margin was 17.8% in 2019 compared with 20.1% in 2018. The 230 basis point deterioration compared with the prior year was due to unfavorable product mix, offset by lower warranty charges in 2019.

Operating Expenses
Operating expenses decreased $1.5 million, or (3)%. The decrease was primarily due to lower research and development expense.

Networked Solutions:

The effects of changes in foreign currency exchange rates and the constant currency changes in certain Networked Solutions segment financial results were as follows:

In thousands	Year Ended December 31, 2019	Year Ended December 31, 2018	Effect of Changes in Foreign Currency Exchange Rates	Constant Currency Change[(1)]	Total Change
Networked Solutions Segment					
Revenues	$ 1,417,254	$ 1,224,144	$ (8,166)	$ 201,276	$ 193,110
Gross profit	518,749	482,471	(2,619)	38,897	36,278
Operating expenses	121,424	121,692	(177)	(91)	(268)

(1) Constant currency change is a non-GAAP financial measure and represents the total change between periods excluding the effect of changes in foreign currency exchange rates.

Revenues
Revenues increased by $193.1 million, or 16%, in 2019 compared with 2018. This increase in revenues was primarily related to the increase in product revenue for existing and new deployments in North America.

Gross Margin
Gross margin was 36.6% in 2019 compared with 39.4% in 2018. The decrease of 280 basis points was driven by unfavorable product mix.

Operating Expenses
Operating expenses decreased by $0.3 million, or (0.2)%, in 2019. The decrease was primarily due to lower product marketing expenses, partially offset by increased research and development expenses.

Outcomes:

The effects of changes in foreign currency exchange rates and the constant currency changes in certain Outcomes segment financial results were as follows:

In thousands	Year Ended December 31, 2019	Year Ended December 31, 2018	Effect of Changes in Foreign Currency Exchange Rates	Constant Currency Change[(1)]	Total Change
Outcomes Segment					
Revenues	$ 226,335	$ 218,608	$ (3,096)	$ 10,823	$ 7,727
Gross profit	81,008	60,594	(893)	21,307	20,414
Operating expenses	37,205	43,960	(123)	(6,632)	(6,755)

(1) Constant currency change is a non-GAAP financial measure and represents the total change between periods excluding the effect of changes in foreign currency exchange rates.

Revenues

Revenues increased $7.7 million, or 4%, in 2019. This increase was primarily due to an increase in software license sales and services revenue in North America, Asia Pacific, and Latin America. This increase was partially offset by a one-time customer adjustment in North America.

Gross Margin

Gross margin increased to 35.8% in 2019 compared with 27.7% in 2018. The 810 basis point increase was driven by higher margin software license sales and margin improvements within services.

Operating Expenses

Operating expenses decreased $6.8 million, or (15.4)%, in 2019. The decrease was due to lower research and development expense.

Corporate unallocated:

Operating expenses not directly associated with an operating segment are classified as "Corporate unallocated". These expenses decreased $151.9 million, or 27%, in 2019 as compared with 2018. Restructuring expense decreased by $70.9 million, and acquisition and integration expense related to the SSNI acquisition decreased by $65.3 million. In addition, amortization of intangible assets decreased by $7.4 million.

Financial Condition

Cash Flow Information:

In thousands	Year Ended December 31, 2019	2018	2017
Cash provided by operating activities	$ 172,840	$ 109,755	$ 191,354
Cash used in investing activities	(48,180)	(862,658)	(148,179)
Cash provided by (used in) financing activities	(97,519)	395,821	301,959
Effect of exchange rates on cash, cash equivalents, and restricted cash	435	(7,925)	8,636
Increase (decrease) in cash, cash equivalents, and restricted cash	$ 27,576	$ (365,007)	$ 353,770

Cash, cash equivalents, and restricted cash at December 31, 2019 were $149.9 million compared with $122.3 million at December 31, 2018. The $27.6 million increase in cash, cash equivalents, and restricted cash was primarily the result of cash flows from operations, partially offset by net payments on debt; acquisition of property, plant, and equipment; and repurchase of shares.

Operating activities

Cash provided by operating activities in 2019 was $63.1 million higher than in 2018. This increase was primarily due to an increase in gross profit and lower cash outflows for acquisition and integration costs and restructuring costs.

Investing activities

Cash used in investing activities in 2019 was $814.5 million lower than in 2018. This decreased use of cash was primarily related to our acquisition of SSNI in 2018.

Financing activities

Cash used in financing activities in 2019 was $97.5 million compared with cash provided in 2018 of $395.8 million. In 2019, we had net repayments of debt of $87.7 million and stock repurchases of $25.0 million. In 2018, we had net draws on our debt of $415.6 million to fund the acquisition of SSNI, as well as cash payments of $24.0 million for prepaid debt fees.

Effect of exchange rates on cash and cash equivalents

Changes in exchange rates on the cash balances in currencies held in foreign denominations resulted in an increase of $0.4 million in 2019 and a decrease of $7.9 million 2018. Our foreign currency exposure relates to non-U.S. dollar denominated balances in our international subsidiary operations, the most significant of which is the euro.

Free cash flow (Non-GAAP)

To supplement our Consolidated Statements of Cash Flows presented on a GAAP basis, we use the non-GAAP measure of free cash flow to analyze cash flows generated from our operations. The presentation of non-GAAP free cash flow is not meant to be considered in isolation or as an alternative to net income as an indicator of our performance, or as an alternative to cash flows from operating activities as a measure of liquidity. We calculate free cash flows, using amounts from our Consolidated Statements of Cash Flows, as follows:

	Year Ended December 31,	
In thousands	2019	2018
Cash provided by operating activities	$ 172,840	$ 109,755
Acquisitions of property, plant, and equipment	(60,749)	(59,952)
Free cash flow	$ 112,091	$ 49,803

Free cash flow fluctuated primarily as a result of changes in cash provided by operating activities. See the cash flow discussion of operating activities above.

Off-balance sheet arrangements:

We have no off-balance sheet financing agreements or guarantees as defined by Item 303 of Regulation S-K at December 31, 2019 and December 31, 2018 that we believe could reasonably likely have a current or future effect on our financial condition, results of operations, or cash flows.

Disclosures about contractual obligations and commitments:

The following table summarizes our known obligations to make future payments pursuant to certain contracts as of December 31, 2019, as well as an estimate of the timing in which these obligations are expected to be satisfied.

In thousands	Total	Less than 1 year	1-3 years	3-5 years	Beyond 5 years
Credit facility[1] [5]					
USD denominated term loan	$ 625,193	$ 17,369	$ 108,385	$ 499,439	$ —
Multicurrency revolving line of credit	—	—	—	—	—
Senior notes [5]	530,000	20,000	40,000	40,000	430,000
Operating lease obligations[2]	99,280	19,747	31,091	25,870	22,572
Purchase and service commitments[3]	281,775	274,794	6,630	351	—
Other long-term liabilities reflected on the balance sheet under generally accepted accounting principles[4]	163,642	—	68,679	11,481	83,482
Total	$ 1,699,890	$ 331,910	$ 254,785	$ 577,141	$ 536,054

(1) Borrowings are disclosed within Item 8: "Financial Statements and Supplementary Data, Note 6: Debt".

(2) Operating lease obligations are disclosed in Item 8: "Financial Statements and Supplementary Data, Note 19: Leases" and do not include common area maintenance charges, real estate taxes, and insurance charges for which we are obligated.

(3) We enter into standard purchase orders in the ordinary course of business that typically obligate us to purchase materials and other items. Purchase orders can include open-ended agreements that provide for estimated quantities over an extended shipment period, typically up to one year at an established unit cost. Our long-term executory purchase agreements that contain termination clauses have been classified as less than one year, as the commitments are the estimated amounts we would be required to pay at December 31, 2019 if the commitments were canceled.

(4) Other long-term liabilities consist of warranty obligations, estimated pension benefit payments, and other obligations. Long-term unrecognized tax benefits totaling $26.7 million (net of pre-payments), which include accrued interest and penalties, are not included in the above contractual obligations and commitments table as we cannot reliably estimate the period of cash settlement with the respective taxing authorities. Additionally, because the amount and timing of the future cash outflows are uncertain, unearned revenue totaling $31.5 million, which includes unearned revenue related to extended warranty guarantees, is not included in the table. Finance leases are not material for disclosure above. For further information on defined benefit pension plans, income taxes, warranty obligations, and unearned revenue for extended warranties, see Item 8: "Financial Statements and Supplementary Data, Note 8: Defined Benefit Pension Plans, Note 11: Income Taxes, Note 12: Commitments and Contingencies, and Note 18: Revenues," respectively.

(5) Amount includes principal and interest.

Liquidity and Capital Resources:

Our principal sources of liquidity are cash flows from operations, borrowings, and sales of common stock. Cash flows may fluctuate and are sensitive to many factors including changes in working capital and the timing and magnitude of capital expenditures and payments on debt. Working capital, which represents current assets less current liabilities, was $325.9 million at December 31, 2019.

Borrowings

On October 18, 2019 we amended our credit facility that was initially entered on January 5, 2018 (together with the amendment, the "2018 credit facility"). The 2018 credit facility provides for committed credit facilities in the amount of $1.2 billion U.S. dollars. The 2018 credit facility consists of a $650 million U.S. dollar term loan (the term loan) and a multicurrency revolving line of credit (the revolver) with a principal amount of up to $500 million. The revolver also contains a $300 million standby letter of credit sub-facility and a $50 million swingline sub-facility. The October 18, 2019, amendment extended the maturity date to October 18, 2024 and re-amortized the term loan based on the new balance as of the amendment date. During 2019 we made debt prepayments on the term loan in excess of required principal payments and may make additional payments in excess of required amounts due during the next year.

At December 31, 2019, no amount was outstanding under the 2018 credit facility revolver, and $41 million was utilized by outstanding standby letters of credit, resulting in $459 million available for additional borrowings or standby letters of credit. At December 31, 2019, $259 million was available for additional standby letters of credit under the letter of credit sub-facility and no amounts were outstanding under the swingline sub-facility. Both the term loan and the revolver mature on October 18, 2024 and can be repaid without penalty. Amounts repaid on the term loan may not be reborrowed and amounts borrowed under the revolver may be repaid and reborrowed until the revolver's maturity, at which time all outstanding loans together with all accrued and unpaid interest must be repaid.

On December 22, 2017 and January 19, 2018, we issued $300 million and $100 million, respectively, of aggregate principal amount of 5.00% senior notes maturing January 15, 2026 (Senior Notes). The proceeds were used to refinance existing indebtedness related to the acquisition of SSNI, pay related fees and expenses, and for general corporate purposes. Interest on the Senior Notes is payable semi-annually in arrears on January 15 and July 15. The Senior Notes are fully and unconditionally guaranteed, jointly and severally, on a senior unsecured basis by each of our subsidiaries that guarantee the 2018 credit facility.

Prior to maturity, we may redeem some or all of the Senior Notes, together with accrued and unpaid interest, if any, plus a "make-whole" premium. On or after January 15, 2021, we may redeem some or all of the Senior Notes at any time at declining redemption prices equal to 102.50% beginning on January 15, 2021, 101.25% beginning on January 15, 2022 and 100.00% beginning on January 15, 2023 and thereafter to the applicable redemption date. In addition, before January 15, 2021, and subject to certain conditions, we may redeem up to 35% of the aggregate principal amount of Senior Notes with the net proceeds of certain equity offerings at 105.00% of the principal amount thereof to the date of redemption; provided that (i) at least 65% of the aggregate principal amount of Senior Notes remains outstanding after such redemption and (ii) the redemption occurs within 60 days of the closing of any such equity offering.

For further description of our borrowings, refer to Item 8: "Financial Statements and Supplementary Data, Note 6: Debt". For a description of our letters of credit and performance bonds, and the amounts available for additional borrowings or letters of credit under our lines of credit, including the revolver that is part of our credit facility, refer to Item 8: "Financial Statements and Supplementary Data, Note 12: Commitments and Contingencies".

Silver Spring Networks, Inc. Acquisition

As part of the acquisition of SSNI, we announced an integration plan to obtain approximately $50 million of annualized savings by the end of 2020. For the year ended December 31, 2019, we have paid out $27.3 million and we have approximately $15 million to $25 million of estimated cash payments remaining on the integration plan, the majority of which is expected to be paid out in the next 12 months.

Restructuring

For the year ended December 31, 2019, we paid out a net $20.7 million related to the restructuring projects. As of December 31, 2019, $56.1 million was accrued for the restructuring projects, of which $18.9 million is expected to be paid over the next 12 months.

For further details regarding our restructuring activities, refer to Item 8: "Financial Statements and Supplementary Data, Note 13: Restructuring".

Income Tax

Our tax provision as a percentage of income before tax typically differs from the U.S. federal statutory rate of 21%. Changes in our actual tax rate are subject to several factors, including fluctuations in operating results, new or revised tax legislation and accounting pronouncements, changes in the level of business in domestic and foreign jurisdictions, research and development tax credits, state income taxes, adjustments to valuation allowances, settlement of tax audits, and uncertain tax positions, among other items. Changes in tax laws, valuation allowances, and unanticipated tax liabilities could significantly impact our tax rate.

Our cash income tax payments were as follows:

	Year Ended December 31,	
In thousands	**2019**	**2018**
U.S. federal taxes paid	$ 184	$ 1,339
State income taxes paid	1,664	1,534
Foreign and local income taxes paid	10,193	10,898
Total income taxes paid	$ 12,041	$ 13,771

Based on current projections, we expect to pay, net of refunds, approximately $4 million in U.S. federal and state taxes and $8 million in foreign and local income taxes in 2020.

As of December 31, 2019, there was $40.5 million of cash and short-term investments held by certain foreign subsidiaries in which we are permanently reinvested for tax purposes. As a result of recent changes in U.S. tax legislation, any repatriation in the future would not result in U.S. federal income tax. Accordingly, there is no provision for U.S. deferred taxes on this cash. If this cash were repatriated to fund U.S. operations, additional withholding tax costs may be incurred. Tax is only one of many factors that we consider in the management of global cash. Accordingly, the amount of taxes that we would need to accrue and pay to repatriate foreign cash could vary significantly.

Other Liquidity Considerations

Among our consolidated international subsidiaries, we have joint venture partners who are minority shareholders. Although these entities are not wholly-owned by Itron, Inc., we consolidate them because we have a greater than 50% ownership interest and/or because we exercise control over the operations. The noncontrolling interest balance in our Consolidated Balance Sheets represents the proportional share of the equity of the joint venture entities, which is attributable to the minority shareholders. At December 31, 2019, $8.4 million of our consolidated cash balance was held in our joint venture entities. As a result, the minority shareholders of these entities have rights to their proportional share of this cash balance, and there may be limitations on our ability to repatriate cash to the United States from these entities.

At December 31, 2019, we have accrued $37.7 million of bonus and profit sharing plan expenses for the expected achievement of financial and nonfinancial targets, which we expect to pay in cash during the first quarter of 2020.

General Liquidity Overview

We expect to grow through a combination of internal new research and development, licensing technology from and to others, distribution agreements, partnering arrangements, and acquisitions of technology or other companies. We expect these activities to be funded with existing cash, cash flow from operations, borrowings, or the sale of common stock or other securities. We believe existing sources of liquidity will be sufficient to fund our existing operations and obligations for the next 12 months and into the foreseeable future but offer no assurances. Our liquidity could be affected by the stability of the electricity, gas, and water industries, competitive pressures, our dependence on certain key vendors and components, changes in estimated liabilities for product warranties and/or litigation, future business combinations, capital market fluctuations, international risks, and other factors described under Item 1A: "Risk Factors," as well as Item 7A: "Quantitative and Qualitative Disclosures About Market Risk".

Contingencies

Refer to Item 8: "Financial Statements and Supplementary Data, Note 12: Commitments and Contingencies".

Critical Accounting Estimates and Policies

Our consolidated financial statements and accompanying notes are prepared in accordance with U.S. generally accepted accounting principles (GAAP). Preparing consolidated financial statements requires management to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenues, and expenses. These estimates and assumptions are affected by management's application of accounting policies. Our critical accounting policies include revenue recognition, warranty, restructuring, income taxes, business combinations, goodwill and intangible assets, defined benefit pension plans, contingencies, and stock-based compensation. Refer to Item 8: "Financial Statements and Supplementary Data, Note 1: Summary of Significant Accounting Policies" for further disclosures regarding accounting policies and new accounting pronouncements.

Revenue Recognition

Many of our revenue arrangements involve multiple performance obligations, consisting of hardware, software, and professional services such as implementation, project management, installations, and consulting services. These arrangements require us to determine the standalone selling price of the promised goods or services underlying each performance obligation and then allocate the total arrangement consideration among the separate performance obligations based on the relative standalone selling price. Revenues for each performance obligation are then recognized upon transfer of control to the customer at a point in time as products are shipped or received by a customer, or over time as services are delivered. The majority of our revenue is recognized at a point in time when products are shipped to or received by a customer. Certain contracts that contain multiple performance obligations may contain customer-specific terms and conditions that govern service level commitments, transfer of control, and variable consideration that may involve complex accounting considerations.

Professional services revenues are recognized over time. We measure progress towards satisfying these performance obligations using input methods, most commonly based on the costs incurred in relation to the total expected costs to provide the service. The estimate of expected costs to provide services requires judgment. Cost estimates take into consideration past history and the specific scope requested by the customer and are updated quarterly. Other variables impacting our estimate of costs to complete include length of time to complete, changes in wages, subcontractor performance, supplier information, and business volume assumptions. Changes in underlying assumptions and estimates may adversely or favorably affect financial performance.

If we estimate that the completion of a performance obligation will result in a loss, then the loss is recognized in the period in which the loss becomes evident. We reevaluate the estimated loss through the completion of the performance obligation and adjust the estimated loss for changes in facts and circumstances.

Many of our contracts with customers include variable consideration, which can include liquidated damage provisions, rebates and volume and early payment discounts, or software licenses sold where the amount of consideration is dependent on the number of endpoints deployed. We estimate variable consideration using the expected value method, taking into consideration contract terms, historical customer behavior, and historical sales. Some of our contracts with customers contain clauses for liquidated damages related to the timing of delivery or milestone accomplishments, which could become material in an event of failure to meet the contractual deadlines. At the inception of the arrangement and on an ongoing basis, we evaluate the probability of having to pay liquidated damages and the magnitude of such damages. In the case of liquidated damages, we also take into consideration progress towards meeting contractual milestones, including whether milestones have not been achieved, specified rates, if applicable, stated in the contract, and history of paying liquidated damages to the customer or similar customers.

Certain of our revenue arrangements include an extended or customer-specific warranty provision that covers all or a portion of a customer's replacement or repair costs beyond the standard warranty period. Whether or not the extended warranty is separately priced in the arrangement, a portion of the arrangement's total consideration is allocated to this extended warranty deliverable. This revenue is deferred and recognized over the extended warranty coverage period. Extended or customer-specific warranties do not represent a significant portion of our revenue.

We allocate consideration to each performance obligation in an arrangement based on its relative standalone selling price. For goods or services where we have observable standalone sales, the observable standalone sales are used to determine the standalone selling price. For the majority of our goods and services, we do not have observable standalone sales. As a result, we estimate the standalone selling price using either the adjusted market assessment approach or the expected cost plus a margin approach. Approaches used to estimate the standalone selling price for a given good or service maximize the use of observable inputs and consider several factors, including our pricing practices, costs to provide a good or service, the type of good or service, and availability of other transactional data, among others.

We determine the estimated standalone selling prices of goods or services used in our allocation of arrangement consideration on an annual basis or more frequently if there is a significant change in our business or if we experience significant variances in our transaction prices.

Our contracts may be modified to add, remove, or change existing performance obligations or change contract price. The accounting for modifications to our contracts involves assessing whether the products or services added to an existing contract are distinct and whether the pricing is at the standalone selling price. Products or services added that are not distinct are accounted for as if it were part of the existing contract. The effect of the modification on the transaction price and on the measure of progress is recognized as an adjustment to revenue as of the date of the modification (i.e., on a cumulative catch-up basis). Those products or services that are distinct are accounted for prospectively, either as a separate contract if the additional services are priced at the standalone selling price, or as a termination of the existing contract and creation of a new contract if not priced at the standalone selling price.

Warranty

We offer standard warranties on our hardware products and large application software products. We accrue the estimated cost of product warranties based on historical and projected product performance trends and costs during the warranty period. Testing of new products in the development stage helps identify and correct potential warranty issues prior to manufacturing. Quality control efforts during manufacturing reduce our exposure to warranty claims. When testing or quality control efforts fail to detect a fault in our products, we may experience an increase in warranty claims. We track warranty claims to identify potential warranty trends. If an unusual trend is identified, an additional warranty accrual would be recognized if a failure event is probable and the cost can be reasonably estimated. When new products are introduced, our process relies on historical averages of similar products until sufficient data are available. As actual experience on new products becomes available, it is used to modify the historical averages to ensure the expected warranty costs are within a range of likely outcomes. Management regularly evaluates the sufficiency of the warranty provisions and makes adjustments when necessary. The warranty allowances may fluctuate due to changes in estimates for material, labor, and other costs we may incur to repair or replace projected product failures, and we may incur additional warranty and related expenses in the future with respect to new or established products, which could adversely affect our financial position and results of operations.

Restructuring

We recognize a liability for costs associated with an exit or disposal activity under a restructuring project at its fair value in the period in which the liability is incurred. Employee termination benefits considered post-employment benefits are accrued when the obligation is probable and estimable, such as benefits stipulated by human resource policies and practices or statutory requirements. One-time termination benefits are recognized at the date the employee is notified. If the employee must provide future service greater than 60 days, such benefits are recognized ratably over the future service period. For contract termination costs, we recognize a liability upon the later of when we terminate a contract in accordance with the contract terms or when we cease using the rights conveyed by the contract.

Asset impairments associated with a restructuring project are determined at the asset group level. An impairment may be recognized for assets that are to be abandoned, are to be sold for less than net book value, or are held for sale in which the estimated proceeds are less than the net book value less costs to sell. We may also recognize impairment on an asset group, which is held and used, when the carrying value is not recoverable and exceeds the asset group's fair value. If an asset group is considered a business, a portion of our goodwill balance is allocated to it based on relative fair value. If the sale of an asset group under a restructuring project results in proceeds that exceed the net book value of the asset group, the resulting gain is recognized within restructuring expense in the Consolidated Statements of Operations.

In determining restructuring charges, we analyze our future operating requirements, including the required headcount by business functions and facility space requirements. Our restructuring costs and any resulting accruals involve significant estimates using the best information available at the time the estimates are made. Our estimates involve a number of risks and uncertainties, some of which are beyond our control, including real estate market conditions and local labor and employment laws, rules, and regulations. If the amounts and timing of cash flows from restructuring activities are significantly different from what we have estimated, the actual amount of restructuring and asset impairment charges could be materially different, either higher or lower, than those we have recognized.

Income Taxes

We estimate income tax expense in each of the taxing jurisdictions in which we operate. Changes in our actual tax rate are subject to several factors, including fluctuations in operating results, new or revised tax legislation and accounting pronouncements, changes in the level of business in domestic and foreign jurisdictions, research and development tax credits, state income taxes, adjustments to valuation allowances, settlement of tax audits, and uncertain tax positions, among other items. Changes in tax laws, valuation allowances, and unanticipated tax liabilities could significantly impact our tax rate.

We recognize valuation allowances to reduce deferred tax assets to the extent we believe it is more likely than not that a portion of such assets will not be realized. In making such determinations, we consider all available favorable and unfavorable evidence, including scheduled reversals of deferred tax liabilities, projected future taxable income, tax planning strategies, and our ability to carry back losses to prior years. We are required to make assumptions and judgments about potential outcomes that lie outside our control. Our most sensitive and critical factors are the projection, source, and character of future taxable income. Although realization is not assured, management believes it is more likely than not that deferred tax assets, net of valuation allowance, will be realized. The amount of deferred tax assets considered realizable, however, could be reduced in the near term if estimates of future taxable income during the carryforward periods are reduced or current tax planning strategies are not implemented.

We are subject to audits in multiple taxing jurisdictions in which we operate. These audits may involve complex issues, which may require an extended period of time to resolve. We believe we have recognized adequate income tax provisions and reserves for uncertain tax positions.

In evaluating uncertain tax positions, we consider the relative risks and merits of positions taken in tax returns filed and to be filed, considering statutory, judicial, and regulatory guidance applicable to those positions. We make assumptions and judgments about potential outcomes that lie outside management's control. To the extent the tax authorities disagree with our conclusions and depending on the final resolution of those disagreements, our actual tax rate may be materially affected in the period of final settlement with the tax authorities.

Business Combinations

On the date of acquisition, the assets acquired, liabilities assumed, and any noncontrolling interests in the acquiree are recognized at their fair values. The acquiree's results of operations are also included as of the date of acquisition in our consolidated results. Intangible assets that arise from contractual/legal rights, or are capable of being separated, as well as in-process research and development (IPR&D), are measured and recognized at fair value, and amortized over the estimated useful life. IPR&D is not amortized until such time as the associated development projects are completed or terminated. If a development project is completed, the IPR&D is reclassified as a core technology intangible asset and amortized over its estimated useful life. If the development project is terminated, the recognized value of the associated IPR&D is immediately expensed. If practicable, assets acquired and liabilities assumed arising from contingencies are measured and recognized at fair value. If not practicable, such assets and liabilities are measured and recognized when it is probable that a gain or loss has occurred and the amount can be reasonably estimated. The residual balance of the purchase price, after fair value allocations to all identified assets and liabilities, represents goodwill. Acquisition-related costs are recognized as incurred. Integration costs associated with an acquisition are generally recognized in periods subsequent to the acquisition date, and changes in deferred tax asset valuation allowances and acquired income tax uncertainties, including penalties and interest, after the measurement period are recognized as a component of the provision for income taxes. Our acquisitions may include contingent consideration, which requires us to recognize the fair value of the estimated liability at the time of the acquisition. Subsequent changes in the estimate of the amount to be paid under the contingent consideration arrangement are recognized in the Consolidated Statements of Operations.

We estimate the preliminary fair value of acquired assets and liabilities as of the date of acquisition based on information available at that time utilizing either a cost or income approach. These estimates are subject to variability in future cash flows. Changes to valuation allowances on acquired deferred tax assets that occur after the acquisition date are recognized in the provision for, or benefit from, income taxes. The valuation of these tangible and identifiable intangible assets and liabilities is subject to further management review and may change materially between the preliminary allocation and end of the purchase price allocation period. Any changes in these estimates may have a material effect on our consolidated results of operations or financial position.

Goodwill and Intangible Assets

Goodwill and intangible assets may result from our business acquisitions. Intangible assets may also result from the purchase of assets and intellectual property where we do not acquire a business. We use estimates, including estimates of useful lives of intangible assets, the amount and timing of related future cash flows, and fair values of the related operations, in determining the value assigned to goodwill and intangible assets. Our finite-lived intangible assets are amortized over their estimated useful lives based on estimated discounted cash flows. In-process research and development (IPR&D) is considered an indefinite-lived intangible asset and is not subject to amortization until the associated projects are completed or terminated. Finite-lived intangible assets are tested for impairment at the asset group level when events or changes in circumstances indicate the carrying value may not be recoverable. Indefinite-lived intangible assets are tested for impairment annually, when events or changes in circumstances indicate the asset may be impaired, or when their useful lives are determined to be no longer indefinite.

Goodwill is assigned to our reporting units based on the expected benefit from the synergies arising from each business combination, determined by using certain financial metrics, including the forecast discounted cash flows associated with each reporting unit. Each reporting unit corresponds with its respective operating segment.

We test goodwill for impairment each year as of October 1, or more frequently should a significant impairment indicator occur. As part of the impairment test, we may elect to perform an assessment of qualitative factors. If this qualitative assessment indicates that it is more likely than not that the fair value of a reporting unit, including goodwill, is less than its carrying amount, or if we elect to bypass the qualitative assessment, we would then proceed with the impairment test. The impairment test involves comparing the fair values of the reporting units to their carrying amounts. If the carrying amount of a reporting unit exceeds its fair value, an impairment loss is recognized in an amount equal to the excess.

Determining the fair value of a reporting unit is judgmental in nature and involves the use of significant estimates and assumptions. We forecast discounted future cash flows at the reporting unit level using risk-adjusted discount rates and estimated future revenues and operating costs, which take into consideration factors such as existing backlog, expected future orders, supplier contracts, and expectations of competitive, business and economic environments. We also identify similar publicly traded companies and develop a correlation, referred to as a multiple, to apply to the operating results of the reporting units. These combined fair values are then reconciled to the aggregate market value of our common stock on the date of valuation, while considering a reasonable control premium.

Changes in market demand, fluctuations in the markets in which we operate, the volatility and decline in the worldwide equity markets, and a decline in our market capitalization could unfavorably impact the remaining carrying value of our goodwill, which could have a significant effect on our current and future results of operations and financial position.

Defined Benefit Pension Plans

We sponsor both funded and unfunded defined benefit pension plans for our international employees, primarily in Germany, France, India, Indonesia, and Italy. We recognize a liability for the projected benefit obligation in excess of plan assets or an asset for plan assets in excess of the projected benefit obligation. We also recognize the funded status of our defined benefit pension plans on our Consolidated Balance Sheets and recognize as a component of other comprehensive income (loss) (OCI), net of tax, the actuarial gains or losses and prior service costs or credits, if any, that arise during the period but are not recognized as components of net periodic benefit cost.

Several economic assumptions and actuarial data are used in calculating the expense and obligations related to these plans. The assumptions are updated annually at December 31 and include the discount rate, the expected remaining service life, the expected rate of return on plan assets, and the rate of future compensation increases. The discount rate is a significant assumption used to value our pension benefit obligation. We determine a discount rate for our plans based on the estimated duration of each plan's liabilities. For euro denominated defined benefit pension plans, which represent 93% of our benefit obligation, we use discount rates with consideration of the duration of each of the plans, using a hypothetical yield curve developed from euro-denominated AA-rated corporate bond issues. These bonds are assigned different weights to adjust their relative influence on the yield curve, and the highest and lowest yielding 10% of bonds are excluded within each maturity group. The discount rates used, depending on the duration of the plans, were between 0.25% and 2.00%. The weighted average discount rate used to measure the projected benefit obligation for all of the plans at December 31, 2019 was 1.76%. A change of 25 basis points in the discount rate would change our projected benefit obligation by approximately $7 million. The financial and actuarial assumptions used at December 31, 2019 may differ materially from actual results due to changing market and economic conditions and other factors. These differences could result in a significant change in the amount of pension expense recognized in future periods.

Contingencies

A loss contingency is recognized if it is probable that an asset has been impaired or a liability has been incurred and the amount of the loss can be reasonably estimated. We evaluate, among other factors, the degree of probability of an unfavorable outcome and our ability to make a reasonable estimate of the amount of the ultimate loss. Loss contingencies that we determine to be reasonably possible, but not probable, are disclosed but not recognized. Changes in these factors and related estimates could materially affect our financial position and results of operations. Legal costs to defend against contingent liabilities are recognized as incurred.

Stock-Based Compensation

We grant various stock-based compensation awards to our officers, employees, and Board of Directors with service, performance, and market vesting conditions, including stock options, restricted stock units, phantom stock units, and unrestricted stock units (awards). We measure and recognize compensation expense for all awards based on estimated fair values. For awards with only a service condition, we expense stock-based compensation using the straight-line method over the requisite service period for the entire award. For awards with service and performance conditions, if vesting is probable, we expense the stock-based compensation on a straight-line basis over the requisite service period for each separately vesting portion of the award. For awards with a market condition, we expense the fair value over the requisite service period.

We measure and recognize compensation expense for all stock-based compensation based on estimated fair values. The fair value of stock options is estimated at the date of grant using the Black-Scholes option-pricing model, which includes assumptions for the expected volatility, risk-free interest rate, expected term and dividend yield. For unrestricted stock awards with no market conditions, the fair value is the market close price of our common stock on the date of grant. For restricted stock units with market conditions, the fair value is estimated at the date of award using a Monte Carlo simulation model, which includes assumptions for dividend yield and expected volatility for our common stock and the common stock for companies within the Russell 3000 index, as well as the risk-free interest rate and expected term of the awards. For phantom stock units, fair value is the market close price of our common stock at the end of each reporting period.

In valuing our stock options and restricted stock units with a market condition, significant judgment is required in determining the expected volatility of our common stock and the expected life that individuals will hold their stock options prior to exercising. Expected volatility for stock options is based on the historical and implied volatility of our own common stock, while the volatility for our restricted stock units with a market condition is based on the historical volatility of our own stock and the stock for companies comprising the market index within the market condition. The expected life of stock option grants is derived from the historical actual term of option grants and an estimate of future exercises during the remaining contractual period of the option. While volatility and estimated life are assumptions that do not bear the risk of change subsequent to the grant date, these assumptions may be difficult to measure as they represent future expectations based on historical experience. Further, our expected volatility and expected life may change in the future, which could substantially change the grant-date fair value of future awards and ultimately the expense we recognize. Actual results and future estimates may differ substantially from our current estimates. We have not paid dividends in the past and do not plan to pay dividends in the foreseeable future.

Non-GAAP Measures

The accompanying schedule contains non-GAAP financial measures. To supplement our consolidated financial statements, which are prepared in accordance with GAAP, we use certain non-GAAP financial measures, including non-GAAP operating expense, non-GAAP operating income, non-GAAP net income, non-GAAP diluted EPS, adjusted EBITDA, free cash flow, and constant currency. The presentation of this financial information is not intended to be considered in isolation or as a substitute for, or superior to, the financial information prepared and presented in accordance with GAAP, and other companies may define such measures differently. For more information on these non-GAAP financial measures, please see the table captioned "Reconciliations of Non-GAAP Financial Measures to the most Directly Comparable GAAP Financial Measures".

We use these non-GAAP financial measures for financial and operational decision making and/or as a means for determining executive compensation. Management believes that these non-GAAP financial measures provide meaningful supplemental information regarding our performance and ability to service debt by excluding certain expenses that may not be indicative of our recurring core operational results. These non-GAAP financial measures facilitate management's internal comparisons to our historical performance, as well as comparisons to our competitors' operating results. Our executive compensation plans exclude non-cash charges related to amortization of intangibles and certain discrete cash and non-cash charges, such as acquisition and integration related expenses, restructuring charges or goodwill impairment charges. We believe that both management and investors benefit from referring to these non-GAAP financial measures in assessing our performance and when planning, forecasting and analyzing future periods. We believe these non-GAAP financial measures are useful to investors because they provide greater transparency with respect to key metrics used by management in its financial and operational decision making and because they are used by our institutional investors and the analyst community to analyze the health of our business.

Non-GAAP operating expenses and *non-GAAP operating income* – We define non-GAAP operating expenses as operating expenses excluding certain expenses related to the amortization of intangible assets, restructuring, corporate transition costs, acquisition and integration, and goodwill impairment. We define non-GAAP operating income as operating income excluding the expenses related to the amortization of intangible assets, restructuring, corporate transition costs, acquisition and integration, and goodwill impairment. Acquisition and integration related expenses include costs, which are incurred to affect and integrate business combinations, such as professional fees, certain employee retention and salaries related to integration, severances, contract terminations, travel costs related to knowledge transfer, system conversion costs, and asset impairment charges. We consider these non-GAAP financial measures to be useful metrics for management and investors because they exclude the effect of expenses that are related to acquisitions and restructuring projects. By excluding these expenses, we believe that it is easier for management and investors to compare our financial results over multiple periods and analyze trends in our operations. For example, in certain periods, expenses related to amortization of intangible assets may decrease, which would improve GAAP operating margins, yet the improvement in GAAP operating margins due to this lower expense is not necessarily reflective of an improvement in our core business. There are some limitations related to the use of non-GAAP operating expenses and non-GAAP operating income versus operating expenses and operating income calculated in accordance with GAAP. We compensate for these limitations by providing specific information about the GAAP amounts excluded from non-GAAP operating expense and non-GAAP operating income and evaluating non-GAAP operating expense and non-GAAP operating income together with GAAP operating expense and operating income.

Non-GAAP net income and *non-GAAP diluted EPS* – We define non-GAAP net income as net income attributable to Itron, Inc. excluding the expenses associated with amortization of intangible assets, amortization of debt placement fees, restructuring, corporate transition costs, acquisition and integration, goodwill impairment, and the tax effect of excluding these expenses. We define non-GAAP diluted EPS as non-GAAP net income divided by the weighted average shares, on a diluted basis, outstanding during each period. We consider these financial measures to be useful metrics for management and investors for the same reasons that we use non-GAAP operating income. The same limitations described above regarding our use of non-GAAP operating income apply to our use of non-GAAP net income and non-GAAP diluted EPS. We compensate for these limitations by providing specific information regarding the GAAP amounts excluded from these non-GAAP measures and evaluating non-GAAP net income and non-GAAP diluted EPS together with GAAP net income attributable to Itron, Inc. and GAAP diluted EPS.

For interim periods, beginning the first quarter of 2019, the budgeted annual effective tax rate (AETR) is used, adjusted for any discrete items, as defined in ASC 740 - Income Taxes. The budgeted AETR is determined at the beginning of the fiscal year. The AETR is revised throughout the year based on changes to our full-year forecast. If the revised AETR increases or decreases by 200 basis points or more from the budgeted AETR due to changes in the full-year forecast during the year, the revised AETR is used in place of the budgeted AETR beginning with the quarter the 200 basis point threshold is exceeded and going forward for all subsequent interim quarters in the year. We continue to assess the AETR based on latest forecast throughout the year and use the most recent AETR anytime it increases or decreases by 200 basis points or more from the prior interim period.

Adjusted EBITDA – We define adjusted EBITDA as net income (a) minus interest income, (b) plus interest expense, depreciation and amortization of intangible assets, restructuring, corporate transition cost, acquisition and integration related expense, goodwill impairment and (c) excluding income tax provision or benefit. Management uses adjusted EBITDA as a performance measure for executive compensation. A limitation to using adjusted EBITDA is that it does not represent the total increase or decrease in the cash balance for the period and the measure includes some non-cash items and excludes other non-cash items. Additionally, the items that we exclude in our calculation of adjusted EBITDA may differ from the items that our peer companies exclude when they report their results. We compensate for these limitations by providing a reconciliation of this measure to GAAP net income (loss).

Free cash flow – We define free cash flow as net cash provided by operating activities less cash used for acquisitions of property, plant and equipment. We believe free cash flow provides investors with a relevant measure of liquidity and a useful basis for assessing our ability to fund our operations and repay our debt. The same limitations described above regarding our use of adjusted EBITDA apply to our use of free cash flow. We compensate for these limitations by providing specific information regarding the GAAP amounts and reconciling to free cash flow.

Constant currency – We refer to the impact of foreign currency exchange rate fluctuations in our discussions of financial results, which references the differences between the foreign currency exchange rates used to translate operating results from local currencies into U.S. dollars for financial reporting purposes. We also use the term "constant currency," which represents financial results adjusted to exclude changes in foreign currency exchange rates as compared with the rates in the comparable prior year period. We calculate the constant currency change as the difference between the current period results and the comparable prior period's results restated using current period foreign currency exchange rates.

Reconciliations of Non-GAAP Financial Measures to the most Directly Comparable GAAP Financial Measures

The tables below reconcile the non-GAAP financial measures of operating expenses, operating income, net income, diluted EPS, adjusted EBITDA, and free cash flow with the most directly comparable GAAP financial measures.

TOTAL COMPANY RECONCILIATIONS	Year Ended December 31,	
In thousands, except per share data	2019	2018
NON-GAAP OPERATING EXPENSES		
GAAP operating expenses	$ 619,636	$ 780,011
Amortization of intangible assets	(64,286)	(71,713)
Restructuring	(6,278)	(77,183)
Corporate transition cost	(2,520)	—
Acquisition and integration related expense	(26,598)	(91,916)
Non-GAAP operating expenses	$ 519,954	$ 539,199
NON-GAAP OPERATING INCOME		
GAAP operating income (loss)	$ 132,683	$ (49,692)
Amortization of intangible assets	64,286	71,713
Restructuring	6,278	77,183
Corporate transition cost	2,520	—
Acquisition and integration related expense	26,598	91,916
Non-GAAP operating income	$ 232,365	$ 191,120
NON-GAAP NET INCOME & DILUTED EPS		
GAAP net income (loss) attributable to Itron, Inc.	$ 49,006	$ (99,250)
Amortization of intangible assets	64,286	71,713
Amortization of debt placement fees	5,455	6,869
Restructuring	6,278	77,183
Corporate transition cost	2,520	—
Acquisition and integration related expense	26,598	91,916
Income tax effect of non-GAAP adjustments[(1)]	(21,348)	(42,700)
Non-GAAP net income attributable to Itron, Inc.	$ 132,795	$ 105,731
Non-GAAP diluted EPS	$ 3.32	$ 2.65
Weighted average common shares outstanding - Diluted	39,980	39,840
ADJUSTED EBITDA		
GAAP net income (loss) attributable to Itron, Inc.	$ 49,006	$ (99,250)
Interest income	(1,849)	(2,153)
Interest expense	52,453	58,203
Income tax (benefit) provision	20,617	(12,570)
Depreciation and amortization	114,400	122,497
Restructuring	6,278	77,183
Corporate transition cost	2,520	—
Acquisition and integration related expense	26,598	91,916
Adjusted EBITDA	$ 270,023	$ 235,826
FREE CASH FLOW		
Net cash provided by operating activities	$ 172,840	$ 109,755
Acquisitions of property, plant, and equipment	(60,749)	(59,952)
Free Cash Flow	$ 112,091	$ 49,803

(1) The income tax effect of non-GAAP adjustments is calculated using the statutory tax rates for the relevant jurisdictions if no valuation allowance exists. If a valuation allowance exists, there is no tax impact to the non-GAAP adjustment.

ITEM 7A: QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

In the normal course of business, we are exposed to interest rate and foreign currency exchange rate risks that could impact our financial position and results of operations. As part of our risk management strategy, we may use derivative financial instruments to hedge certain foreign currency and interest rate exposures. Our objective is to offset gains and losses resulting from these exposures with losses and gains on the derivative contracts used to hedge them, therefore reducing the impact of volatility on earnings or protecting the fair values of assets and liabilities. We use derivative contracts only to manage existing underlying exposures. Accordingly, we do not use derivative contracts for trading or speculative purposes.

Interest Rate Risk

We are exposed to interest rate risk through our variable rate debt instruments. In October 2015, we entered into an interest rate swap, which is effective from August 31, 2016 to June 23, 2020, and converts $214 million of our LIBOR-based debt from a floating LIBOR interest rate to a fixed interest rate of 1.42% (excluding the applicable margin on the debt). The notional balance will amortize to maturity at the same rate as required minimum payments on our term loan. At December 31, 2019, our LIBOR-based debt balance was $550.2 million.

In November 2015, we entered into three interest rate cap contracts with a total notional amount of $100 million. The interest rate cap contracts expire on June 23, 2020 and were entered into in order to limit our interest rate exposure on $100 million of our variable LIBOR-based debt up to 2.00%. In the event LIBOR is higher than 2.00%, we would pay interest at the capped rate of 2.00% with respect to the $100 million notional amount of such agreements. The interest rate cap contracts do not include the effect of the applicable margin.

In April 2018, we entered into a cross-currency swap, which converts $56.0 million of floating rate LIBOR-based U.S. Dollar denominated debt into 1.38% fixed rate euro denominated debt. This cross-currency swap matures on April 30, 2021 and mitigates the risk associated with fluctuations in interest and currency rates impacting cash flows related to a U.S. Dollar denominated debt in a euro functional currency entity.

The table below provides information about our financial instruments that are sensitive to changes in interest rates and the scheduled minimum repayment of principal and the weighted average interest rates at December 31, 2019. Weighted average variable rates in the table are based on implied forward rates in the Reuters U.S. dollar yield curve as of December 31, 2019 and our estimated leverage ratio, which determines our additional interest rate margin at December 31, 2019.

In thousands	2020	2021	2022	2023	2024	Total	Fair Value
Variable Rate Debt							
Principal: U.S. dollar term loan	$ —	$ 32,422	$ 44,063	$ 44,063	$ 429,608	$ 550,156	$ 550,135
Weighted average interest rate	3.11 %	3.00 %	3.05 %	3.12 %	3.20 %		
Principal: Multicurrency revolving line of credit	$ —	$ —	$ —	$ —	$ —	$ —	$ —
Weighted average interest rate	3.11 %	3.00 %	3.05 %	3.12 %	3.20 %		
Interest rate swap							$ 174
Weighted average interest rate (pay) Fixed	1.42 %						
Weighted average interest rate (receive) Floating LIBOR	1.66 %						
Interest rate cap							$ 1
Cap rate	2.00 %						
Weighted average interest rate Floating LIBOR	1.66 %						
Cross currency swap							$ 4,026
Weighted average interest rate (pay) Fixed - EURIBOR	1.38 %	1.38 %					
Weighted average interest rate (receive) Floating - LIBOR	1.61 %	1.49 %					

Based on a sensitivity analysis as of December 31, 2019, we estimate that, if market interest rates average one percentage point higher in 2020 than in the table above, our financial results in 2020 would not be materially impacted.

We continually monitor and assess our interest rate risk and may institute additional interest rate swaps or other derivative instruments to manage such risk in the future.

Foreign Currency Exchange Rate Risk

We conduct business in a number of countries. As a result, many of our revenues and operating expenses are denominated in foreign currencies, which expose our account balances to movements in foreign currency exchange rates that could have a material effect on our financial results. Our primary foreign currency exposure relates to non-U.S. dollar denominated transactions in our international subsidiary operations, the most significant of which is the euro. Revenues denominated in functional currencies other than the U.S. dollar were 37% of total revenues for the year ended December 31, 2019, compared with 41% and 47% for the years ended December 31, 2018 and 2017.

We are also exposed to foreign exchange risk when we enter into non-functional currency transactions, both intercompany and third-party. At each period-end, non-functional currency monetary assets and liabilities are revalued with the change recognized in other income and expense. We enter into monthly foreign exchange forward contracts, which are not designated for hedge accounting, with the intent to reduce earnings volatility associated with currency exposures. As of December 31, 2019, a total of 48 contracts were offsetting our exposures from the euro, Canadian dollar, Chinese yuan, Indonesian rupiah, Pound sterling, Brazilian real, and various other currencies, with notional amounts ranging from $109,000 to $26.4 million. Based on a sensitivity analysis as of December 31, 2019, we estimate that, if foreign currency exchange rates average ten percentage points higher in 2020 for these financial instruments, our financial results in 2020 would not be materially impacted.

In future periods, we may use additional derivative contracts to protect against foreign currency exchange rate risks.

ITEM 8: FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the shareholders and the Board of Directors of Itron, Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Itron, Inc. and subsidiaries (the "Company") as of December 31, 2019 and 2018, the related consolidated statements of operations, comprehensive income (loss), equity, and cash flows, for each of the three years in the period ended December 31, 2019, and the related notes (collectively referred to as the "financial statements"). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2019 and 2018, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2019, in conformity with accounting principles generally accepted in the United States of America.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 31, 2019, based on criteria established in *Internal Control — Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission and our report dated February 26, 2020, expressed an unqualified opinion on the Company's internal control over financial reporting.

Change in Accounting Principle

As discussed in Note 1 to the financial statements, the Company changed its method of accounting for revenue from contracts with customers in 2018 due to the adoption of Accounting Standards Codification 606, *Revenue from Contracts with Customers*. The Company adopted the new revenue standard on January 1, 2018, using the modified retrospective approach.

Basis for Opinion

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

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the 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 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 financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matter

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

Revenue Recognition ASC 606 — Revenue arrangements involving multiple performance obligations consisting of hardware, software, and professional services such as implementation, project management, installation, and consulting services. — Refer to Note 1 to the financial statements

Critical Audit Matter Description

Certain of the Company’s revenue arrangements involve multiple performance obligations consisting of hardware, software, and professional services such as implementation, project management, installation, and consulting services. These contracts may contain customer-specific business terms and conditions, including service level commitments, variable consideration, and terms that govern when the customer has taken control. Additionally, these contracts may be modified from time to time as the Company delivers under the contract. These customer-specific business terms and conditions and modifications may involve complex accounting considerations, including determining whether the Company has enforceable rights and obligations, whether contract modifications represent new or modification of existing contracts, whether certain performance obligations are distinct, and other considerations that may impact the timing of revenue recognition.

The evaluation of these factors is executed in accordance with the ASC 606 revenue recognition framework and requires significant management judgment that could affect the amount and timing of revenue recognition over the contractual period. The computations to recognize revenue under the ASC 606 revenue recognition framework can be complex and require a significant volume of data input. Additionally, there can be complexity in the computations and entries made to record the related contract assets and liabilities at the balance sheet date. Given the challenge in auditing the judgments and computations made in determining revenue recognition for these multiple performance obligation arrangements with customer-specific business terms and conditions and modifications, we identified revenue recognition as a critical audit matter.

How the Critical Audit Matter Was Addressed in the Audit

Our audit procedures related to (1) determining whether the Company has enforceable rights and obligations, whether contract modifications represent new contracts or modifications, whether certain performance obligations are distinct and other considerations that may impact the timing of revenue recognition and (2) the completeness and accuracy of the revenue recognition computations and entries used to recognize revenue included the following, among others:

- We tested the effectiveness of controls over contract reviews, including management’s use of checklists and other review procedures to determine whether customer-specific business terms are evident in the contract and whether accounting conclusions regarding enforceable rights and obligations, contract modifications, distinct products and services, and other considerations that may impact the timing of revenue recognition are appropriately applied.
- We tested the effectiveness of controls over revenue recognition computations and entries to audit whether the computations and entries appropriately reflect the accounting conclusions for these contracts. Such controls included (1) the review of the completeness and accuracy of data input into the computations and entries and (2) the review of the mathematical accuracy of the computations and entries.
- For a sample of contracts with customers that included existing contracts, new contracts and contract modifications, we:
    - Tested management’s identification of customer-specific terms, whether the Company had enforceable rights and obligations, whether contract modifications represented new contracts or modifications to existing contracts, whether customer-specific terms introduced new or implied performance obligations, or other factors influencing the timing, nature and amount of revenue recognized, and assessed management’s conclusions regarding accounting treatment. Our procedures included reading the selected contracts and inquiring of the Company’s operational personnel to understand the nature of the contract and its business purpose, as well as evaluating management’s conclusions.
    - Evaluated whether the identified accounting conclusions were appropriately reflected in the revenue recognition computations and entries.
    - Tested the accuracy and completeness of the data used in the computations and entries to record revenue.
    - Tested mathematical accuracy of revenue recognition computations and entries.

/s/ DELOITTE & TOUCHE LLP

Seattle, Washington
February 26, 2020

We have served as the Company's auditor since 2016.

ITRON, INC.
CONSOLIDATED STATEMENTS OF OPERATIONS

	Year Ended December 31,		
In thousands, except per share data	**2019**	**2018**	**2017**
Revenues			
Product revenues	$ 2,220,395	$ 2,095,458	$ 1,813,925
Service revenues	282,075	280,659	204,272
Total revenues	2,502,470	2,376,117	2,018,197
Cost of revenues			
Product cost of revenues	1,587,710	1,476,498	1,204,127
Service cost of revenues	162,441	169,300	137,319
Total cost of revenues	1,750,151	1,645,798	1,341,446
Gross profit	752,319	730,319	676,751
Operating expenses			
Sales, general and administrative	346,872	423,210	325,264
Research and development	202,200	207,905	169,407
Amortization of intangible assets	64,286	71,713	20,785
Restructuring	6,278	77,183	6,418
Total operating expenses	619,636	780,011	521,874
Operating income (loss)	132,683	(49,692)	154,877
Other income (expense)			
Interest income	1,849	2,153	2,126
Interest expense	(52,453)	(58,203)	(13,845)
Other income (expense), net	(9,047)	(3,409)	(8,583)
Total other income (expense)	(59,651)	(59,459)	(20,302)
Income (loss) before income taxes	73,032	(109,151)	134,575
Income tax benefit (provision)	(20,617)	12,570	(74,326)
Net income (loss)	52,415	(96,581)	60,249
Net income attributable to noncontrolling interests	3,409	2,669	2,951
Net income (loss) attributable to Itron, Inc.	$ 49,006	$ (99,250)	$ 57,298
Earnings (loss) per common share - Basic	$ 1.24	$ (2.53)	$ 1.48
Earnings (loss) per common share - Diluted	$ 1.23	$ (2.53)	$ 1.45
Weighted average common shares outstanding - Basic	39,556	39,244	38,655
Weighted average common shares outstanding - Diluted	39,980	39,244	39,387

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

ITRON, INC.
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME (LOSS)

	Year Ended December 31,		
In thousands	2019	2018	2017
Net income (loss)	$ 52,415	$ (96,581)	$ 60,249
Other comprehensive income (loss), net of tax:			
Foreign currency translation adjustments	(510)	(28,841)	54,338
Net unrealized gain (loss) on derivative instruments, designated as cash flow hedges	(1,924)	235	923
Pension benefit obligation adjustment	(5,933)	2,779	3,588
Total other comprehensive income (loss), net of tax	(8,367)	(25,827)	58,849
Total comprehensive income (loss), net of tax	44,048	(122,408)	119,098
Comprehensive income attributable to noncontrolling interest, net of tax	3,409	2,669	2,951
Comprehensive income (loss) attributable to Itron, Inc.	$ 40,639	$ (125,077)	$ 116,147

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

ITRON, INC.
CONSOLIDATED BALANCE SHEETS

In thousands	December 31, 2019	December 31, 2018
ASSETS		
Current assets		
Cash and cash equivalents	$ 149,904	$ 120,221
Accounts receivable, net	472,925	437,161
Inventories	227,896	220,674
Other current assets	146,526	118,085
Total current assets	997,251	896,141
Property, plant, and equipment, net	233,228	226,551
Deferred tax assets, net	63,899	64,830
Restricted cash	—	2,056
Other long-term assets	44,686	45,288
Operating lease right-of-use assets, net	79,773	—
Intangible assets, net	185,097	257,583
Goodwill	1,103,907	1,116,533
Total assets	$ 2,707,841	$ 2,608,982
LIABILITIES AND EQUITY		
Current liabilities		
Accounts payable	$ 328,128	$ 309,951
Other current liabilities	63,785	70,136
Wages and benefits payable	119,220	88,603
Taxes payable	22,193	14,753
Current portion of debt	—	28,438
Current portion of warranty	38,509	47,205
Unearned revenue	99,556	93,621
Total current liabilities	671,391	652,707
Long-term debt, net	932,482	988,185
Long-term warranty	14,732	13,238
Pension benefit obligation	98,712	91,522
Deferred tax liabilities, net	1,809	1,543
Operating lease liabilities	68,919	—
Other long-term obligations	118,981	127,739
Total liabilities	1,907,026	1,874,934
Commitments and Contingencies (Note 12)		
Equity		
Preferred stock, no par value, 10,000 shares authorized, no shares issued or outstanding	—	—
Common stock, no par value, 75,000 shares authorized, 39,941 and 39,498 shares issued and outstanding	1,357,600	1,334,364
Accumulated other comprehensive loss, net	(204,672)	(196,305)
Accumulated deficit	(376,390)	(425,396)
Total Itron, Inc. shareholders' equity	776,538	712,663
Noncontrolling interests	24,277	21,385
Total equity	800,815	734,048
Total liabilities and equity	$ 2,707,841	$ 2,608,982

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

ITRON, INC.
CONSOLIDATED STATEMENTS OF EQUITY

In thousands	Common Stock Shares	Common Stock Amount	Accumulated Other Comprehensive Loss	Accumulated Deficit	Total Itron, Inc. Shareholders' Equity	Noncontrolling Interests	Total Equity
Balances at January 1, 2017	38,317	$ 1,270,467	$ (229,327)	$ (409,536)	$ 631,604	$ 18,749	$ 650,353
Net income				57,298	57,298	2,951	60,249
Cumulative effect of accounting change (ASU 2016-09)		215		14,365	14,580		14,580
Other comprehensive income (loss), net of tax			58,849		58,849	—	58,849
Distributions to noncontrolling interests						(2,171)	(2,171)
Stock issues and repurchases:							
Options exercised	41	1,631			1,631		1,631
Restricted stock awards released	372	—			—		—
Issuance of stock-based compensation awards	10	974			974		974
Employee stock purchase plan	31	1,978			1,978		1,978
Stock-based compensation expense		20,433			20,433		20,433
Repurchase of noncontrolling interest		(906)			(906)	(313)	(1,219)
Registration fee		(25)			(25)		(25)
Balances at December 31, 2017	38,771	1,294,767	(170,478)	(337,873)	786,416	19,216	805,632
Net income (loss)				(99,250)	(99,250)	2,669	(96,581)
Cumulative effect of accounting change (ASU 2014-09 and ASU 2016-16)		—		11,727	11,727		11,727
Other comprehensive income (loss), net of tax			(25,827)		(25,827)	—	(25,827)
Distributions to noncontrolling interests						(500)	(500)
Stock issues and repurchases:							
Options exercised	152	5,935			5,935		5,935
Restricted stock awards released	517	—			—		—
Issuance of stock-based compensation awards	10	729			729		729
Employee stock purchase plan	48	2,974			2,974		2,974
Stock-based compensation expense		30,534			30,534		30,534
Registration fee		(22)			(22)	—	(22)
SSNI acquisition adjustments, net		(553)			(553)		(553)
Balances at December 31, 2018	39,498	1,334,364	(196,305)	(425,396)	712,663	21,385	734,048
Net income				49,006	49,006	3,409	52,415
Other comprehensive income (loss), net of tax			(8,367)		(8,367)	—	(8,367)
Distributions to noncontrolling interests						(517)	(517)
Stock issues and repurchases:							
Options exercised	489	21,289			21,289		21,289
Restricted stock awards released net of repurchased shares for taxes	415	(3,113)			(3,113)		(3,113)
Issuance of stock-based compensation awards	9	630			630		630
Employee stock purchase plan	59	3,100			3,100		3,100
Stock-based compensation expense		26,330			26,330		26,330
Stock repurchased	(529)	(25,000)			(25,000)		(25,000)
Balances at December 31, 2019	39,941	$ 1,357,600	$ (204,672)	$ (376,390)	$ 776,538	$ 24,277	$ 800,815

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

ITRON, INC.
CONSOLIDATED STATEMENTS OF CASH FLOWS

	Year Ended December 31,		
In thousands	**2019**	**2018**	**2017**
Operating activities			
Net income (loss)	$ 52,415	$ (96,581)	$ 60,249
Adjustments to reconcile net income (loss) to net cash provided by operating activities:			
Depreciation and amortization of intangible assets	114,400	122,497	63,215
Non-cash operating lease expense	18,958	—	—
Stock-based compensation	26,960	31,263	21,407
Amortization of prepaid debt fees	5,631	7,046	1,067
Deferred taxes, net	(192)	(19,130)	50,667
Restructuring, non-cash	(1,785)	859	(2,297)
Other adjustments, net	(4,295)	1,452	3,673
Changes in operating assets and liabilities, net of acquisitions:			
Accounts receivable	(39,467)	15,524	(17,573)
Inventories	(9,389)	(25,613)	(16,242)
Other current assets	(31,128)	(23,589)	8,112
Other long-term assets	7,053	3,020	11,230
Accounts payables, other current liabilities, and taxes payable	9,177	20,101	78,463
Wages and benefits payable	30,835	(9,565)	1,926
Unearned revenue	8,905	27,584	(41,309)
Warranty	(6,637)	20,815	(10,554)
Other operating, net	(8,601)	34,072	(20,680)
Net cash provided by operating activities	172,840	109,755	191,354
Investing activities			
Acquisitions of property, plant, and equipment	(60,749)	(59,952)	(49,495)
Business acquisitions, net of cash equivalents acquired	—	(803,075)	(99,386)
Other investing, net	12,569	369	702
Net cash used in investing activities	(48,180)	(862,658)	(148,179)
Financing activities			
Proceeds from borrowings	50,000	778,938	335,000
Payments on debt	(137,657)	(363,359)	(29,063)
Issuance of common stock	24,390	9,171	3,609
Prepaid debt fees	(1,560)	(24,042)	—
Repurchase of common stock	(25,000)	—	—
Other financing, net	(7,692)	(4,887)	(7,587)
Net cash provided by (used in) financing activities	(97,519)	395,821	301,959
Effect of foreign exchange rate changes on cash, cash equivalents, and restricted cash	435	(7,925)	8,636
Increase (decrease) in cash, cash equivalents, and restricted cash	27,576	(365,007)	353,770
Cash, cash equivalents, and restricted cash at beginning of period	122,328	487,335	133,565
Cash, cash equivalents, and restricted cash at end of period	$ 149,904	$ 122,328	$ 487,335
Supplemental disclosure of cash flow information:			
Cash paid during the period for:			
Income taxes, net	$ 12,041	$ 13,771	$ 28,969
Interest	44,788	42,347	10,106

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

ITRON, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
DECEMBER 31, 2019

In this Annual Report, the terms "we," "us," "our," "Itron," and the "Company" refer to Itron, Inc.

Note 1: Summary of Significant Accounting Policies

We were incorporated in the state of Washington in 1977 and are a technology company, offering end-to-end solutions to enhance productivity and efficiency, primarily focused on utilities and municipalities around the globe. We operate under the Itron brand worldwide and manage and report under three operating segments: Device Solutions, Networked Solutions, and Outcomes.

Financial Statement Preparation

The consolidated financial statements presented in this Annual Report include the Consolidated Statements of Operations, Consolidated Statements of Comprehensive Income (Loss), Consolidated Statements of Equity, and Consolidated Statements of Cash Flows for the years ended December 31, 2019, 2018, and 2017 and the Consolidated Balance Sheets as of December 31, 2019 and 2018 of Itron, Inc. and its subsidiaries, prepared in accordance with U.S. generally accepted accounting principles (GAAP).

Use of Estimates

The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions. These estimates and assumptions affect the reported amounts of assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Examples of significant estimates include revenue recognition, warranty, restructuring, income taxes, business combinations, goodwill and intangible assets, defined benefit pension plans, contingencies, and stock-based compensation. Due to various factors affecting future costs and operations, actual results could differ materially from these estimates.

Basis of Consolidation

We consolidate all entities in which we have a greater than 50% ownership interest or in which we exercise control over the operations. We use the equity method of accounting for entities in which we have a 20% to 50% investment and exercise significant influence. Entities in which we have less than a 20% investment and where we do not exercise significant influence are accounted for under the fair value method. Intercompany transactions and balances are eliminated upon consolidation.

Noncontrolling Interests

In several of our consolidated international subsidiaries, we have joint venture partners, who are minority shareholders. Although these entities are not wholly-owned by Itron, we consolidate them because we have a greater than 50% ownership interest or because we exercise control over the operations. The noncontrolling interest balance is adjusted each period to reflect the allocation of net income (loss) and other comprehensive income (loss) attributable to the noncontrolling interests, as shown in our Consolidated Statements of Operations and our Consolidated Statements of Comprehensive Income (Loss), as well as contributions from and distributions to the owners. The noncontrolling interest balance in our Consolidated Balance Sheets represents the proportional share of the equity of the joint venture entities, which is attributable to the minority shareholders.

Cash and Cash Equivalents

We consider all highly liquid instruments with remaining maturities of three months or less at the date of acquisition to be cash equivalents.

Restricted Cash and Cash Equivalents

Cash and cash equivalents that are contractually restricted from operating use are classified as restricted cash and cash equivalents. On December 22, 2017, we issued $300 million aggregate principal amount of 5.00% senior unsecured notes due in 2026 (the December Notes). The proceeds of the December Notes plus prepaid interest and a premium for a special mandatory redemption option were deposited into escrow, where the funds remained until all the escrow release conditions were satisfied, specifically the closing of the acquisition of Silver Spring Networks, Inc. (SSNI) on January 5, 2018. We have recognized the balance in escrow as restricted cash in our consolidated financial statements as of December 31, 2017. See "Note 6: Debt" for further details.

The following table provides a reconciliation of cash, cash equivalents, and restricted cash reported within the Consolidated Balance Sheets that sum to the total of the same such amounts shown in the Consolidated Statements of Cash Flows:

	Year Ended December 31,		
In thousands	2019	2018	2017
Cash and cash equivalents	$ 149,904	$ 120,221	$ 176,274
Restricted cash included in other current assets	—	51	51
Long-term restricted cash	—	2,056	311,010
Total cash, cash equivalents, and restricted cash	$ 149,904	$ 122,328	$ 487,335

Accounts Receivable, net

Accounts receivable are recognized for invoices issued to customers in accordance with our contractual arrangements. Interest and late payment fees are minimal. Unbilled receivables are recognized when revenues are recognized upon product shipment or service delivery and invoicing occurs at a later date. We recognize an allowance for doubtful accounts representing our estimate of the probable losses in accounts receivable at the date of the balance sheet based on our historical experience of bad debts and our specific review of outstanding receivables. Accounts receivable are written-off against the allowance when we believe an account, or a portion thereof, is no longer collectible.

Inventories

Inventories are stated at the lower of cost or net realizable value using the first-in, first-out method. Cost includes raw materials and labor, plus applied direct and indirect overhead costs. Net realizable value is the estimated selling price in the normal course of business, minus the cost of completion, disposal and transportation.

Derivative Instruments

All derivative instruments, whether designated in hedging relationships or not, are recognized on the Consolidated Balance Sheets at fair value as either assets or liabilities. The fair values of our derivative instruments are determined using the fair value measurements of significant other observable inputs (Level 2), as defined by GAAP. The fair value of our derivative instruments may switch between an asset and a liability depending on market circumstances at the end of the period. We include the effect of our counterparty credit risk based on current published credit default swap rates when the net fair value of our derivative instruments is in a net asset position and the effect of our own nonperformance risk when the net fair value of our derivative instruments is in a net liability position.

For any derivative designated as a fair value hedge, the changes in the fair value of the derivative and of the hedged item attributable to the hedged risk are recognized in earnings. For any derivative designated as a cash flow hedge, changes in the fair value of the derivative are recognized as a component of other comprehensive income (loss) (OCI) and are recognized in earnings when the hedged item affects earnings. For a hedge of a net investment, any unrealized gain or loss from the foreign currency revaluation of the hedging instrument is reported in OCI as a net unrealized gain or loss on derivative instruments. Upon termination of a net investment hedge, the net derivative gain/loss will remain in accumulated other comprehensive income (loss) (AOCI) until such time when earnings are impacted by a sale or liquidation of the associated operations. We classify cash flows from our derivative programs as cash flows from operating activities in the Consolidated Statements of Cash Flows.

Derivatives are not used for trading or speculative purposes. Our derivatives are with credit-worthy multinational commercial banks, with which we have master netting agreements; however, our derivative positions are not recognized on a net basis in the Consolidated Balance Sheets. There are no credit-risk related contingent features within our derivative instruments. Refer to "Note 7: Derivative Financial Instruments" and "Note 14: Shareholders' Equity" for further disclosures of our derivative instruments and their impact on OCI.

Property, Plant, and Equipment

Property, plant, and equipment are stated at cost less accumulated depreciation. Depreciation is computed using the straight-line method over the estimated useful lives of the assets, generally 30 years for buildings and improvements and three years to 10 years for machinery and equipment, computers and software, and furniture. Leasehold improvements are capitalized and depreciated over the term of the applicable lease, including renewable periods if reasonably certain, or over the useful lives, whichever is shorter. Construction in process represents capital expenditures incurred for assets not yet placed in service. Costs related to internally developed software and software purchased for internal uses are capitalized and are amortized over the estimated useful lives of the assets. Repair and maintenance costs are recognized as incurred. We have no major planned maintenance activities.

We review long-lived assets for impairment whenever events or circumstances indicate the carrying amount of an asset group may not be recoverable. Assets held for sale are classified within other current assets in the Consolidated Balance Sheets, are reported at the lower of the carrying amount or fair value less costs to sell, and are no longer depreciated. Gains and losses from asset disposals and impairment losses are classified within the Consolidated Statements of Operations according to the use of the asset, except those gains and losses recognized in conjunction with our restructuring activities, which are classified within restructuring expense.

Prepaid Debt Fees

Prepaid debt fees for term debt represent the capitalized direct costs incurred related to the issuance of debt and are recognized as a direct deduction from the carrying amount of the corresponding debt liability. We have elected to present prepaid debt fees for revolving debt within other long-term assets in the Consolidated Balance Sheets. These costs are amortized to interest expense over the terms of the respective borrowings, including contingent maturity or call features, using the effective interest method or the straight-line method when associated with a revolving credit facility. When debt is repaid early, the related portion of unamortized prepaid debt fees is written off and included in interest expense.

Business Combinations

On the date of acquisition, the assets acquired, liabilities assumed, and any noncontrolling interests in the acquiree are recognized at their fair values. The acquiree's results of operations are also included as of the date of acquisition in our consolidated results. Intangible assets that arise from contractual/legal rights, or are capable of being separated, as well as in-process research and development (IPR&D), are measured and recognized at fair value, and amortized over the estimated useful life. IPR&D is not amortized until such time as the associated development projects are completed or terminated. If a development project is completed, the IPR&D is reclassified as a core technology intangible asset and amortized over its estimated useful life. If the development project is terminated, the recognized value of the associated IPR&D is immediately expensed. If practicable, assets acquired and liabilities assumed arising from contingencies are measured and recognized at fair value. If not practicable, such assets and liabilities are measured and recognized when it is probable that a gain or loss has occurred and the amount can be reasonably estimated. The residual balance of the purchase price, after fair value allocations to all identified assets and liabilities, represents goodwill. Acquisition-related costs are recognized as incurred. Integration costs associated with an acquisition are generally recognized in periods subsequent to the acquisition date, and changes in deferred tax asset valuation allowances and acquired income tax uncertainties, including penalties and interest, after the measurement period are recognized as a component of the provision for income taxes. Our acquisitions may include contingent consideration, which require us to recognize the fair value of the estimated liability at the time of the acquisition. Subsequent changes in the estimate of the amount to be paid under the contingent consideration arrangement are recognized in the Consolidated Statements of Operations.

We estimate the preliminary fair value of acquired assets and liabilities as of the date of acquisition based on information available at that time utilizing either a cost or income approach. The determination of the fair value is judgmental in nature and involves the use of significant estimates and assumptions. Contingent consideration is recognized at fair value as of the date of the acquisition with adjustments occurring after the purchase price allocation period, which could be up to one year, recognized in earnings. Changes to valuation allowances on acquired deferred tax assets that occur after the acquisition date are recognized in the provision for, or benefit from, income taxes. The valuation of these tangible and identifiable intangible assets and liabilities is subject to further management review and may change materially between the preliminary allocation and end of the purchase price allocation period. Any changes in these estimates may have a material effect on our consolidated operating results or financial position.

Leases - 2019

We adopted Accounting Standards Codification (ASC) 842, on January 1, 2019, which required that substantially all our leases be recognized on our Consolidated Balance Sheets as a right-of-use asset and corresponding lease liability. Since ASC 842 required modified retrospective adoption, operating leases were not recognized on our balance sheet prior to January 1, 2019.

We determine if an arrangement is a lease at inception. A lease exists when a contract conveys to the customer the right to control the use of identified property, plant, or equipment for a period of time in exchange for consideration. The definition of a lease embodies two conditions: (1) there is an identified asset in the contract that is land or a depreciable asset (i.e., property, plant, and equipment), and (2) the customer has the right to control the use of the identified asset.

Operating leases are included in operating lease right-of-use ("ROU") assets, other current liabilities, and operating lease liabilities on our Consolidated Balance Sheets. Finance leases are included in property, plant, and equipment, other long-term assets, other current liabilities, and other long-term obligations on our Consolidated Balance Sheets.

ROU assets represent our right to use an underlying asset for the lease term and lease liabilities represent our obligation to make lease payments arising from the lease. Operating lease ROU assets and liabilities are recognized at commencement date based on the present value of lease payments over the lease term. We use the rate implicit in the lease agreement when readily determinable. As most of our leases do not provide an implicit rate, we use our incremental borrowing rate, which is the estimated rate of interest we expect to pay on a collateralized basis over a similar term, based on the information available at the lease commencement date. The Operating lease ROU asset also includes any lease payments made and is reduced by lease incentives received and initial direct costs incurred. Our lease terms may include options to extend or terminate the lease when it is reasonably certain that we will exercise that option. Lease expense for operating lease payments is recognized on a straight-line basis over the lease term.

We have lease agreements that include lease and nonlease components. When nonlease components are fixed, we have elected the practical expedient to account for lease and nonlease components as a single lease component, except for leases embedded in service contracts.

All leases with a lease term that is greater than one month are subject to recognition and measurement on the balance sheet, except where we have leases in service contracts with contract manufacturers. For leases with contract manufacturers, we have elected to utilize the short-term lease exemption.

Lease expense for variable lease payments, where the timing or amount of the payment is not fixed, are recognized when the obligation is incurred. Variable lease payments generally arise in our net lease arrangements where executory and other lease-related costs are billed to Itron when incurred by the lessor.

Goodwill and Intangible Assets

Goodwill and intangible assets may result from our business acquisitions. Intangible assets may also result from the purchase of assets and intellectual property in a transaction that does not qualify as a business combination. We use estimates, including estimates of useful lives of intangible assets, the amount and timing of related future cash flows, and fair values of the related operations, in determining the value assigned to goodwill and intangible assets. Our finite-lived intangible assets are amortized over their estimated useful lives based on estimated discounted cash flows, generally three years to ten years for core-developed technology and customer contracts and relationships. Finite-lived intangible assets are tested for impairment at the asset group level when events or changes in circumstances indicate the carrying value may not be recoverable. Indefinite-lived intangible assets are tested for impairment annually, when events or changes in circumstances indicate the asset may be impaired, or when their useful lives are determined to be no longer indefinite.

Goodwill is assigned to our reporting units based on the expected benefit from the synergies arising from each business combination, determined by using certain financial metrics, including the forecasted discounted cash flows associated with each reporting unit. Each reporting unit corresponds with its respective operating segment. We test goodwill for impairment each year as of October 1, or more frequently should a significant impairment indicator occur. As part of the impairment test, we may elect to perform an assessment of qualitative factors. If this qualitative assessment indicates that it is more likely than not that the fair value of a reporting unit, including goodwill, is less than its carrying amount, or if we elect to bypass the qualitative assessment, we would then proceed with the quantitative impairment test. The impairment test involves comparing the fair values of the reporting units to their carrying amounts. If the carrying amount of a reporting unit exceeds its fair value, an impairment loss is recognized in an amount equal to the excess.

Determining the fair value of a reporting unit is judgmental in nature and involves the use of significant estimates and assumptions. We forecast discounted future cash flows at the reporting unit level using risk-adjusted discount rates and estimated future revenues and operating costs, which take into consideration factors such as existing backlog, expected future orders, supplier contracts, and expectations of competitive and economic environments. We also identify similar publicly traded companies and develop a correlation, referred to as a multiple, to apply to the operating results of the reporting units. These combined fair values are then reconciled to the aggregate market value of our common stock on the date of valuation, while considering a reasonable control premium.

Contingencies

A loss contingency is recognized if it is probable that an asset has been impaired or a liability has been incurred, and the amount of the loss can be reasonably estimated. We evaluate, among other factors, the degree of probability of an unfavorable outcome and our ability to make a reasonable estimate of the amount of the ultimate loss. Loss contingencies that we determine to be reasonably possible, but not probable, are disclosed but not recognized. Legal costs to defend against contingent liabilities are recognized as incurred.

Bonus and Profit Sharing

We have various employee bonus and profit sharing plans, which provide award amounts for the achievement of financial and nonfinancial targets. If management determines it is probable that the targets will be achieved, and the amounts can be reasonably estimated, a compensation accrual is recognized based on the proportional achievement of the financial and nonfinancial targets.

Warranty

We offer standard warranties on our hardware products and large application software products. We accrue the estimated cost of new product warranties based on historical and projected product performance trends and costs during the warranty period. Testing of new products in the development stage helps identify and correct potential warranty issues prior to manufacturing. Quality control efforts during manufacturing reduce our exposure to warranty claims. When testing or quality control efforts fail to detect a fault in one of our products, we may experience an increase in warranty claims. We track warranty claims to identify potential warranty trends. If an unusual trend is noted, an additional warranty accrual would be recognized if a failure event is probable and the cost can be reasonably estimated. When new products are introduced, our process relies on historical averages of similar products until sufficient data is available. As actual experience on new products becomes available, it is used to modify the historical averages to ensure the expected warranty costs are within a range of likely outcomes. Management regularly evaluates the sufficiency of the warranty provisions and makes adjustments when necessary. The long-term warranty balance includes estimated warranty claims beyond one year. Warranty expense is classified within cost of revenues.

Restructuring

We recognize a liability for costs associated with an exit or disposal activity under a restructuring project in the period in which the liability is incurred. Employee termination benefits considered postemployment benefits are accrued when the obligation is probable and estimable, such as benefits stipulated by human resource policies and practices or statutory requirements. One-time termination benefits are recognized at the date the employee is notified. If the employee must provide future service greater than 60 days, such benefits are recognized ratably over the future service period. For contract termination costs, we recognize a liability upon the termination of a contract in accordance with the contract terms or the cessation of the use of the rights conveyed by the contract, whichever occurs later.

Asset impairments associated with a restructuring project are determined at the asset group level. An impairment may be recognized for assets that are to be abandoned, are to be sold for less than net book value, or are held for sale in which the estimated proceeds less costs to sell are less than the net book value. We may also recognize impairment on an asset group, which is held and used, when the carrying value is not recoverable and exceeds the asset group's fair value. If an asset group is considered a business, a portion of our goodwill balance is allocated to it based on relative fair value. If the sale of an asset group under a restructuring project results in proceeds that exceed the net book value of the asset group, the resulting gain is recognized within restructuring expense in the Consolidated Statements of Operations.

Defined Benefit Pension Plans

We sponsor both funded and unfunded defined benefit pension plans for certain international employees. We recognize a liability for the projected benefit obligation in excess of plan assets. We recognize an asset when plan assets exceed the projected benefit obligation. We also recognize the funded status of our defined benefit pension plans on our Consolidated Balance Sheets and recognize as a component of OCI, net of tax, the actuarial gains or losses and prior service costs or credits, if any, that arise during the period but that are not recognized as components of net periodic benefit cost. If actuarial gains and losses exceed ten percent of the greater of plan assets or plan liabilities, we amortize them over the employees' average future service period.

Share Repurchase Plans

From time to time, we may repurchase shares of Itron common stock under programs authorized by our Board of Directors. Share repurchases are made in the open market or in privately negotiated transactions and in accordance with applicable securities laws. Under applicable Washington State law, shares repurchased are retired and not displayed separately as treasury stock on the financial statements; the value of the repurchased shares is deducted from common stock.

Product Revenues and Service Revenues

Product revenues include sales from standard and smart meters, systems or software, and any associated implementation and installation revenue. Service revenues include sales from post-sale maintenance support, consulting, outsourcing, and managed services.

Revenue Recognition - 2019 and 2018

On January 1, 2018, we adopted Revenue from Contracts with Customers (ASC 606), using the modified retrospective method. Results for reporting periods beginning after January 1, 2018 are presented under ASC 606, while prior period amounts are not adjusted and continue to be reported in accordance with our historic accounting under ASC 605, *Revenue Recognition* (ASC 605). Refer to our Revenue Recognition accounting policy described below and "Note 18: Revenues" for additional disclosures regarding our revenues from contracts with customers and the adoption of ASC 606.

The majority of our revenues consist primarily of hardware sales, but may also include the license of software, software implementation services, cloud services and SaaS, project management services, installation services, consulting services, post-sale maintenance support, and extended or customer-specific warranties. We account for a contract when it has approval and commitment from both parties, the rights of the parties are identified, payment terms are identified, the contract has commercial substance, and collectability of consideration is probable. In determining whether the definition of a contract has been met, we consider whether the arrangement creates enforceable rights and obligations, which involves evaluation of contractual terms that would allow for the customer to terminate the agreement. If the customer has the unilateral right to terminate the agreement without providing further consideration to us, the agreement would not be considered to meet the definition of a contract.

Many of our revenue arrangements involve multiple performance obligations as our hardware and services are often sold together. Separate contracts entered into with the same customer (or related parties of the customer) at or near the same time are accounted for as a single contract when one or more of the following criteria are met:

- The contracts are negotiated as a package with a single commercial objective;
- The amount of consideration to be paid in one contract depends on the price or performance of the other contract; or
- The goods or services promised in the contracts (or some goods or services promised in each of the contracts) are a single performance obligation.

Once the contract has been defined, we evaluate whether the promises in the contract should be accounted for as more than one performance obligation. This evaluation requires significant judgment, and the decision to separate the combined or single contract into multiple performance obligations could change the amount of revenue and profit recognized in a given period. Some of our contracts contain a significant service of integrating, customizing or modifying goods or services in the contract, in which case the goods or services would be combined into a single performance obligation. It is common that we may promise to provide multiple distinct goods or services, in which case we separate the contract into more than one performance obligation. If a contract is separated into more than one performance obligation, we allocate the total transaction price to each performance obligation in an amount based on the estimated relative standalone selling prices of the promised goods or services. For goods or services where we have observable standalone sales, the observable standalone sales are used to determine the standalone selling price. For the majority of our goods and services, we do not have observable standalone sales. As a result, we estimate the standalone selling price using either the adjusted market assessment approach or the expected cost plus a margin approach. Approaches used to estimate the standalone selling price for a given good or service will maximize the use of observable inputs and considers several factors, including our pricing practices, costs to provide a good or service, the type of good or service, and availability of other transactional data, among others.

We determine the estimated standalone selling prices of goods or services used in our allocation of arrangement consideration on an annual basis or more frequently if there is a significant change in our business or if we experience significant variances in our transaction prices.

Many of our contracts with customers include variable consideration, which can include liquidated damage provisions, rebates and volume and early payment discounts. Some of our contracts with customers contain clauses for liquidated damages related to the timing of delivery or milestone accomplishments, which could become material in an event of failure to meet the contractual deadlines. At the inception of the arrangement and on an ongoing basis, we evaluate the probability and magnitude of having to pay liquidated damages. We estimate variable consideration using the expected value method, taking into consideration contract terms, historical customer behavior, and historical sales. In the case of liquidated damages, we also take into consideration progress towards meeting contractual milestones, including whether milestones have not been achieved, specified rates, if applicable, stated in the contract, and history of paying liquidated damages to the customer or similar customers. Variable consideration is included in the transaction price if, in our judgment, it is probable that a significant future reversal of cumulative revenue under the contract will not occur.

In the normal course of business, we do not accept product returns unless the item is defective as manufactured. We establish provisions for estimated returns and warranties. In addition, we do not typically provide customers with the right to a refund.

Hardware revenue is recognized at a point in time. Transfer of control is typically at the time of shipment, receipt by the customer, or, if applicable, upon receipt of customer acceptance provisions. We will recognize revenue prior to receipt of customer acceptance for hardware in cases where the customer acceptance provision is determined to be a formality. Transfer of control would not occur until receipt of customer acceptance in hardware arrangements where such provisions are subjective or where we do not have history of meeting the acceptance criteria.

Perpetual software licenses are considered to be a right to use intellectual property and are recognized at a point in time. Transfer of control is considered to be at the point at which it is available to the customer to download and use or upon receipt of customer acceptance. In certain contracts, software licenses may be sold with implementation services that include a significant service of integrating, customizing or modifying the software. In these instances, the software license is combined into single performance obligation with the implementation services and recognized over time as the implementation services are performed.

Hardware and software licenses (when not combined with professional services) are typically billed when shipped and revenue recognized at a point-in-time. As a result, the timing of revenue recognition and invoicing does not have a significant impact on contract assets and liabilities.

Professional services, which include implementation, project management, installation, and consulting services are recognized over time. We measure progress towards satisfying these performance obligations using input methods, most commonly based on the costs incurred in relation to the total expected costs to provide the service. We expect this method to best depict our performance in transferring control of services promised to the customer or represents a reasonable proxy for measuring progress. The estimate of expected costs to provide services requires judgment. Cost estimates take into consideration our historical experience and the specific scope requested by the customer and are updated quarterly. We may also offer professional services on a stand-ready basis over a specified period of time, in which case revenue would be recognized ratably over the term. Invoicing of these services is commensurate with performance and occurs on a monthly basis. As such, these services do not have a significant impact on contract assets and contract liabilities.

Cloud services and SaaS arrangements where customers have access to certain of our software within a cloud-based IT environment that we manage, host, and support are offered to customers on a subscription basis. Revenue for the cloud services and SaaS offerings are generally recognized over time, ratably over the contact term commencing with the date the services are made available to the customer.

Services, including professional services, cloud services, and SaaS arrangements, are commonly billed on a monthly basis in arrears and typically result in an unbilled receivable, which is not considered a contract asset as our right to consideration is unconditional.

Certain of our revenue arrangements include an extended or customer-specific warranty provision that covers all or a portion of a customer's replacement or repair costs beyond the standard warranty period. Whether or not the extended warranty is separately priced in the arrangement, such warranties are considered to be a separate good or service, and a portion of the transaction price is allocated to this extended warranty performance obligation. This revenue is recognized ratably over the extended warranty coverage period.

Hardware and software post-sale maintenance support fees are recognized over time, ratably over the life of the related service contract. Support fees are typically billed on an annual basis, resulting in a contract liability. Shipping and handling costs and incidental expenses billed to customers are recognized as revenue, with the associated cost charged to cost of revenues. We recognize sales, use, and value added taxes billed to our customers on a net basis.

Payment terms with customers can vary by customer; however, amounts billed are typically payable within 30 to 90 days, depending on the destination country. We do not typically offer financing as part of our contracts with customers.

We incur certain incremental costs to obtain contracts with customers, primarily in the form of sales commissions. Where the amortization period is one year or less, we have elected to apply the practical expedient and recognize the related commissions expense as incurred. Otherwise, such incremental costs are capitalized and amortized over the contract period. Capitalized incremental costs are not material.

Revenue Recognition - 2017

Revenues consist primarily of hardware sales, software license fees, software implementation, project management services, installation, consulting, and post-sale maintenance support. Revenues are recognized when (1) persuasive evidence of an arrangement exists, (2) delivery has occurred or services have been rendered, (3) the sales price is fixed or determinable, and (4) collectability is reasonably assured.

Many of our revenue arrangements involve multiple deliverables, which combine two or more of the following: hardware, software, installation, and/or project management services. Separate contracts entered into with the same customer that meet certain criteria such as those that are entered into at or near the same time are evaluated as one single arrangement for purposes of applying multiple element arrangement revenue recognition. Revenue arrangements with multiple deliverables are divided into separate units of accounting at the inception of the arrangement and as each item in the arrangement is delivered. If the delivered item(s) has value to the customer on a standalone basis and delivery/performance of the undelivered item(s) is probable the total arrangement consideration is allocated among the separate units of accounting based on their relative fair values and the applicable revenue recognition criteria are then considered for each unit of accounting. The amount allocable to a delivered item is limited to the amount that we are entitled to collect and that is not contingent upon the delivery/performance of additional items. Revenues for each deliverable are then recognized based on the type of deliverable, such as (1) when the products are shipped, (2) services are delivered, (3) percentage-of-completion for implementation services, (4) upon receipt of customer acceptance, or 5) transfer of title and risk of loss. The majority of our revenue is recognized when products are shipped to or received by a customer or when services are provided.

Hardware revenues are generally recognized at the time of shipment, receipt by the customer, or, if applicable, upon completion of customer acceptance provisions.

Under contract accounting where revenue is recognized using percentage of completion, the cost to cost method is used to measure progress to completion. Revenue from network software and services are recognized using the units-of-delivery method of contract accounting, as network design services and network software are essential to the functionality of the related hardware (network) for certain contracts. This methodology results in the deferral of costs and revenues as professional services and software implementation commence prior to deployment of hardware.

In the unusual instances when we are unable to reliably estimate the cost to complete a contract at its inception, we use the completed contract method of contract accounting. Revenues and costs are recognized upon substantial completion when remaining costs are insignificant and potential risks are minimal.

Change orders and contract modifications entered into after inception of the original contract are analyzed to determine if change orders or modifications are extensions of an existing agreement or are accounted for as a separate arrangement for purposes of applying contract accounting.

If we estimate that the completion of a contract component (unit of accounting) will result in a loss, the loss is recognized in the period in which the loss becomes evident. We reevaluate the estimated loss through the completion of the contract component and adjust the estimated loss for changes in facts and circumstances.

A few of our larger customer arrangements contain clauses for liquidated damages, related to delays in delivery or milestone accomplishments, which could become material in an event of failure to meet the contractual deadlines. At the inception of the arrangement and on an ongoing basis, we evaluate if the liquidated damages represent contingent revenue and, if so, we reduce the amount of consideration allocated to the delivered products and services and recognize it as a reduction in revenue in the period of default. If the arrangement is subject to contract accounting, liquidated damages resulting from failure or expected failure to meet milestones are estimated and are accounted for as a reduction of revenue in the period in which the liquidated damages are deemed probable of occurrence and are reasonably estimable.

Our software customers often purchase a combination of software, software-related services, and post contract customer support (PCS). PCS includes telephone support services and updates or upgrades for software as part of a maintenance program. For these types of arrangements, revenue recognition is dependent upon the availability of vendor specific objective evidence (VSOE) of fair value for any undelivered element. We determine VSOE by reference to the range of comparable standalone sales or stated renewals. We review these standalone sales or renewals on at least an annual basis. If VSOE is established for all undelivered elements in the contract, revenue is recognized for delivered elements when all other revenue recognition criteria are met. Arrangements in which VSOE for all undelivered elements is not established, we recognize revenue under the combined services approach where revenue for software and software related elements is deferred until all software products have been delivered, all software related services have commenced, and undelivered services do not include significant production, customization or modification. This will also result in the deferral of costs for software and software implementation services until the undelivered element commence. Revenue would be recognized over the longest period that services would be provided, which is typically the PCS period.

Cloud services and SaaS arrangements where customers have access to certain of our software within a cloud-based IT environment that we manage, host and support are offered to customers on a subscription basis. Revenue for the cloud services and SaaS offerings are generally recognized ratably over the contact term commencing with the date the services is made available to customers and all other revenue recognition criteria have been satisfied. For arrangements where cloud services and SaaS is provided on a per meter basis, revenue is recognized based on actual meters read during the period.

Certain of our revenue arrangements include an extended or customer-specific warranty provision that covers all or a portion of a customer's replacement or repair costs beyond the standard warranty period. Whether or not the extended warranty is separately priced in the arrangement, a portion of the arrangement's total consideration is allocated to this extended warranty deliverable. This revenue is deferred and recognized over the extended warranty coverage period. Extended or customer-specific warranties do not represent a significant portion of our revenue.

We allocate consideration to each deliverable in an arrangement based on its relative selling price. We determine selling price using VSOE, if it exists, otherwise we use third-party evidence (TPE). We define VSOE as a median price of recent standalone transactions that are priced within a narrow range. TPE is determined based on the prices charged by our competitors for a similar deliverable when sold separately. If neither VSOE nor TPE of selling price exists for a unit of accounting, we use estimated selling price (ESP) to determine the price at which we would transact if the product or service were regularly sold by us on a standalone basis. Our determination of ESP involves a weighting of several factors based on the specific facts and circumstances of the arrangement. The factors considered include historical contractual sales, market conditions and entity specific factors, the cost to produce the deliverable, the anticipated margin on that deliverable, our ongoing pricing strategy and policies, and the characteristics of the varying markets in which the deliverable is sold.

We analyze the selling prices used in our allocation of arrangement consideration on an annual basis. Selling prices are analyzed on a more frequent basis if a significant change in our business necessitates a more timely analysis or if we experience significant variances in our selling prices.

Unearned revenue is recognized when a customer pays for products or services, but the criteria for revenue recognition have not been met as of the balance sheet date. Unearned revenue related primarily to professional services and software associated with our smart metering contracts, extended or customer-specific warranty, and prepaid post-contract support. Deferred costs are recognized for products or services for which ownership (typically defined as title and risk of loss) has transferred to the customer, but the criteria for revenue recognition have not been met as of the balance sheet date. Deferred costs are recognized within other assets in the Consolidated Balance Sheets.

Hardware and software post-sale maintenance support fees, such as post contract support or extended warranty are recognized ratably over the life of the related service contract. Shipping and handling costs and incidental expenses billed to customers are recognized as revenue, with the associated cost charged to cost of revenues. We recognize sales, use, and value added taxes billed to our customers on a net basis.

Product and Software Development Costs

Product and software development costs primarily include employee compensation and third-party contracting fees. We do not capitalize product development costs, and we do not generally capitalize development expenses for computer software to be sold, leased, or otherwise marketed as the costs incurred are immaterial for the relatively short period of time between technological feasibility and the completion of software development.

Stock-Based Compensation

We grant various stock-based compensation awards to our officers, employees, and Board of Directors with service, performance, and market vesting conditions, including stock options, restricted stock units, phantom stock units, and unrestricted stock units (awards). We measure and recognize compensation expense for all awards based on estimated fair values. For awards with only a service condition, we expense stock-based compensation using the straight-line method over the requisite service period for the entire award. For awards with service and performance conditions where vesting is probable, we expense the stock-based compensation on a straight-line basis over the requisite service period for each separately vesting portion of the award. For awards with a market condition, we expense the fair value over the requisite service period. We have elected to account for forfeitures of any awards in stock-based compensation expense prospectively as they occur.

The fair value of stock options is estimated at the date of grant using the Black-Scholes option-pricing model. Options to purchase our common stock are granted with an exercise price equal to the market close price of the stock on the date the Board of Directors approves the grant. Options generally become exercisable in three equal annual installments beginning one year from the date of grant and expire 10 years from the date of grant. Expected volatility is based on a combination of the historical volatility of our common stock and the implied volatility of our traded options for the related expected term. We believe this combined approach is reflective of current and historical market conditions and is an appropriate indicator of expected volatility. The risk-free interest rate is the rate available as of the award date on zero-coupon U.S. government issues with a term equal to the expected term of the award. The expected term is the weighted average expected term of an award based on the period of time between the date the award is granted and the estimated date the award will be fully exercised. Factors considered in estimating the expected term include historical experience of similar awards, contractual terms, vesting schedules, and expectations of future employee behavior. We have not paid dividends in the past and do not plan to pay dividends in the foreseeable future.

The fair value of a restricted stock unit is the market close price of our common stock on the date of grant. Restricted stock units vest over a maximum period of three years. After vesting, the restricted stock units are converted into shares of our common stock on a one-for-one basis and issued to employees. Certain restricted stock units are issued under the Long-Term Performance Restricted Stock Unit Award Agreement and include performance and market conditions. The final number of shares issued will be based on the achievement of financial targets and our total shareholder return relative to the Russell 3000 Index during the performance periods. Due to the presence of a market condition, we utilize a Monte Carlo valuation model to determine the fair value of the awards at the grant date. Expected volatility is based on the historical volatility of our common stock for the related expected term. We believe this approach is reflective of current and historical market conditions and is an appropriate indicator of expected volatility. The risk-free interest rate is the rate available as of the award date on zero-coupon U.S. government issues with a term equal to the expected term of the award. The expected term is the term of an award based on the period of time between the date of the award and the date the award is expected to vest. The expected term assumption is based upon the plan's performance period as of the date of the award. We have not paid dividends in the past and do not plan to pay dividends in the foreseeable future.

Phantom stock units are a form of share-based award that are indexed to our stock price and are settled in cash upon vesting and accounted for as liability-based awards. Fair value is remeasured at the end of each reporting period based on the market close price of our common stock. Phantom stock units vest over a maximum period of three years. Since phantom stock units are settled in cash, compensation expense recognized over the vesting period will vary based on changes in the fair value of the awards.

The fair value of unrestricted stock awards is the market close price of our common stock on the date of grant, and the awards are deemed fully vested. We expense stock-based compensation at the date of grant for unrestricted stock awards.

Excess tax benefits and deficiencies resulting from employee share-based payment are recognized as income tax provision or benefit in the Consolidated Statements of Operations, and as an operating activity on the Consolidated Statements of Cash Flows.

We also maintain an Employee Stock Purchase Plan (ESPP) for our employees. Under the terms of the ESPP, employees can deduct up to 10% of their regular cash compensation to purchase our common stock at a 5% discount from the fair market value of the stock at the end of each fiscal quarter, subject to other limitations under the plan. The sale of the stock to the employees occurs at the beginning of the subsequent quarter. The ESPP is not considered compensatory, and no compensation expense is recognized for sales of our common stock to employees.

Income Taxes

We account for income taxes using the asset and liability method of accounting. Deferred tax assets and liabilities are recognized based upon anticipated future tax consequences, in each of the jurisdictions that we operate, attributable to: (1) the differences between the financial statement carrying amounts of existing assets and liabilities and their respective income tax bases; and (2) net operating loss and tax credit carryforwards. Deferred tax assets and liabilities are measured annually using enacted tax rates expected to apply to taxable income in the years in which those temporary differences are expected to be recovered or settled. The calculation of our tax liabilities involves applying complex tax regulations in different tax jurisdictions to our tax positions. The effect on deferred tax assets and liabilities of a change in tax legislation and/or rates is recognized in the period that includes the enactment date. A valuation allowance is recognized to reduce the carrying amounts of deferred tax assets if it is not more likely than not that such assets will be realized. We do not recognize tax liabilities on undistributed earnings of international subsidiaries that are permanently reinvested.

Foreign Exchange

Our consolidated financial statements are reported in U.S. dollars. Assets and liabilities of international subsidiaries with non-U.S. dollar functional currencies are translated to U.S. dollars at the exchange rates in effect on the balance sheet date, or the last business day of the period, if applicable. Revenues and expenses for each subsidiary are translated to U.S. dollars using an average rate for the relevant reporting period. Translation adjustments resulting from this process are included, net of tax, in OCI. Gains and losses that arise from exchange rate fluctuations for monetary asset and liability balances that are not denominated in an entity's functional currency are included within other income (expense), net in the Consolidated Statements of Operations. Currency gains and losses of intercompany balances deemed to be long-term in nature or designated as a hedge of the net investment in international subsidiaries are included, net of tax, in OCI. Foreign currency losses, net of hedging, of $5.5 million, $3.0 million, and $5.1 million were included in other expenses, net, for the years ended December 31, 2019, 2018, and 2017, respectively.

Fair Value Measurements

For assets and liabilities measured at fair value, the GAAP fair value hierarchy prioritizes the inputs used in different valuation methodologies, assigning the highest priority to unadjusted quoted prices for identical assets and liabilities in actively traded markets (Level 1) and the lowest priority to unobservable inputs (Level 3). Level 2 inputs consist of quoted prices for similar assets and liabilities in active markets; quoted prices for identical or similar assets and liabilities in non-active markets; and model-derived valuations in which significant inputs are corroborated by observable market data either directly or indirectly through correlation or other means. Inputs may include yield curves, volatility, credit risks, and default rates.

Recently Adopted Accounting Standards

In February 2016, the Financial Accounting Standards Board (FASB) issued Accounting Standards Update (ASU) 2016-02, *Leases (Topic 842)* (ASU 2016-02), which required that substantially all leases be recognized by lessees on their balance sheet as a right-of-use asset and corresponding lease liability, including leases previously accounted for as operating leases. The new standard also resulted in enhanced quantitative and qualitative disclosures, including judgments made by management, to provide greater insight into the extent of revenue and expense recognized and expected to be recognized from existing leases. The standard required modified retrospective adoption. We adopted ASC 842, as amended, on January 1, 2019, and it resulted in the recognition of operating lease right-of-use assets, other current liabilities, and operating lease liabilities of $74.6 million, $14.5 million, and $61.5 million, respectively, and a decrease in other current assets and other long-term obligations of $1.5 million and $2.9 million, respectively.

In August 2018, the FASB issued ASU 2018-15, *Customer's Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That Is a Service Contract.* The standard aligns the requirements for capitalizing implementation costs incurred in a hosting arrangement that is a service contract with the requirements for capitalizing implementation costs incurred to develop or obtain internal-use software (and hosting arrangements that include an internal-use software license). Accordingly, the standard requires an entity (customer) in a hosting arrangement that is a service contract to follow the guidance in ASC 350-40 to determine which implementation costs to capitalize as an asset related to the service contract and which costs to expense. The standard also requires us to amortize the capitalized implementation costs of a hosting arrangement that is a service contract over the term of the hosting arrangement, which includes reasonably certain renewals. We adopted ASU 2018-15 as of January 1, 2019, and it did not have a material impact on our financial position, results of operations, or cash flows. We classify the capitalized implementation costs as prepaid assets, within other current assets and other long-term assets on our Consolidated Balance Sheets.

In October 2018, the FASB issued ASU 2018-16, *Inclusion of the Secured Overnight Financing Rate (SOFR) Overnight Index Swap (OIS) Rate as a Benchmark Interest Rate for Hedge Accounting Purposes.* We adopted this standard on January 1, 2019, and it did not materially impact our consolidated financial statements. This update establishes OIS rates based on SOFR as an approved benchmark interest rate in addition to existing rates such as the LIBOR swap rate.

Recent Accounting Standards Not Yet Adopted

In June 2016, the FASB issued ASU 2016-13, *Financial Instruments - Credit Losses (Topic 326)* (ASU 2016-13), which replaces the incurred loss impairment methodology in current GAAP with a methodology based on expected credit losses. This estimate of expected credit losses uses a broader range of reasonable and supportable information. This change will result in earlier recognition of credit losses and immaterial modifications to our allowance for doubtful accounts. The FASB also issued codification improvements and transition relief in ASU 2019-04, ASU 2019-05 and ASU 2019-11, hereafter referred to as ASC 326. We will adopt ASC 326, as amended, on January 1, 2020. We do not anticipate that the adoption of ASC 326 will have a material impact on our consolidated financial position, results of operations, or cash flows, but are still evaluating the potential impact.

In August 2018, the FASB issued ASU 2018-13, *Disclosure Framework-Changes to the Disclosure Requirements for Fair Value Measurement* (ASU 2018-13), which amends the disclosure requirements under ASC 820, *Fair Value Measurements.* ASU 2018-13 is effective for us beginning with our interim financial reports for the first quarter of 2020. We are currently evaluating the impact this standard will have on our consolidated financial statement disclosures related to assets and liabilities subject to fair value measurement.

In August 2018, the FASB issued ASU 2018-14, *Disclosure Framework-Changes to the Disclosure Requirements for Defined Benefit Plans* (ASU 2018-14), which amends the disclosure requirements under ASC 715-20, *Compensation-Retirement Benefits-Defined Benefit Plans.* ASU 2018-14 is effective for our financial reporting in 2020. We are currently evaluating the impact this standard will have on our consolidated financial statement disclosures for our defined benefit plans.

In December 2019, the FASB issued ASU 2019-12, *Simplifying the Accounting for Income Taxes* (ASU 2019-12), which modifies certain provisions of ASC 740, *Income Taxes*, in an effort to reduce the complexity of accounting for income taxes. ASU 2019-12 is effective for us beginning with our interim financial reports for the first quarter of 2021. We are currently evaluating the effects and do not believe this standard will have a material impact on our consolidated financial position, results of operations, or cash flows.

Note 2: Earnings Per Share

The following table sets forth the computation of basic and diluted earnings (loss) per share (EPS):

	Year Ended December 31,		
In thousands, except per share data	**2019**	**2018**	**2017**
Net income (loss) available to common shareholders	$ 49,006	$ (99,250)	$ 57,298
Weighted average common shares outstanding - Basic	39,556	39,244	38,655
Dilutive effect of stock-based awards	424	—	732
Weighted average common shares outstanding - Diluted	39,980	39,244	39,387
Earnings (loss) per common share - Basic	$ 1.24	$ (2.53)	$ 1.48
Earnings (loss) per common share - Diluted	$ 1.23	$ (2.53)	$ 1.45

Stock-based Awards

For stock-based awards, the dilutive effect is calculated using the treasury stock method. Under this method, the dilutive effect is computed as if the awards were exercised at the beginning of the period (or at time of issuance, if later) and assumes the related proceeds were used to repurchase our common stock at the average market price during the period. Related proceeds include the amount the employee must pay upon exercise and future compensation cost associated with the stock award. Approximately 0.4 million, 1.1 million, and 0.2 million shares related to stock-based awards were excluded from the calculation of diluted EPS for the years ended December 31, 2019, 2018, and 2017, respectively, because they were anti-dilutive. These stock-based awards could be dilutive in future periods.

Note 3: Certain Balance Sheet Components

A summary of accounts receivable from contracts with customers is as follows:

Accounts receivable, net

In thousands	**December 31, 2019**	**December 31, 2018**
Trade receivables (net of allowance of $3,064 and $6,331)	$ 415,887	$ 416,503
Unbilled receivables	57,038	20,658
Total accounts receivable, net	$ 472,925	$ 437,161

Allowance for doubtful account activity

	Year Ended December 31,		
In thousands	**2019**	**2018**	**2017**
Beginning balance	$ 6,331	$ 3,957	$ 3,320
Provision for (release of) doubtful accounts, net	(1,511)	3,874	1,656
Accounts written-off	(1,749)	(1,281)	(1,351)
Effect of change in exchange rates	(7)	(219)	332
Ending balance	$ 3,064	$ 6,331	$ 3,957

Inventories

In thousands	December 31, 2019	December 31, 2018
Raw materials	$ 120,861	$ 133,398
Work in process	11,105	9,744
Finished goods	95,930	77,532
Total inventories	$ 227,896	$ 220,674

Property, plant, and equipment, net

In thousands	December 31, 2019	December 31, 2018
Machinery and equipment	$ 323,003	$ 315,974
Computers and software	109,924	104,290
Buildings, furniture, and improvements	149,471	146,071
Land	14,988	14,980
Construction in progress, including purchased equipment	54,490	49,682
Total cost	651,876	630,997
Accumulated depreciation	(418,648)	(404,446)
Property, plant, and equipment, net	$ 233,228	$ 226,551

Depreciation expense

	Year Ended December 31,		
In thousands	2019	2018	2017
Depreciation expense	$ 50,114	$ 50,784	$ 42,430

Note 4: Intangible Assets and Liabilities

The gross carrying amount and accumulated amortization (accretion) of our intangible assets and liabilities, other than goodwill, are as follows:

	December 31, 2019			December 31, 2018		
In thousands	Gross Assets	Accumulated (Amortization) Accretion	Net	Gross Assets	Accumulated (Amortization) Accretion	Net
Intangible Assets						
Core-developed technology	$ 507,669	$ (458,109)	$ 49,560	$ 507,100	$ (429,955)	$ 77,145
Customer contracts and relationships	381,288	(251,509)	129,779	379,614	(212,538)	167,076
Trademarks and trade names	78,837	(73,732)	5,105	78,746	(69,879)	8,867
Other	12,020	(11,367)	653	12,600	(11,205)	1,395
Total intangible assets subject to amortization	979,814	(794,717)	185,097	978,060	(723,577)	254,483
In-process research and development	—		—	3,100		3,100
Total intangible assets	$ 979,814	$ (794,717)	$ 185,097	$ 981,160	$ (723,577)	$ 257,583
Intangible Liabilities						
Customer contracts and relationships	$ (23,900)	$ 13,450	$ (10,450)	$ (23,900)	$ 5,217	$ (18,683)

A summary of the intangible assets and liabilities account activity is as follows:

	Year Ended December 31,	
In thousands	2019	2018
Beginning balance, intangible assets, gross	$ 981,160	$ 769,851
Intangible assets acquired	—	242,039
Effect of change in exchange rates	(1,346)	(30,730)
Ending balance, intangible assets, gross	$ 979,814	$ 981,160
Beginning balance, intangible liabilities, gross	$ (23,900)	$ —
Intangible liabilities acquired	—	(23,900)
Effect of change in exchange rates	—	—
Ending balance, intangible liabilities, gross	$ (23,900)	$ (23,900)

On January 5, 2018, we completed our acquisition of SSNI by purchasing 100% of the voting stock. Acquired intangible assets include in-process research and development (IPR&D), which is not amortized until such time as the associated development projects are completed. Of these projects, $3.1 million were completed during the first half of 2019 and are included in core-developed technology. Assumed intangible liabilities reflect the present value of the projected cash outflows for an existing contract where remaining costs are expected to exceed projected revenues.

Estimated future annual amortization (accretion) is as follows:

Year Ending December 31,	Amortization	Accretion	Estimated Annual Amortization, net
In thousands			
2020	$ 53,028	$ (8,028)	$ 45,000
2021	37,705	(1,963)	35,742
2022	27,346	(459)	26,887
2023	19,785	—	19,785
2024	15,612	—	15,612
Thereafter	31,621	—	31,621
Total intangible assets subject to amortization	$ 185,097	$ (10,450)	$ 174,647

Amortization Expense	Year Ended December 31,		
In thousands	2019	2018	2017
Amortization expense	$ 64,286	$ 71,713	$ 20,785

We have recognized amortization expense within operating expenses in the Consolidated Statements of Operations. These expenses relate to intangible assets acquired and liabilities assumed as part of business combinations.

Note 5: Goodwill

The following table reflects changes in the carrying amount of goodwill for the years ended December 31, 2019 and 2018:

In thousands	Device Solutions	Networked Solutions	Outcomes	Total Company
Goodwill balance at January 1, 2018	$ 56,195	$ 455,382	$ 44,185	$ 555,762
Goodwill acquired	—	475,570	100,180	575,750
Effect of change in exchange rates	(936)	(12,457)	(1,586)	(14,979)
Goodwill balance at December 31, 2018	55,259	918,495	142,779	1,116,533
Goodwill acquired	—	(4,938)	(1,040)	(5,978)
Effect of change in exchange rates	(329)	(5,469)	(850)	(6,648)
Goodwill balance at December 31, 2019	$ 54,930	$ 908,088	$ 140,889	$ 1,103,907

The accumulated goodwill impairment losses at December 31, 2019 and 2018 were $676.5 million. The goodwill impairment losses were originally recognized in 2011 and 2013.

Note 6: Debt

The components of our borrowings are as follows:

In thousands	December 31, 2019	December 31, 2018
Credit facility		
USD denominated term loan	$ 550,156	$ 637,813
Multicurrency revolving line of credit	—	—
Senior notes	400,000	400,000
Total debt	950,156	1,037,813
Less: current portion of debt [(1)]	—	28,438
Less: unamortized prepaid debt fees - term loan	3,661	4,859
Less: unamortized prepaid debt fees - senior notes	14,013	16,331
Long-term debt, net	$ 932,482	$ 988,185

(1) During 2019 we made debt prepayments on the term loan in excess of required principal payments, reducing the current portion of debt to zero at December 31, 2019.

Credit Facility

On October 18, 2019 we amended our credit facility that was initially entered on January 5, 2018 (together with the amendment, the "2018 credit facility"). The 2018 credit facility provides for committed credit facilities in the amount of $1.2 billion U.S. dollars. The 2018 credit facility consists of a $650 million U.S. dollar term loan (the term loan) and a multicurrency revolving line of credit (the revolver) with a principal amount of up to $500 million. The revolver also contains a $300 million standby letter of credit sub-facility and a $50 million swingline sub-facility. The October 18, 2019, amendment extended the maturity date to October 18, 2024 and re-amortized the term loan based on the new balance as of the amendment date. The amendment also modified the required interest payments and made it based on total net leverage instead of total leverage. Amounts not borrowed under the revolver are subject to a commitment fee, which is paid in arrears on the last day of each fiscal quarter, ranging from 0.15% to 0.25% and drawn amounts are subject to a margin ranging from 1.00% to 1.75%. Both the term loan and the revolver can be repaid without penalty. Amounts repaid on the term loan may not be reborrowed and amounts borrowed under the revolver may be repaid and reborrowed until the revolver's maturity, at which time all outstanding loans together with all accrued and unpaid interest must be repaid.

The 2018 credit facility permits us and certain of our foreign subsidiaries to borrow in U.S. dollars, euros, British pounds, or, with lender approval, other currencies readily convertible into U.S. dollars. All obligations under the 2018 credit facility are guaranteed by Itron, Inc. and material U.S. domestic subsidiaries and are secured by a pledge of substantially all of the assets of Itron, Inc. and material U.S. domestic subsidiaries, including a pledge of their related assets. This includes a pledge of 100% of the capital stock of material U.S. domestic subsidiaries and up to 66% of the voting stock (100% of the non-voting stock) of first-tier foreign subsidiaries. In addition, the obligations of any foreign subsidiary who is a foreign borrower, as defined by the 2018 credit facility, are guaranteed by the foreign subsidiary and by its direct and indirect foreign parents. The 2018 credit facility includes debt covenants, which contain certain financial thresholds and place certain restrictions on the incurrence of debt, investments, and the issuance of dividends. We were in compliance with the debt covenants under the 2018 credit facility at December 31, 2019.

Under the 2018 credit facility, we elect applicable market interest rates for both the term loan and any outstanding revolving loans. We also pay an applicable margin, which is based on our total leverage ratio as defined in the credit agreement. The applicable rates per annum may be based on either: (1) the LIBOR rate or EURIBOR rate (subject to a floor of 0%), plus an applicable margin, or (2) the Alternate Base Rate, plus an applicable margin. The Alternate Base Rate election is equal to the greatest of three rates: (i) the prime rate, (ii) the Federal Reserve effective rate plus 0.50%, or (iii) one month LIBOR plus 1%. At December 31, 2019, the interest rates for both the term loan and the revolver was 3.30%, which includes the LIBOR rate plus a margin of 1.50%.

At December 31, 2019, no amount was outstanding under the 2018 credit facility revolver, and $41.1 million was utilized by outstanding standby letters of credit, resulting in $458.9 million available for additional borrowings or standby letters of credit. At December 31, 2019, $258.9 million was available for additional standby letters of credit under the letter of credit sub-facility and no amounts were outstanding under the swingline sub-facility.

Senior Notes

On December 22, 2017 and January 19, 2018, we issued $300 million and $100 million, respectively, of aggregate principal amount of 5.00% senior notes maturing January 15, 2026 (Senior Notes). The proceeds were used to refinance existing indebtedness related to the acquisition of SSNI, pay related fees and expenses, and for general corporate purposes. Interest on the Senior Notes is payable semi-annually in arrears on January 15 and July 15. The Senior Notes are fully and unconditionally guaranteed, jointly and severally, on a senior unsecured basis by each of our subsidiaries that guarantee the senior credit facilities.

Prior to maturity we may redeem some or all of the Senior Notes, together with accrued and unpaid interest, if any, plus a "make-whole" premium. On or after January 15, 2021, we may redeem some or all of the Senior Notes at any time at declining redemption prices equal to 102.50% beginning on January 15, 2021, 101.25% beginning on January 15, 2022 and 100.00% beginning on January 15, 2023 and thereafter to the applicable redemption date. In addition, before January 15, 2021, and subject to certain conditions, we may redeem up to 35% of the aggregate principal amount of Senior Notes with the net proceeds of certain equity offerings at 105.00% thereof to the date of redemption; provided that (i) at least 65% of the aggregate principal amount of Senior Notes remains outstanding after such redemption and (ii) the redemption occurs within 60 days of the closing of any such equity offering.

Debt Maturities

The amount of required minimum principal payments on our long-term debt in aggregate over the next five years, are as follows:

Year Ending December 31,		**Minimum Payments**
In thousands		
2020	$	—
2021		32,422
2022		44,063
2023		44,063
2024		429,608
Thereafter		400,000
Total minimum payments on debt	$	950,156

Note 7: Derivative Financial Instruments

As part of our risk management strategy, we use derivative instruments to hedge certain foreign currency and interest rate exposures. Refer to "Note 1: Summary of Significant Accounting Policies", "Note 14: Shareholders' Equity", and "Note 15: Fair Values of Financial Instruments" for additional disclosures on our derivative instruments.

The fair values of our derivative instruments are determined using the income approach and significant other observable inputs (are classified as "Level 2" in the fair value hierarchy). We have used observable market inputs based on the type of derivative and the nature of the underlying instrument. The key inputs include interest rate yield curves (swap rates and futures) and foreign exchange spot and forward rates, all of which are available in an active market. We have utilized the mid-market pricing convention for these inputs. We include, as a discount to the derivative asset, the effect of our counterparty credit risk based on current published credit default swap rates when the net fair value of our derivative instruments is in a net asset position. We consider our own nonperformance risk when the net fair value of our derivative instruments is in a net liability position by discounting our derivative liabilities to reflect the potential credit risk to our counterparty through applying a current market indicative credit spread to all cash flows.

The fair values of our derivative instruments are as follows:

Derivatives Assets	**Balance Sheet Location**	**December 31, 2019**	**December 31, 2018**
Derivatives designated as hedging instruments under Subtopic ASC 815-20		*In thousands*	
Interest rate swap contracts	Other current assets	$ 174	$ 1,866
Interest rate cap contracts	Other current assets	1	535
Cross currency swap contract	Other current assets	1,156	1,631
Interest rate swap contracts	Other long-term assets	—	746
Interest rate cap contracts	Other long-term assets	—	251
Cross currency swap contract	Other long-term assets	2,870	1,339
Derivatives not designated as hedging instruments under Subtopic ASC 815-20			
Foreign exchange forward contracts	Other current assets	96	157
Total asset derivatives		$ 4,297	$ 6,525
Derivatives Liabilities			
Derivatives not designated as hedging instruments under Subtopic ASC 815-20			
Foreign exchange forward contracts	Other current liabilities	$ 162	$ 337

The changes in AOCI, net of tax, for our derivative and nonderivative instruments designated as hedging instruments, net of tax, were as follows:

In thousands	**2019**	**2018**	**2017**
Net unrealized loss on hedging instruments at January 1,	$ (13,179)	$ (13,414)	$ (14,337)
Unrealized gain (loss) on derivative instruments	4,061	2,586	360
Realized (gains) losses reclassified into net income (loss)	(5,985)	(2,351)	563
Net unrealized loss on hedging instruments at December 31,	$ (15,103)	$ (13,179)	$ (13,414)

Reclassification of amounts related to hedging instruments are included in interest expense in the Consolidated Statements of Operations. Included in the net unrealized gain (loss) on hedging instruments at December 31, 2019 and 2018 is a loss of $14.4 million, net of tax, related to our nonderivative net investment hedge, which terminated in 2011. This loss on our net investment hedge will remain in AOCI until such time as earnings are impacted by a sale or liquidation of the associated foreign operation.

A summary of the potential effect of netting arrangements on our financial position related to the offsetting of our recognized derivative assets and liabilities under master netting arrangements or similar agreements is as follows:

Offsetting of Derivative Assets	**Gross Amounts of Recognized Assets Presented in the Consolidated Balance Sheets**	**Gross Amounts Not Offset in the Consolidated Balance Sheets**		
In thousands		**Derivative Financial Instruments**	**Cash Collateral Received**	**Net Amount**
December 31, 2019	$ 4,297	$ (56)	$ —	$ 4,241
December 31, 2018	6,525	(103)	—	6,422

Offsetting of Derivative Liabilities	Gross Amounts of Recognized Liabilities Presented in the Consolidated Balance Sheets	Gross Amounts Not Offset in the Consolidated Balance Sheets		
In thousands		Derivative Financial Instruments	Cash Collateral Pledged	Net Amount
December 31, 2019	$ 162	$ (56)	$ —	$ 106
December 31, 2018	337	(103)	—	234

Our derivative assets and liabilities subject to netting arrangements consist of foreign exchange forward and interest rate contracts with five counterparties at December 31, 2019 and 2018. No derivative asset or liability balance with any of our counterparties was individually significant at December 31, 2019 or 2018. Our derivative contracts with each of these counterparties exist under agreements that provide for the net settlement of all contracts through a single payment in a single currency in the event of default. We have no pledges of cash collateral against our obligations, and we have not received pledges of cash collateral from our counterparties under the associated derivative contracts.

Cash Flow Hedges

As a result of our floating rate debt, we are exposed to variability in our cash flows from changes in the applicable interest rate index. We enter into interest rate caps and swaps to reduce the variability of cash flows from increases in the LIBOR based borrowing rates on our floating rate credit facility. These instruments do not protect us from changes to the applicable margin under our credit facility. At December 31, 2019, our LIBOR-based debt balance was $550.2 million.

In October 2015, we entered into an interest rate swap, which is effective from August 31, 2016 to June 23, 2020, and converts $214 million of our LIBOR based debt from a floating LIBOR interest rate to a fixed interest rate of 1.42% (excluding the applicable margin on the debt). The notional balance will amortize to maturity at the same rate as required minimum payments on our term loan. Changes in the fair value of the interest rate swap are recognized as a component of other comprehensive income (OCI) and are recognized in earnings when the hedged item affects earnings. The amounts paid or received on the hedge are recognized as an adjustment to interest expense along with the earnings effect of the hedged item. The amount of net gains (loss) expected to be reclassified into earnings in the next 12 months is $0.2 million.

In November 2015, we entered into three interest rate cap contracts with a total notional amount of $100 million at a cost of $1.7 million. The interest rate cap contracts expire on June 23, 2020 and were entered into in order to limit our interest rate exposure on $100 million of our variable LIBOR based debt up to 2.00%. In the event LIBOR is higher than 2.00%, we will pay interest at the capped rate of 2.00% with respect to the $100 million notional amount of such agreements. The interest rate cap contracts do not include the effect of the applicable margin. As of December 31, 2016, due to the accelerated revolver payments from surplus cash, we elected to de-designate two of the interest rate cap contracts as cash flow hedges and discontinued the use of cash flow hedge accounting. The amounts recognized in AOCI from de-designated interest rate cap contracts were maintained in AOCI as the forecasted transactions were still probable to occur, and subsequent changes in fair value were recognized within interest expense. In April 2018, due to increases in our total LIBOR-based debt, we elected to re-designate the two interest rate cap contracts as cash flow hedges. Future changes in the fair value of these instruments will be recognized as a component of OCI, and these changes together with amounts previously maintained in AOCI will be recognized in earnings when the hedged item affects earnings. The amounts paid or received on the hedge are recognized as an adjustment to interest expense along with the earnings effect of the hedged item. The amount of net losses expected to be reclassified into earnings for all interest rate cap contracts in the next 12 months is $0.4 million.

In April 2018, we entered into a cross-currency swap, which converts $56.0 million of floating LIBOR-based U.S. Dollar denominated debt into 1.38% fixed rate euro denominated debt. This cross-currency swap matures on April 30, 2021 and mitigates the risk associated with fluctuations in currency rates impacting cash flows related to U.S. Dollar denominated debt in a euro functional currency entity. Changes in the fair value of the cross-currency swap are recognized as a component of OCI and will be recognized in earnings when the hedged item affects earnings. The amounts paid or received on the hedge are recognized as an adjustment to interest expense along with the earnings effect of the hedged item. The amount of net gains expected to be reclassified into earnings in the next 12 months is $1.1 million.

As a result of our forecasted inventory purchases in a non-functional currency, we are exposed to foreign exchange risk. We hedge portions of these purchases. During January 2019, we entered into foreign exchange option contracts for a total notional amount of $72 million at a cost of $1.3 million. The contracts matured ratably throughout the year with final maturity in October 2019. Changes in the fair value of the option contracts were recognized as a component of OCI and were recognized in product cost of revenues when the hedged item affected earnings. As of December 31, 2019, there are no more outstanding foreign exchange option contracts.

The before-tax effects of our accounting for derivative instruments designated as hedges on the Consolidated Balance Sheets and the Consolidated Statements of Operations for the year ended December 31, were as follows:

Derivatives in Subtopic ASC 815-20 Cash Flow Hedging Relationships	Amount of Gain (Loss) Recognized in OCI on Derivative			Gain (Loss) Reclassified from AOCI into Income			
				Location	Amount		
In thousands	2019	2018	2017	*In thousands*	2019	2018	2017
Interest rate swap contracts	$ (987)	$ 1,306	$ 768	Interest expense	$ 1,451	$ 1,065	$ (706)
Interest rate cap contracts	995	18	(183)	Interest expense	1,046	(439)	(210)
Foreign exchange options	1,141	—	—	Product cost of revenues	1,141	—	—
Cross currency swap contract	3,022	1,584	—	Interest expense	1,632	949	—
Cross currency swap contract	—	—	—	Other income (expense), net	1,335	932	—

Derivatives Not Designated as Hedging Relationships

We are also exposed to foreign exchange risk when we enter into non-functional currency transactions, both intercompany and third-party. At each period-end, non-functional currency monetary assets and liabilities are revalued with the change recognized in other income and expense. We enter into monthly foreign exchange forward contracts, which are not designated for hedge accounting, with the intent to reduce earnings volatility associated with currency exposures. As of December 31, 2019, a total of 48 contracts were offsetting our exposures from the euro, Canadian dollar, Chinese yuan, Indonesian rupiah, Pound sterling, Brazilian real, and various other currencies, with notional amounts ranging from $109,000 to $26.4 million.

The effects of our derivative instruments not designated as hedges on the Consolidated Statements of Operations for the year ended December 31, were as follows:

Derivatives Not Designated as Hedging Instrument under Subtopic ASC 815-20	Location	Gain (Loss) Recognized in Income on Derivatives		
In thousands		2019	2018	2017
Foreign exchange forward contracts	Other income (expense), net	$ (2,425)	$ 3,448	$ (6,281)
Interest rate cap contracts	Interest expense	—	377	(274)

We will continue to monitor and assess our interest rate and foreign exchange risk and may institute additional derivative instruments to manage such risk in the future.

Note 8: Defined Benefit Pension Plans

We sponsor both funded and unfunded defined benefit pension plans offering death and disability, retirement, and special termination benefits for certain of our international employees, primarily in Germany, France, India, Indonesia, and Italy. The defined benefit obligation is calculated annually by using the projected unit credit method. The measurement date for the pension plans was December 31, 2019.

The following tables set forth the components of the changes in benefit obligations and fair value of plan assets:

	Year Ended December 31,	
In thousands	**2019**	**2018**
Change in benefit obligation:		
Benefit obligation at January 1,	$ 105,570	$ 110,820
Service cost	3,711	4,034
Interest cost	2,278	2,324
Actuarial (gain) loss	8,798	(2,497)
Benefits paid	(2,970)	(3,018)
Foreign currency exchange rate changes	(1,984)	(5,110)
Curtailment	(36)	(694)
Settlement	(234)	(413)
Other	(915)	124
Benefit obligation at December 31,	$ 114,218	$ 105,570
Change in plan assets:		
Fair value of plan assets at January 1,	$ 11,890	$ 12,834
Actual return on plan assets	1,134	(54)
Company contributions	289	465
Benefits paid	(411)	(392)
Foreign currency exchange rate changes	(237)	(963)
Fair value of plan assets at December 31,	12,665	11,890
Net pension benefit obligation at fair value	$ 101,553	$ 93,680

Amounts recognized on the Consolidated Balance Sheets consist of:

	December 31,	
In thousands	**2019**	**2018**
Assets		
Plan assets in other long-term assets	$ 44	$ 572
Liabilities		
Current portion of pension benefit obligation in wages and benefits payable	2,885	2,730
Long-term portion of pension benefit obligation	98,712	91,522
Pension benefit obligation, net	$ 101,553	$ 93,680

Amounts recognized in OCI (pre-tax) are as follows:

	Year Ended December 31,		
In thousands	**2019**	**2018**	**2017**
Net actuarial (gain) loss	$ 8,762	$ (3,191)	$ (3,209)
Settlement (gain) loss	(250)	(1)	2
Curtailment (gain) loss	—	(1)	586
Plan asset (gain) loss	(526)	724	(192)
Amortization of net actuarial loss	(1,648)	(1,533)	(2,308)
Amortization of prior service cost	(68)	(61)	(62)
Other	(160)	124	—
Other comprehensive (income) loss	$ 6,110	$ (3,939)	$ (5,183)

If actuarial gains and losses exceed ten percent of the greater of plan assets or plan liabilities, we amortize them over the employees' average future service period. The estimated net actuarial loss and prior service cost that will be amortized from AOCI into net periodic benefit cost during 2020 is $1.9 million.

Net periodic pension benefit cost for our plans include the following components:

	Year Ended December 31,		
In thousands	2019	2018	2017
Service cost	$ 3,711	$ 4,034	$ 3,968
Interest cost	2,278	2,324	2,264
Expected return on plan assets	(608)	(670)	(594)
Amortization of prior service costs	68	61	62
Amortization of actuarial net loss	1,648	1,533	2,308
Settlement	250	1	(2)
Curtailment	—	1	(586)
Net periodic benefit cost	$ 7,347	$ 7,284	$ 7,420

The components of net periodic benefit cost, other than the service cost component, are included in total other income (expense) on the Consolidated Statements of Operations.

The significant actuarial weighted average assumptions used in determining the benefit obligations and net periodic benefit cost for our benefit plans are as follows:

	Year Ended December 31,		
	2019	2018	2017
Actuarial assumptions used to determine benefit obligations at end of period:			
Discount rate	1.76 %	2.24 %	2.21 %
Expected annual rate of compensation increase	3.76 %	3.60 %	3.64 %
Actuarial assumptions used to determine net periodic benefit cost for the period:			
Discount rate	2.24 %	2.21 %	2.18 %
Expected rate of return on plan assets	5.19 %	5.58 %	5.58 %
Expected annual rate of compensation increase	3.60 %	3.64 %	3.65 %

We determine a discount rate for our plans based on the estimated duration of each plan's liabilities. For euro denominated defined benefit pension plans, which represent 93% of our benefit obligation, we use discount rates with consideration of the duration of each of the plans, using a hypothetical yield curve developed from euro-denominated AA-rated corporate bond issues. These bonds are assigned different weights to adjust their relative influence on the yield curve, and the highest and lowest yielding 10% of bonds are excluded within each maturity group. The discount rates used, depending on the duration of the plans, were between 0.25% and 2.00%.

Our expected rate of return on plan assets is derived from a study of actual historic returns achieved and anticipated future long-term performance of plan assets, specific to plan investment asset category. While the study primarily gives consideration to recent insurers' performance and historical returns, the assumption represents a long-term prospective return.

The total accumulated benefit obligation for our defined benefit pension plans was $105.1 million and $97.3 million at December 31, 2019 and 2018, respectively.

The total obligations and fair value of plan assets for plans with projected benefit obligations and accumulated benefit obligations exceeding the fair value of plan assets are as follows:

	December 31,	
In thousands	2019	2018
Projected benefit obligation	$ 110,656	$ 103,059
Accumulated benefit obligation	101,611	94,831
Fair value of plan assets	9,059	8,807

Our asset investment strategy focuses on maintaining a portfolio using primarily insurance funds, which are accounted for as investments and measured at fair value, in order to achieve our long-term investment objectives on a risk adjusted basis. Our general funding policy for these qualified pension plans is to contribute amounts sufficient to satisfy regulatory funding standards of the respective countries for each plan.

The fair values of our plan investments by asset category are as follows:

In thousands	Total	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Unobservable Inputs (Level 3)
		December 31, 2019	
Cash	$ 926	$ 926	$ —
Insurance funds	8,133	—	8,133
Other securities	3,606	—	3,606
Total fair value of plan assets	$ 12,665	$ 926	$ 11,739
In thousands		December 31, 2018	
Cash	$ 787	$ 787	$ —
Insurance funds	8,020	—	8,020
Other securities	3,083	—	3,083
Total fair value of plan assets	$ 11,890	$ 787	$ 11,103

The following tables present a reconciliation of Level 3 assets held during the years ended December 31, 2019 and 2018.

In thousands	Balance at January 1, 2019	Net Realized and Unrealized Gains	Net Purchases, Issuances, Settlements, and Other	Effect of Foreign Currency	Balance at December 31, 2019
Insurance funds	$ 8,020	$ 282	$ (27)	$ (142)	$ 8,133
Other securities	3,083	814	(160)	(131)	3,606
Total	$ 11,103	$ 1,096	$ (187)	$ (273)	$ 11,739

In thousands	Balance at January 1, 2018	Net Realized and Unrealized Gains	Net Purchases, Issuances, Settlements, and Other	Effect of Foreign Currency	Balance at December 31, 2018
Insurance funds	$ 8,384	$ (158)	$ 141	$ (347)	$ 8,020
Other securities	3,661	123	(141)	(560)	3,083
Total	$ 12,045	$ (35)	$ —	$ (907)	$ 11,103

As the plan assets and contributions are not significant to our total company assets, no further disclosures are considered material.

Annual benefit payments for the next 10 years, including amounts to be paid from our assets for unfunded plans and reflecting expected future service, as appropriate, are expected to be paid as follows:

Year Ending December 31,	Estimated Annual Benefit Payments
In thousands	
2020	$ 3,828
2021	3,463
2022	3,861
2023	4,176
2024	5,141
2025-2029	27,701

Note 9: Stock-Based Compensation

We grant stock-based compensation awards under the Second Amended and Restated 2010 Stock Incentive Plan (Stock Incentive Plan), including stock options, restricted stock units, phantom stock, and unrestricted stock units. In the Stock Incentive Plan, we have 12,623,538 shares of common stock reserved and authorized for issuance subject to stock splits, dividends, and other similar events. At December 31, 2019, 5,977,990 shares were available for grant under the Stock Incentive Plan. We issue new shares of common stock upon the exercise of stock options or when vesting conditions on restricted stock units are fully satisfied. These shares are subject to a fungible share provision such that the authorized share reserve is reduced by (i) one share for every one share subject to a stock option or share appreciation right granted under the Plan and (ii) 1.7 shares for every one share of common stock that was subject to an award other than an option or share appreciation right.

As part of the acquisition of SSNI, we reserved and authorized 2,299,591 shares, collectively, of Itron common stock to be issued under the Stock Incentive Plan for certain SSNI common stock awards that were converted to Itron common stock awards on January 5, 2018 (Acquisition Date) pursuant to the Agreement and Plan of Merger or were available for issuance pursuant to future awards under the Silver Spring Networks, Inc. 2012 Equity Incentive Plan (SSNI Plan). New stock-based compensation awards originally from the SSNI Plan may only be made to individuals who were not employees of Itron as of the Acquisition Date. Notwithstanding the foregoing, there is no fungible share provision for shares originally from the SSNI Plan.

We also periodically award phantom stock units, which are settled in cash upon vesting and accounted for as liability-based awards with no impact to the shares available for grant.

In addition, we maintain the ESPP, for which 232,563 shares of common stock were available for future issuance at December 31, 2019.

Unrestricted stock and ESPP activity for the years ended December 31, 2019, 2018, and 2017 was not significant.

Stock-Based Compensation Expense

Total stock-based compensation expense and the related tax benefit were as follows:

	Year Ended December 31,		
In thousands	**2019**	**2018**	**2017**
Stock options	$ 1,770	$ 3,675	$ 2,695
Restricted stock units	24,560	26,859	17,738
Unrestricted stock awards	630	729	974
Phantom stock units	3,301	2,165	1,747
Total stock-based compensation	$ 30,261	$ 33,428	$ 23,154
Related tax benefit	$ 5,390	$ 6,019	$ 5,034

Stock Options

A summary of our stock option activity is as follows:

	Shares	Weighted Average Exercise Price per Share	Weighted Average Remaining Contractual Life	Aggregate Intrinsic Value	Weighted Average Grant Date Fair Value
	In thousands		*Years*	*In thousands*	
Outstanding, January 1, 2017	959	$ 45.64	6.6	$ 19,125	
Granted	135	65.94			$ 21.99
Exercised	(41)	39.92		$ 1,071	
Forfeited	(35)	47.38			
Expired	(62)	70.12			
Outstanding, December 31, 2017	956	$ 47.10	6.3	$ 21,965	
Converted upon acquisition	42	$ 51.86			$ 14.86
Granted	122	68.21			$ 24.29
Exercised	(152)	38.99		$ 4,520	
Forfeited	(7)	60.03			
Expired	(66)	95.31			
Outstanding, December 31, 2018	895	$ 47.93	6.2	$ 4,806	
Granted	76	$ 76.55			$ 26.20
Exercised	(489)	43.55		$ 15,759	
Forfeited	(13)	67.34			
Expired	(11)	66.24			
Outstanding, December 31, 2019	458	$ 56.38	7.0	$ 12,641	
Exercisable, December 31, 2019	272	$ 46.37	5.8	$ 10,223	

At December 31, 2019, total unrecognized stock-based compensation expense related to unvested stock options was $2.5 million, which is expected to be recognized over a weighted average period of approximately 2.3 years.

The weighted-average assumptions used to estimate the fair value of stock options granted and the resulting weighted average fair value are as follows:

	Year Ended December 31,		
	2019	2018	2017
Expected volatility	31.7 %	30.5 %	32.5 %
Risk-free interest rate	1.7 %	2.8 %	2.0 %
Expected term (years)	6.1	6.1	5.5

Restricted Stock Units

The following table summarizes restricted stock unit activity:

	Number of Restricted Stock Units	Weighted Average Grant Date Fair Value	Aggregate Intrinsic Value
	In thousands		*In thousands*
Outstanding, January 1, 2017	701		
Granted	273	$ 50.95	
Released	(372)		$ 14,219
Forfeited	(46)		
Outstanding, December 31, 2017	556	$ 47.68	
Converted upon acquisition	579	$ 69.40	
Granted	387	$ 57.48	
Released	(593)		$ 32,567
Forfeited	(112)		
Outstanding, December 31, 2018	817	$ 59.70	
Granted	404	$ 62.97	
Released	(471)	$ 62.28	$ 29,304
Forfeited	(66)	$ 66.12	
Outstanding, December 31, 2019	684	$ 64.38	
Vested but not released, December 31, 2019	72		$ 6,037

At December 31, 2019, total unrecognized compensation expense on restricted stock units was $32.1 million, which is expected to be recognized over a weighted average period of approximately 1.9 years.

The weighted-average assumptions used to estimate the fair value of performance-based restricted stock units granted with a service and market condition and the resulting weighted average fair value are as follows:

	Year Ended December 31,		
	2019	2018	2017
Expected volatility	31.4 %	28.0 %	28.0 %
Risk-free interest rate	2.5 %	2.2 %	1.0 %
Expected term (years)	1.6	2.1	1.7
Weighted average grant date fair value	$ 61.25	$ 78.56	$ 77.75

Phantom Stock Units

The following table summarizes phantom stock unit activity:

	Number of Phantom Stock Units	Weighted Average Grant Date Fair Value	Aggregate Intrinsic Value
	In thousands		*In thousands*
Outstanding, January 1, 2017	62		
Granted	32	$ 65.55	
Released	(20)		$ 1,310
Forfeited	(11)		
Outstanding, December 31, 2017	63		
Outstanding, January 1, 2018	63		
Converted upon acquisition	21		
Granted	41	$ 66.67	
Released	(35)		$ 2,409
Forfeited	(7)		
Outstanding, December 31, 2018	83		
Outstanding, January 1, 2019	83	$ 61.80	
Granted	55	$ 60.49	
Released	(42)	$ 57.13	$ 2,625
Forfeited	(7)	$ 66.09	
Outstanding, December 31, 2019	89	$ 62.85	

At December 31, 2019, total unrecognized compensation expense on phantom stock units was $5.3 million, which is expected to be recognized over a weighted average period of approximately 2.1 years. As of December 31, 2019 and 2018, we have recognized a phantom stock liability of $2.3 million and $1.5 million, respectively, within wages and benefits payable in the Consolidated Balance Sheets.

Note 10: Defined Contribution, Bonus, and Profit Sharing Plans

Defined Contribution Plans

In the United States, United Kingdom, and certain other countries, we make contributions to defined contribution plans. For our U.S. employee savings plan, which represents a majority of our contribution expense, we provide a 75% match on the first 6% of the employee salary deferral, subject to statutory limitations. For our international defined contribution plans, we provide various levels of contributions, based on salary, subject to stipulated or statutory limitations. The expense for our defined contribution plans was as follows:

	Year Ended December 31,		
In thousands	2019	2018	2017
Defined contribution plans expense	$ 17,882	$ 11,593	$ 11,709

Bonus and Profit Sharing Plans and Awards

We have employee bonus and profit sharing plans in which many of our employees participate, as well as an award program, which allows for recognition of individual employees' achievements. The bonus and profit sharing plans provide award amounts for the achievement of performance and financial targets. As the bonuses are being earned during the year, we estimate a compensation accrual each quarter based on the progress towards achieving the goals, the estimated financial forecast for the year, and the probability of achieving results. Bonus and profit sharing plans and award expense was as follows:

	Year Ended December 31,		
In thousands	2019	2018	2017
Bonus and profit sharing plans expense	$ 48,435	$ 15,466	$ 40,005

Note 11: Income Taxes

On December 22, 2017, H.R.1, commonly referred to as the Tax Cuts and Jobs Act (Tax Act) was enacted into law in the United States. This new tax legislation represents one of the most significant overhauls to the U.S. federal tax code since 1986. The Tax Act lowered the U.S. corporate income tax rate from 35% to 21% effective January 1, 2018. The Tax Act also includes numerous provisions, including, but not limited to, (1) imposing a one-time transition tax on certain unrepatriated earnings of foreign subsidiaries that had not been previously taxed in the U.S.; (2) creating a new provision designed to tax global intangible low-tax income (GILTI); (3) generally eliminating U.S. federal taxes on dividends from foreign subsidiaries; (4) eliminating the corporate alternative minimum tax (AMT); (5) creating the base erosion anti-abuse tax (BEAT); (6) establishing the deduction for foreign derived intangible income (FDII); (7) repealing the domestic production activity deduction; and (8) establishing new limitations on deductible interest expense and certain executive compensation.

On December 22, 2017, the Securities and Exchange Commission (SEC) issued Staff Accounting Bulletin No. 118 (SAB 118), which provides guidance on accounting for the tax effects of the Tax Act. SAB 118 provides a measurement period that should not extend beyond one year from the Tax Act enactment date for companies to complete the accounting under ASC 740, *Income Taxes*. In accordance with SAB 118, a company must reflect the income tax effects of those aspects of the Tax Act for which the accounting under ASC 740 is complete. To the extent that a company's accounting for certain income tax effects of the Tax Act is incomplete but is able to determine a reasonable estimate, it must recognize a provisional estimate in the financial statements. Pursuant to SAB 118, we recognized provisional estimates for the impact of the Tax Act in 2017. This included a one-time tax charge of $30.4 million to remeasure our deferred tax assets as a result of these legislative changes. We have completed our accounting for the Tax Act, and we did not make any material adjustments to these provisional amounts for the year ended December 31, 2018.

The following table summarizes the provision (benefit) for U.S. federal, state, and foreign taxes on income from continuing operations:

	Year Ended December 31,		
In thousands	2019	2018	2017
Current:			
Federal	$ 4,859	$ (7,695)	$ 7,679
State and local	2,179	(362)	3,841
Foreign	13,771	14,618	12,139
Total current	20,809	6,561	23,659
Deferred:			
Federal	2,334	(17,463)	40,340
State and local	(1,846)	(4,492)	(1,144)
Foreign	(6,033)	(22,906)	3,480
Total deferred	(5,545)	(44,861)	42,676
Change in valuation allowance	5,353	25,730	7,991
Total provision (benefit) for income taxes	$ 20,617	$ (12,570)	$ 74,326

The change in the valuation allowance does not include the impacts of currency translation adjustments, acquisitions, or significant intercompany transactions.

Our tax provision (benefit) as a percentage of income before tax was 28%, 12%, and 55% for 2019, 2018, and 2017, respectively. Our actual tax rate differed from the 21% or 35% U.S. federal statutory tax rate due to various items. A reconciliation of income taxes at the U.S. federal statutory rate of 21% for 2019 and 2018 and 35% for 2017 to the consolidated actual tax rate is as follows:

	Year Ended December 31,		
In thousands	2019	2018	2017
Income (loss) before income taxes			
Domestic	$ 57,261	$ (50,463)	$ 220,342
Foreign	15,771	(58,688)	(85,767)
Total income before income taxes	$ 73,032	$ (109,151)	$ 134,575
Expected federal income tax provision	$ 15,337	$ (22,922)	$ 47,101
Change in valuation allowance	5,353	25,730	7,991
Stock-based compensation	(2,130)	(104)	(1,225)
Foreign earnings	(15,610)	(15,799)	(22,045)
Tax credits	(8,794)	(10,502)	(777)
Uncertain tax positions, including interest and penalties	13,060	7,727	(7,637)
Change in tax rates	4,999	335	41,125
State income tax provision (benefit), net of federal effect	2,805	(4,524)	4,986
U.S. tax provision on foreign earnings	129	25	33
Domestic production activities deduction	—	—	(2,534)
Local foreign taxes	1,471	2,540	2,324
Transaction costs	—	974	2,643
Other, net	3,997	3,950	2,341
Total provision (benefit) from income taxes	$ 20,617	$ (12,570)	$ 74,326

Change in tax rates line above includes the deferred tax impact of rate changes in 2017 to the U.S., France, and Luxembourg, among others. The rate change in 2019 related primarily to Luxembourg.

Deferred tax assets and liabilities consist of the following:

	December 31,	
In thousands	2019	2018
Deferred tax assets		
Loss carryforwards[(1)]	$ 343,614	$ 370,120
Tax credits[(2)]	98,098	94,359
Accrued expenses	46,846	43,213
Pension plan benefits expense	17,310	18,086
Warranty reserves	12,961	13,470
Depreciation and amortization	6,112	5,709
Equity compensation	4,685	5,390
Inventory valuation	1,069	1,415
Deferred revenue	8,951	9,062
Leases	13,876	—
Other deferred tax assets, net	9,777	11,319
Total deferred tax assets	563,299	572,143
Valuation allowance	(320,649)	(323,822)
Total deferred tax assets, net of valuation allowance	242,650	248,321
Deferred tax liabilities		
Depreciation and amortization	(161,044)	(178,358)
Leases	(12,976)	—
Other deferred tax liabilities, net	(6,540)	(6,676)
Total deferred tax liabilities	(180,560)	(185,034)
Net deferred tax assets	$ 62,090	$ 63,287

(1) For tax return purposes at December 31, 2019, we had U.S. federal loss carryforwards of $187.5 million, which begin to expire in the year 2020. At December 31, 2019, we have net operating loss carryforwards in Luxembourg of $992.7 million, the majority of which can be carried forward indefinitely, offset by a full valuation allowance. The remaining portion of the loss carryforwards are composed primarily of losses in various other state and foreign jurisdictions. The majority of these losses can be carried forward indefinitely. At December 31, 2019, there was a valuation allowance of $320.6 million primarily associated with foreign loss carryforwards and foreign tax credit carryforwards (discussed below).

(2) For tax return purposes at December 31, 2019, we had: (1) U.S. general business credits of $39.0 million, which begin to expire in 2022; (2) U.S. alternative minimum tax credits of $0.8 million that can be carried forward indefinitely; (3) U.S. foreign tax credits of $50.5 million, which begin to expire in 2024; and (4) state tax credits of $34.4 million, which begin to expire in 2020.

Changes in the valuation allowance for deferred tax assets are summarized as follows:

	Year Ended December 31,		
In thousands	2019	2018	2017
Balance at beginning of period	$ 323,822	$ 285,784	$ 249,560
Other adjustments	(8,526)	12,308	28,233
Additions charged to costs and expenses	5,353	25,730	7,991
Balance at end of period, noncurrent	$ 320,649	$ 323,822	$ 285,784

We recognize valuation allowances to reduce deferred tax assets to the extent we believe it is more likely than not that a portion of such assets will not be realized. In making such determinations, we consider all available favorable and unfavorable evidence, including scheduled reversals of deferred tax liabilities, projected future taxable income, tax planning strategies, and our ability to carry back losses to prior years. We are required to make assumptions and judgments about potential outcomes that lie outside management's control. Our most sensitive and critical factors are the projection, source, and character of future taxable income. Although realization is not assured, management believes it is more likely than not that deferred tax assets, net of valuation allowance, will be realized. The amount of deferred tax assets considered realizable, however, could be reduced in the near term if estimates of future taxable income during the carryforward periods are reduced or current tax planning strategies are not implemented.

We do not provide U.S. deferred taxes on temporary differences related to our foreign investments that are considered permanent in duration. These temporary differences include undistributed foreign earnings of $13.7 million and $5.1 million at December 31, 2019 and 2018, respectively. Foreign taxes have been provided on these undistributed foreign earnings. As a result of recent changes in U.S. tax legislation, any repatriation of these earnings would not result in additional U.S. federal income tax.

We are subject to income tax in the United States and numerous foreign jurisdictions. Significant judgment is required in evaluating our tax positions and determining our provision for income taxes. During the ordinary course of business, there are many transactions and calculations for which the ultimate tax determination is uncertain. We establish reserves for tax-related uncertainties based on estimates of whether, and the extent to which, additional taxes will be due. These reserves are established when we believe that certain positions might be challenged despite our belief that our tax return positions are fully supportable. We adjust these reserves in light of changing facts and circumstances, such as the outcome of tax audits. The provision for income taxes includes the impact of reserve positions and changes to reserves that are considered appropriate.

A reconciliation of the beginning and ending amount of unrecognized tax benefits is as follows:

In thousands		**Total**
Unrecognized tax benefits at January 1, 2017	$	57,626
Gross increase to positions in prior years		3,367
Gross decrease to positions in prior years		(5,559)
Gross increases to current period tax positions		6,453
Audit settlements		(5,169)
Decrease related to lapsing of statute of limitations		(3,445)
Effect of change in exchange rates		3,429
Unrecognized tax benefits at December 31, 2017	$	56,702
Gross increase to positions in prior years		22,943
Gross decrease to positions in prior years		(24,949)
Gross increases to current period tax positions		63,869
Audit settlements		(2,977)
Decrease related to lapsing of statute of limitations		(1,368)
Effect of change in exchange rates		(1,662)
Unrecognized tax benefits at December 31, 2018	$	112,558
Gross increase to positions in prior years		1,067
Gross decrease to positions in prior years		(3,296)
Gross increases to current period tax positions		13,762
Audit settlements		—
Decrease related to lapsing of statute of limitations		(1,574)
Effect of change in exchange rates		(802)
Unrecognized tax benefits at December 31, 2019	$	121,715

	At December 31,					
In thousands		**2019**		**2018**		**2017**
The amount of unrecognized tax benefits that, if recognized, would affect our effective tax rate	$	120,410	$	111,224	$	55,312

If certain unrecognized tax benefits are recognized they would create additional deferred tax assets. These assets would require a full valuation allowance in certain locations based upon present circumstances.

We classify interest expense and penalties related to unrecognized tax benefits and interest income on tax overpayments as components of income tax expense. The net interest and penalties expense recognized is as follows:

	Year Ended December 31,		
In thousands	2019	2018	2017
Net interest and penalties expense (benefit)	$ 708	$ (990)	$ (543)

	At December 31,	
In thousands	2019	2018
Accrued interest	$ 2,849	$ 2,127
Accrued penalties	1,681	1,758

At December 31, 2019, we are under examination by certain tax authorities. We believe we have appropriately accrued for the expected outcome of all tax matters and do not currently anticipate that the ultimate resolution of these examinations will have a material adverse effect on our financial condition, future results of operations, or cash flows.

Based upon the timing and outcome of examinations, litigation, the impact of legislative, regulatory, and judicial developments, and the impact of these items on the statute of limitations, it is reasonably possible that the related unrecognized tax benefits could change from those recognized within the next twelve months. However, at this time, an estimate of the range of reasonably possible adjustments to the balance of unrecognized tax benefits cannot be made.

We file income tax returns in various jurisdictions. We are subject to income tax examination by tax authorities in our major tax jurisdictions as follows:

Tax Jurisdiction	Years Subject to Audit
U.S. federal	Subsequent to 2001
France	Subsequent to 2012
Germany	Subsequent to 2013
Brazil	Subsequent to 2013
United Kingdom	Subsequent to 2015
Italy	Subsequent to 2014

Note 12: Commitments and Contingencies

Guarantees and Indemnifications

We are often required to obtain standby letters of credit (LOCs) or bonds in support of our obligations for customer contracts. These standby LOCs or bonds typically provide a guarantee to the customer for future performance, which usually covers the installation phase of a contract and may, on occasion, cover the operations and maintenance phase of outsourcing contracts.

Our available lines of credit, outstanding standby LOCs, and bonds are as follows:

In thousands	At December 31, 2019	At December 31, 2018
2018 credit facility		
Multicurrency revolving line of credit	$ 500,000	$ 500,000
Long-term borrowings	—	—
Standby LOCs issued and outstanding	(41,072)	(40,983)
Net available for additional borrowings under the multi-currency revolving line of credit	$ 458,928	$ 459,017
Net available for additional standby LOCs under sub-facility	$ 258,928	$ 259,017
Unsecured multicurrency revolving lines of credit with various financial institutions		
Multicurrency revolving line of credit	$ 107,206	$ 108,039
Standby LOCs issued and outstanding	(25,100)	(19,386)
Short-term borrowings	(173)	(2,232)
Net available for additional borrowings and LOCs	$ 81,933	$ 86,421
Unsecured surety bonds in force	$ 136,004	$ 94,365

In the event any such standby LOC or bond is called, we would be obligated to reimburse the issuer of the standby LOC or bond; however, as of February 26, 2020, we do not believe that any outstanding LOC or bond will be called.

We generally provide an indemnification related to the infringement of any patent, copyright, trademark, or other intellectual property right on software or equipment within our sales contracts, which indemnifies the customer from and pays the resulting costs, damages, and attorney's fees awarded against a customer with respect to such a claim provided that (a) the customer promptly notifies us in writing of the claim and (b) we have the sole control of the defense and all related settlement negotiations. We may also provide an indemnification to our customers for third-party claims resulting from damages caused by the negligence or willful misconduct of our employees/agents in connection with the performance of certain contracts. The terms of our indemnifications generally do not limit the maximum potential payments. It is not possible to predict the maximum potential amount of future payments under these or similar agreements.

Legal Matters

We are subject to various legal proceedings and claims of which the outcomes are subject to significant uncertainty. Our policy is to assess the likelihood of any adverse judgments or outcomes related to legal matters, as well as ranges of probable losses. A determination of the amount of the liability required, if any, for these contingencies is made after an analysis of each known issue. A liability is recognized and charged to operating expense when we determine that a loss is probable and the amount can be reasonably estimated. Additionally, we disclose contingencies for which a material loss is reasonably possible, but not probable.

Warranty

A summary of the warranty accrual account activity is as follows:

In thousands	Year Ended December 31, 2019	2018	2017
Beginning balance	$ 60,443	$ 34,862	$ 43,302
Assumed liabilities from acquisition	—	12,946	—
New product warranties	5,202	3,772	7,849
Other adjustments and expirations, net	15,695	22,741	(393)
Claims activity	(27,916)	(12,753)	(18,094)
Effect of change in exchange rates	(183)	(1,125)	2,198
Ending balance	53,241	60,443	34,862
Less: current portion of warranty	38,509	47,205	21,150
Long-term warranty	$ 14,732	$ 13,238	$ 13,712

Total warranty expense is classified within cost of revenues and consists of new product warranties issued, costs related to insurance and supplier recoveries, other changes and adjustments to warranties, and customer claims. Warranty expense was as follows:

	Year Ended December 31,		
In thousands	2019	2018	2017
Total warranty expense (benefit)	$ 17,975	$ 26,513	$ (2,054)

Warranty expense decreased during the year ended December 31, 2019 compared with the same period in 2018. This decrease is primarily driven by a warranty reserve of $11.4 million for replacement of certain gas meters in our Device Solutions segment recognized in 2018.

Health Benefits

We are self-insured for a substantial portion of the cost of our U.S. employee group health insurance. We purchase insurance from a third-party, which provides individual and aggregate stop loss protection for these costs. Each reporting period, we expense the costs of our health insurance plan including paid claims, the change in the estimate of incurred but not reported (IBNR) claims, taxes, and administrative fees (collectively, the plan costs).

Plan costs were as follows:

	Year Ended December 31,		
In thousands	2019	2018	2017
Plan costs	$ 33,611	$ 41,543	$ 30,521

IBNR accrual, which is included in wages and benefits payable, was as follows:

	At December 31,	
In thousands	2019	2018
IBNR accrual	$ 3,171	$ 3,643

Our IBNR accrual and expenses may fluctuate due to the number of plan participants, claims activity, and deductible limits. For our employees located outside of the United States, health benefits are provided primarily through governmental social plans, which are funded through employee and employer tax withholdings.

Note 13: Restructuring

2018 Projects

On February 22, 2018, our Board of Directors approved a restructuring plan (2018 Projects) to continue our efforts to optimize our global supply chain and manufacturing operations, research and development, and sales and marketing organizations. We expect to substantially complete expense recognition on the plan by the end of 2020. Many of the affected employees are represented by unions or works councils, which require consultation, and potential restructuring projects may be subject to regulatory approval, both of which could impact the timing of charges, total expected charges, cost recognized, and planned savings in certain jurisdictions.

The total expected restructuring costs, the recognized restructuring costs, and the remaining expected restructuring costs related to the 2018 Projects are as follows:

In thousands	Total Expected Costs at December 31, 2019	Costs Recognized in Prior Periods	Costs Recognized During the Year Ended December 31, 2019	Expected Remaining Costs to be Recognized at December 31, 2019
Employee severance costs	$ 72,133	$ 73,778	$ (1,645)	$ —
Asset impairments & net loss on sale or disposal	3,842	117	3,725	—
Other restructuring costs	24,910	4,228	7,192	13,490
Total	$ 100,885	$ 78,123	$ 9,272	$ 13,490

2016 Projects

On September 1, 2016, we announced projects (2016 Projects) to restructure various company activities in order to improve operational efficiencies, reduce expenses and improve competitiveness. We closed or consolidated several facilities and reduce our global workforce as a result of the restructuring. The 2016 Projects were initiated during the third quarter of 2016 and were substantially complete as of December 31, 2018.

In April 2019, we completed the sale of our property in Stretford, United Kingdom. A gain on sale of $5.4 million was included in restructuring expense in the Consolidated Statements of Operations.

The total expected restructuring costs, the recognized restructuring costs, and the remaining expected restructuring costs related to the 2016 Projects are as follows:

In thousands	Total Expected Costs at December 31, 2019	Costs Recognized in Prior Periods	Costs Recognized During the Year Ended December 31, 2019	Expected Remaining Costs to be Recognized at December 31, 2019
Employee severance costs	$ 36,882	$ 35,845	$ 1,037	$ —
Asset impairments & net loss (gain) on sale or disposal	154	5,664	(5,510)	—
Other restructuring costs	13,942	11,763	1,479	700
Total	$ 50,978	$ 53,272	$ (2,994)	$ 700

The following table summarizes the activity within the restructuring related balance sheet accounts for the 2018 and 2016 Projects during the year ended December 31, 2019:

In thousands	Accrued Employee Severance	Asset Impairments & Net Gain on Sale or Disposal	Other Accrued Costs	Total
Beginning balance, January 1, 2019	$ 72,152	$ —	$ 3,416	$ 75,568
Costs charged to expense	(608)	(1,785)	8,671	6,278
Cash (payments) receipts	(16,482)	5,500	(9,733)	(20,715)
Net assets disposed and impaired	—	(3,715)	—	(3,715)
Effect of change in exchange rates	(1,321)	—	12	(1,309)
Ending balance, December 31, 2019	$ 53,741	$ —	$ 2,366	$ 56,107

Asset impairments are determined at the asset group level. Revenues and net operating income from the activities we have exited or will exit under the restructuring projects are not material to our operating segments or consolidated results.

Other restructuring costs include expenses for employee relocation, professional fees associated with employee severance, and costs to exit the facilities once the operations in those facilities have ceased. Costs associated with restructuring activities are generally presented in the Consolidated Statements of Operations as restructuring, except for certain costs associated with inventory write-downs, which are classified within cost of revenues, and accelerated depreciation expense, which is recognized according to the use of the asset.

The current portion of restructuring liabilities were $18.9 million and $36.0 million as of December 31, 2019 and 2018, respectively. The current portion of restructuring liabilities is classified within other current liabilities on the Consolidated Balance Sheets. The long-term portion of restructuring liabilities balances were $37.2 million and $39.6 million as of

December 31, 2019 and 2018, respectively. The long-term portion of restructuring liabilities is classified within other long-term obligations on the Consolidated Balance Sheets and include severance accruals and facility exit costs.

All restructuring costs are recognized within the Corporate unallocated reporting segment.

Note 14: Shareholders' Equity

Preferred Stock
We have authorized the issuance of 10 million shares of preferred stock with no par value. In the event of a liquidation, dissolution, or winding up of the affairs of the corporation, whether voluntary or involuntary, the holders of any outstanding preferred stock will be entitled to be paid a preferential amount per share to be determined by our Board of Directors prior to any payment to holders of common stock. There was no preferred stock issued or outstanding at December 31, 2019 or 2018.

Stock Repurchase Authorization
On March 14, 2019, Itron's Board of Directors authorized the Company to repurchase up to $50 million of our common stock over a 12-month period (the 2019 Stock Repurchase Program). Following the announcement of the program and through December 31, 2019, we repurchased 529,396 shares at an average share price of $47.22 (including commissions) for a total of $25 million. The remaining amount authorized for repurchase under the 2019 Stock Repurchase Program is $25 million. In accordance with the terms of our 5% senior notes indenture maturing January 15, 2026, we were limited to a total of $25 million in stock repurchases in 2019.

Other Comprehensive Income (Loss)
The changes in the components of AOCI, net of tax, were as follows:

In thousands	Foreign Currency Translation Adjustments	Net Unrealized Gain (Loss) on Derivative Instruments	Net Unrealized Gain (Loss) on Nonderivative Instruments	Pension Benefit Obligation Adjustments	Accumulated Other Comprehensive Income (Loss)
Balances at January 1, 2017	$ (182,986)	$ 43	$ (14,380)	$ (32,004)	$ (229,327)
OCI before reclassifications	53,854	360	—	2,354	56,568
Amounts reclassified from AOCI	484	563	—	1,234	2,281
Total other comprehensive income (loss)	54,338	923	—	3,588	58,849
Balances at December 31, 2017	$ (128,648)	$ 966	$ (14,380)	$ (28,416)	$ (170,478)
OCI before reclassifications	(28,841)	2,586	—	1,653	(24,602)
Amounts reclassified from AOCI	—	(2,351)	—	1,126	(1,225)
Total other comprehensive income (loss)	(28,841)	235	—	2,779	(25,827)
Balances at December 31, 2018	$ (157,489)	$ 1,201	$ (14,380)	$ (25,637)	$ (196,305)
OCI before reclassifications	(2,953)	4,061	—	1,909	3,017
Amounts reclassified from AOCI	2,443	(5,985)	—	(7,842)	(11,384)
Total other comprehensive income (loss)	(510)	(1,924)	—	(5,933)	(8,367)
Balances at December 31, 2019	$ (157,999)	$ (723)	$ (14,380)	$ (31,570)	$ (204,672)

The before-tax, income tax (provision) benefit, and net-of-tax amounts related to each component of OCI during the reporting periods were as follows:

In thousands	Year Ended December 31, 2019	2018	2017
Before-tax amount			
Foreign currency translation adjustment	$ (2,581)	$ (29,130)	$ 54,218
Foreign currency translation adjustment reclassified to net income on disposal	2,443	—	484
Net unrealized gain (loss) on derivative instruments, designated as cash flow hedges	4,063	2,908	585
Net hedging (gain) loss reclassified to net income	(6,605)	(2,507)	916
Net unrealized gain (loss) on defined benefit plans	1,966	2,343	3,401
Net defined benefit plan loss reclassified to net income	(8,076)	1,596	1,782
Total other comprehensive income (loss), before tax	(8,790)	(24,790)	61,386
Tax (provision) benefit			
Foreign currency translation adjustment	(372)	289	(364)
Net unrealized gain (loss) on derivative instruments, designated as cash flow hedges	(2)	(322)	(225)
Net hedging (gain) loss reclassified to net income	620	156	(353)
Net unrealized gain (loss) on defined benefit plans	(57)	(690)	(1,047)
Net defined benefit plan loss reclassified to net income	234	(470)	(548)
Total other comprehensive income (loss) tax (provision) benefit	423	(1,037)	(2,537)
Net-of-tax amount			
Foreign currency translation adjustment	(2,953)	(28,841)	53,854
Foreign currency translation adjustment reclassified to net income on disposal	2,443	—	484
Net unrealized gain (loss) on derivative instruments, designated as cash flow hedges	4,061	2,586	360
Net hedging (gain) loss reclassified to net income	(5,985)	(2,351)	563
Net unrealized gain (loss) on defined benefit plans	1,909	1,653	2,354
Net defined benefit plan loss reclassified to net income	(7,842)	1,126	1,234
Total other comprehensive income (loss), net of tax	$ (8,367)	$ (25,827)	$ 58,849

Note 15: Fair Values of Financial Instruments

The fair values at December 31, 2019 and 2018 do not reflect subsequent changes in the economy, interest rates, tax rates, and other variables that may affect the determination of fair value.

	December 31, 2019		December 31, 2018	
In thousands	**Carrying Amount**	**Fair Value**	**Carrying Amount**	**Fair Value**
Assets				
Cash and cash equivalents	$ 149,904	$ 149,904	$ 120,221	$ 120,221
Restricted cash	—	—	2,107	2,107
Foreign exchange forwards	96	96	157	157
Interest rate swaps	174	174	2,612	2,612
Interest rate caps	1	1	786	786
Cross currency swaps	4,026	4,026	2,970	2,970
Liabilities				
Credit facility				
USD denominated term loan	$ 546,495	$ 550,135	$ 632,954	$ 630,971
Multicurrency revolving line of credit	—	—	—	—
Senior notes	385,987	416,500	383,669	368,000
Foreign exchange forwards	162	162	337	337

The following methods and assumptions were used in estimating fair values:

Cash, cash equivalents, and restricted cash: Due to the liquid nature of these instruments, the carrying value approximates fair value (Level 1).

Credit Facility - term loan and multicurrency revolving line of credit: The term loan and revolver are not traded publicly. The fair values, which are determined based upon a hypothetical market participant, are calculated using a discounted cash flow model with Level 2 inputs, including estimates of incremental borrowing rates for debt with similar terms, maturities, and credit profiles. Refer to "Note 6: Debt" for a further discussion of our debt.

Senior Notes: The Senior Notes are not registered securities nor listed on any securities exchange, but may be actively traded by qualified institutional buyers. The fair value is estimated using Level 1 inputs, as it is based on quoted prices for these instruments in active markets.

Derivatives: See "Note 7: Derivative Financial Instruments" for a description of our methods and assumptions in determining the fair value of our derivatives, which were determined using Level 2 inputs.

Note 16: Segment Information

We operate under the Itron brand worldwide and manage and report under three operating segments: Device Solutions, Networked Solutions, and Outcomes.

We have three GAAP measures of segment performance: revenues, gross profit (gross margin), and operating income (operating margin). Intersegment revenues are minimal. Certain operating expenses are allocated to the operating segments based upon internally established allocation methodologies. Corporate operating expenses, interest income, interest expense, other income (expense), and the income tax provision (benefit) are neither allocated to the segments, nor are they included in the measure of segment performance. In addition, we allocate only certain production assets and intangible assets to our operating segments. We do not manage the performance of the segments on a balance sheet basis.

Segment Products

Device Solutions – This segment primarily includes hardware products used for measurement, control, or sensing that do not have communications capability embedded for use with our broader Itron systems, i.e., hardware-based products not part of a complete "end-to-end" solution. Examples from the Device Solutions portfolio include: standard endpoints that are shipped without Itron communications, such as our standard gas meters, electricity IEC meters, and water meters, in addition to our heat and allocation products; communicating meters that are not a part of an Itron solution such as Smart Spec meters; and the implementation and installation of non-communicating devices, such as gas regulators.

Networked Solutions – This segment primarily includes a combination of communicating devices (smart meters, modules, endpoints, and sensors), network infrastructure, and associated application software designed and sold as a complete solution for acquiring and transporting robust application-specific data. Networked Solutions combines the majority of the assets from the recently acquired SSNI organization with our legacy Itron networking products and software and the implementation and installation of communicating devices into one operating segment. Examples from the Networked Solutions portfolio include: communicating measurement, control, or sensing endpoints such as our Itron® and OpenWay® Riva meters, Itron traditional ERT® technology, Intelis smart gas or water meters, 500G gas communication modules, 500W water communication modules; GenX networking products, network modules and interface cards; and specific network control and management software applications. The IIoT solutions supported by this segment include automated meter reading (AMR), advanced metering infrastructure (AMI), smart grid and distribution automation (DA), and smart street lighting and smart city solutions.

Outcomes – This segment primarily includes our value-added, enhanced software and services in which we manage, organize, analyze, and interpret data to improve decision making, maximize operational profitability, drive resource efficiency, and deliver results for consumers, utilities, and smart cities. Outcomes places an emphasis on delivering to Itron customers high-value, turn-key, digital experiences by leveraging the footprint of our Device Solutions and Networked Solutions segments. The revenues from these offerings are primarily recurring in nature and would include any direct management of Device Solutions, Networked Solutions, and other products on behalf of our end customers. Examples from the Outcomes portfolio include: our meter data management and analytics offerings; our managed service solutions including network-as-a-service and platform-as-a-service, forecasting software and services; and any consulting-based engagement. Within the Outcomes segment, we also identify new business models, including performance-based contracting, to drive broader portfolio offerings across utilities and cities.

Revenues, gross profit, and operating income associated with our segments were as follows:

	Year Ended December 31,		
In thousands	2019	2018	2017
Product revenues			
Device Solutions	$ 847,580	$ 916,809	$ 866,028
Networked Solutions	1,322,382	1,133,919	881,042
Outcomes	50,433	44,730	66,855
Total Company	$ 2,220,395	$ 2,095,458	$ 1,813,925
Service revenues			
Device Solutions	$ 11,301	$ 16,556	$ 16,868
Networked Solutions	94,872	90,225	66,342
Outcomes	175,902	173,878	121,062
Total Company	$ 282,075	$ 280,659	$ 204,272
Total revenues			
Device Solutions	$ 858,881	$ 933,365	$ 882,896
Networked Solutions	1,417,254	1,224,144	947,384
Outcomes	226,335	218,608	187,917
Total Company	$ 2,502,470	$ 2,376,117	$ 2,018,197
Gross profit			
Device Solutions	$ 152,562	$ 187,254	$ 216,631
Networked Solutions	518,749	482,471	412,375
Outcomes	81,008	60,594	47,745
Total Company	$ 752,319	$ 730,319	$ 676,751
Operating income			
Device Solutions	$ 97,753	$ 130,988	$ 159,641
Networked Solutions	397,325	360,779	322,367
Outcomes	43,803	16,634	4,915
Corporate unallocated	(406,198)	(558,093)	(332,046)
Total Company	132,683	(49,692)	154,877
Total other income (expense)	(59,651)	(59,459)	(20,302)
Income (loss) before income taxes	$ 73,032	$ (109,151)	$ 134,575

During the year ended December 31, 2017, we recognized an insurance recovery associated with warranty expenses previously recognized as a result of our 2015 product replacement notification. As a result, gross profit increased $8.0 million for the year ended December 31, 2017. After adjusting for the tax impact, the recovery resulted in an increase of $0.13 and $0.12 for basic and diluted EPS, respectively, for the year ended December 31, 2017.

For all periods presented, no single customer represents more than 10% of total Company.

We currently buy a majority of our integrated circuit board assemblies from three suppliers. Management believes that other suppliers could provide similar products, but a change in suppliers, disputes with our suppliers, or unexpected constraints on the suppliers' production capacity could adversely affect operating results.

Revenues by region were as follows:

In thousands	Year Ended December 31, 2019	2018	2017
United States and Canada	$ 1,629,742	$ 1,442,792	$ 1,137,508
Europe, Middle East, and Africa (EMEA)	663,851	733,732	672,942
Latin America and Asia Pacific	208,877	199,593	207,747
Total Company	$ 2,502,470	$ 2,376,117	$ 2,018,197

Property, plant, and equipment, net, by geographic area were as follows:

In thousands	At December 31, 2019	2018
United States	$ 99,615	$ 93,034
Outside United States	133,613	133,517
Total Company	$ 233,228	$ 226,551

Depreciation expense is allocated to the operating segments based upon each segments use of the assets. All amortization expense is included in Corporate unallocated. Depreciation and amortization of intangible assets expense associated with our operating segments was as follows:

In thousands	Year Ended December 31, 2019	2018	2017
Device Solutions	$ 25,542	$ 25,022	$ 25,757
Networked Solutions	13,004	12,671	7,758
Outcomes	5,363	6,572	3,826
Corporate unallocated	70,491	78,232	25,874
Total Company	$ 114,400	$ 122,497	$ 63,215

Note 17: Business Combinations

Silver Spring Networks, Inc.

On January 5, 2018, we completed the acquisition of SSNI by purchasing 100% of SSNI's outstanding stock. The acquisition was financed through incremental borrowings and cash on hand. Refer to "Note 6: Debt" for further discussion of our debt.

SSNI provided smart network and data platform solutions for electricity, gas, water and smart cities including advanced metering, distribution automation, demand-side management, and street lights. Solutions include one or several of the following: communications modules, access points, relays and bridges; network operating software, grid management, security and grid analytics managed services and SaaS; installation; implementation; and professional services including consulting and analysis. Upon acquisition, SSNI changed its name to Itron Networked Solutions, Inc. (INS) and initially operated separately as our Networks operating segment. Subsequent to the October 1, 2018 reorganization, the prior Networks operating segment was integrated into the new Networked Solutions and Outcomes operating segments.

The purchase price of SSNI was $809.2 million, which is net of $97.8 million of acquired cash and cash equivalents. Of the total consideration $802.5 million was paid in cash. The remaining $6.7 million relates to the fair value of pre-acquisition service for replacement awards of unvested SSNI options and restricted stock unit awards with an Itron equivalent award. We allocated the purchase price to the assets acquired and liabilities assumed based on estimated fair value assessments. During the year ended December 31, 2019, we completed the measurement period for the acquisition of SSNI and any further adjustments to assets acquired or liabilities assumed will be recognized through the Consolidated Statements of Operations.

The following reflects our allocation of purchase price:

	Fair Value	Weighted Average Useful Life
	In thousands	*Years*
Current Assets	$ 88,395	
Property, plant, and equipment	27,670	6
Other long-term assets	1,873	
Identifiable intangible assets		
Core-developed technology	81,900	5
Customer contracts and relationships	134,000	10
Trademark and trade names	10,800	3
Total identified intangible assets subject to amortization	226,700	8
In-process research and development (IPR&D)	14,400	
Total identified intangible assets	241,100	
Goodwill	569,772	
Current liabilities	(93,129)	
Customer contracts and relationships	(23,900)	5
Long-term liabilities	(2,565)	
Total net assets acquired	$ 809,216	

The fair values for the identified trademarks and core-developed technology intangible assets were estimated using the relief from royalty method, which values the assets by estimating the savings achieved by ownership of trademark or technology when compared with the cost of licensing it from an independent owner. The fair value of customer contracts and relationship were estimated using the income approach. Under the income approach, the fair value reflects the present value of the projected cash flows that are expected to be generated.

The fair value of IPR&D was valued utilizing the replacement cost method, which measures the value of an asset based on the cost to replace the existing asset. We estimated it would take approximately one year to complete the in-process technology. A profit mark-up was used to account for the return that a third-party developer would require on development efforts for the asset based on expected earnings before interest and taxes, and a return of ten percent was used based on the risk of the asset relative to the overall business. IPR&D will be amortized using the straight-line method after the technology is fully developed and is considered a product offering. Incremental costs to be incurred for these projects are recognized as research and development expense as incurred within the Consolidated Statements of Operations.

Core-developed technology represents the fair values of SSNI products that have reached technological feasibility and were part of SSNI's product offerings at the date of the acquisition. Customer contracts and relationships represent the fair value of the relationships developed with its customers, including the backlog. The core-developed technology, trademarks, and customer contracts and relationships intangible assets valued using the income approach will be amortized using the estimated discounted cash flows assumed in the valuation models.

Goodwill of $569.8 million arising from the acquisition consists largely of the synergies expected from combining the operations of Itron and SSNI, as well as certain intangible assets that do not qualify for separate recognition. All of the goodwill balance was assigned to the prior Networks reporting unit and operating segment. Refer to "Note 5: Goodwill". We will not be able to deduct any of the goodwill balance for income tax purposes.

As a part of the business combination, we incurred $26.6 million and $91.9 million of acquisition and integration related expenses for the year ended December 31, 2019 and 2018, respectively. Acquisition related expenses includes such activities as success fees, certain consulting and advisory costs, and incremental legal and accounting costs. Integration costs are expenses related to integrating SSNI into Itron, and include expenses such as accounting and process integration and the related consulting fees, severance, site closure costs, system integration, and travel associated with knowledge transfers as we consolidate redundant positions. All acquisition and integration related expenses are included within sales, general and administrative expenses in the Consolidated Statements of Operations.

The following table presents the revenues and net loss from SSNI operations that are included in our Consolidated Statements of Operations:

In thousands		January 5, 2018 - December 31, 2018
Revenues	$	352,996
Net income (loss)		(54,409)

The following supplemental pro forma results (unaudited) are based on the individual historical results of Itron and SSNI, with adjustments to give effect to the combined operations as if the acquisition had been consummated on January 1, 2017.

	Year Ended December 31,			
In thousands		2018		2017
Revenues	$	2,376,117	$	2,591,211
Net income (loss)		(84,602)		27,289

The significant nonrecurring adjustments reflected in the proforma schedule above are considered material and include the following:

- Elimination of transaction costs incurred by SSNI and Itron prior to the acquisition completion
- Reclassification of certain expenses incurred after the acquisition to the appropriate periods assuming the acquisition closed on January 1, 2017

The supplemental pro forma results are intended for information purposes only and do not purport to represent what the combined companies' results of operations would actually have been had the transaction in fact occurred at an earlier date or project the results for any future date or period.

Note 18: Revenues

A summary of significant net changes in the contract assets and the contract liabilities balances during the period is as follows:

In thousands		Contract liabilities, less contract assets
Beginning balance, January 1, 2019	$	102,130
Revenues recognized from beginning contract liability		(57,371)
Increases due to amounts collected or due		328,557
Revenues recognized from current period increases		(282,322)
Other		(2,779)
Ending balance, December 31, 2019	$	88,215

On January 1, 2019, total contract assets were $34.3 million and total contract liabilities were $136.5 million. On December 31, 2019, total contract assets were $50.7 million and total contract liabilities were $138.9 million. The contract assets primarily relate to contracts that include a retention clause and allocations related to contracts with multiple performance obligations. The contract liabilities primarily relate to deferred revenue, such as extended warranty and maintenance cost.

Transaction price allocated to the remaining performance obligations

Total transaction price allocated to remaining performance obligations represents committed but undelivered products and services for contracts and purchase orders at period end. Twelve-month remaining performance obligations represent the portion of total transaction price allocated to remaining performance obligations that we estimate will be recognized as revenue over the next 12 months. Total transaction price allocated to remaining performance obligations is not a complete measure of our future revenues as we also receive orders where the customer may have legal termination rights but are not likely to terminate.

Total transaction price allocated to remaining performance obligations related to contracts is approximately $1.4 billion for the next twelve months and approximately $931 million for periods longer than 12 months. The total remaining performance obligations consists of product and service components. The service component relates primarily to maintenance agreements for which customers pay a full year's maintenance in advance, and service revenues are generally recognized over the service period. Total transaction price allocated to remaining performance obligations also includes our extended warranty contracts, for which revenue is recognized over the warranty period, and hardware, which is recognized as units are delivered. The estimate of when remaining performance obligations will be recognized requires significant judgment.

Cost to obtain a contract and cost to fulfill a contract with a customer

Cost to obtain a contract and costs to fulfill a contract were capitalized and amortized using a systematic rational approach to align with the transfer of control of underlying contracts with customers. While amounts were capitalized, they are not material.

Disaggregation of revenue

Refer to "Note 16: Segment Information" and the Consolidated Statements of Operations for disclosure regarding the disaggregation of revenue into categories, which depict how revenue and cash flows are affected by economic factors. Specifically, our operating segments and geographical regions as disclosed, and categories for products, which include hardware and software and services, are presented.

Note 19: Leases

We lease certain factories, service and distribution locations, offices, and equipment under operating leases. Our operating leases have initial lease terms ranging from 1 to 9 years, some of which include options to extend or renew the leases for up to 10 years. Certain lease agreements contain provisions for future rent increases. Our leases do not contain material residual value guarantees, and finance leases are not material.

The components of operating lease expense are as follows:

In thousands	Year Ended December 31, 2019
Operating lease cost	$ 23,221
Variable lease cost	2,103
Total operating lease cost	$ 25,324

Supplemental cash flow information related to operating leases is as follows:

In thousands	Year Ended December 31, 2019
Cash paid for amounts included in the measurement of operating lease liabilities	$ 19,899
Right-of-use assets obtained in exchange for operating lease liabilities	23,511

Supplemental balance sheet information related to operating leases is as follows:

In thousands	December 31, 2019
Operating lease right-of-use assets, net	$ 79,773
Other current liabilities	17,049
Operating lease liabilities	68,919
Total operating lease liability	$ 85,968
Weighted average remaining lease term - Operating leases	5.9 years
Weighted average discount rate - Operating leases	4.9 %

Remaining maturities of operating lease liabilities as of December 31, 2019 are as follows:

In thousands	December 31, 2019
2020	$ 19,747
2021	16,740
2022	14,351
2023	13,700
2024	12,170
Thereafter	22,572
Total lease payments	99,280
Less: imputed interest	(13,312)
Total operating lease liability	$ 85,968

Operating lease rental expense for factories, service and distribution locations, office, and equipment prior to adoption of ASC 842 was as follows:

In thousands	Year Ended December 31,	
	2018	2017
Rental expense	$ 24,453	$ 14,824

The future obligations under operating leases in effect as of December 31, 2018 as determined prior to adoption of ASC 842 were as follows:

In thousands	December 31, 2018
Less than 1 year	$ 17,456
1-3 years	26,241
3-5 years	19,659
Beyond 5 years	26,703
Total operating lease liability	$ 90,059

Note 20: Quarterly Results (Unaudited)

In thousands, except per share data	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	Total Year
2019					
Consolidated Statements of Operations data:					
Revenues	$ 614,576	$ 635,037	$ 624,474	$ 628,383	$ 2,502,470
Gross profit	187,263	191,214	196,404	177,438	752,319
Net income (loss) attributable to Itron, Inc.	(1,907)	19,446	16,847	14,620	49,006
Earnings (loss) per common share - Basic[(1)]	$ (0.05)	$ 0.49	$ 0.43	$ 0.37	$ 1.24
Earnings (loss) per common share - Diluted[(1)]	$ (0.05)	$ 0.49	$ 0.42	$ 0.36	$ 1.23

In thousands, except per share data	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	Total Year
2018					
Consolidated Statements of Operations data:					
Revenues	$ 607,221	$ 585,890	$ 595,962	$ 587,044	$ 2,376,117
Gross profit	179,855	176,577	197,097	176,790	730,319
Net income (loss) attributable to Itron, Inc.	(145,666)	2,657	19,882	23,877	(99,250)
Earnings (loss) per common share - Basic[(1)]	$ (3.74)	$ 0.07	$ 0.51	$ 0.61	$ (2.53)
Earnings (loss) per common share - Diluted[(1)]	$ (3.74)	$ 0.07	$ 0.50	$ 0.60	$ (2.53)

(1) The sum of the quarterly EPS data presented in the table may not equal the annual results due to rounding and the impact of dilutive securities on the annual versus the quarterly EPS calculations.

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

There were no disagreements with our independent accountants on accounting and financial disclosure matters within the three year period ended December 31, 2019, or in any period subsequent to such date, through the date of this report.

ITEM 9A: CONTROLS AND PROCEDURES

Evaluation of disclosure controls and procedures

An evaluation was performed under the supervision and with the participation of our Company's management, including the Chief Executive Officer and Chief Financial Officer, of the effectiveness of the design and operation of the Company's disclosure controls and procedures (as such term is defined in Rules 13a-15(e) and 15d-15(e)) under the Securities Exchange Act of 1934 as amended. Based on that evaluation, the Company's management, including the Chief Executive Officer and Chief Financial Officer, concluded that as of December 31, 2019, the Company's disclosure controls and procedures were effective to ensure the information required to be disclosed by an issuer in the reports that it files or submits under the Securities Exchange Act of 1934 is accumulated and communicated to our management, including our principal executive and principal financial officers, or persons performing similar functions, as appropriate to allow timely decisions regarding required disclosure. There are inherent limitations to the effectiveness of any system of disclosure controls and procedures, including the possibility of human error and the circumvention or overriding of the controls and procedures. Accordingly, even effective disclosure controls and procedures can only provide reasonable assurance of achieving their control objectives.

Management's Annual Report on Internal Control Over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting, as such term is defined in Exchange Act Rules 13a-15(f). Under the supervision and with the participation of our management, including our Chief Executive Officer and Chief Financial Officer, we conducted an evaluation of the effectiveness of our internal control over financial reporting based on the framework in *Internal Control— Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 Framework). Based on our evaluation under the 2013 Framework, management concluded that our internal control over financial reporting was effective as of December 31, 2019.

The effectiveness of our internal control over financial reporting as of December 31, 2019 has been audited by Deloitte & Touche LLP, an independent registered public accounting firm, as stated in their report that is included in this Annual Report.

Changes in internal control over financial reporting

There have been no changes in our internal control over financial reporting during the three months ended December 31, 2019 that materially affected, or are reasonably likely to materially affect, internal control over financial reporting.

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the shareholders and the Board of Directors of Itron, Inc.

Opinion on Internal Control over Financial Reporting

We have audited the internal control over financial reporting of Itron, Inc. and subsidiaries (the "Company") as of December 31, 2019, 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 Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2019, based on criteria established in *Internal Control — Integrated Framework (2013)* issued by COSO.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB) the consolidated financial statements as of and for the year ended December 31, 2019, of the Company and our report dated February 26, 2020, expressed an unqualified opinion on those financial statements and included an explanatory paragraph relating to the Company's adoption of ASC 606 - *Revenue from Contracts with Customers*.

Basis for Opinion

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

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

Definition and Limitations of Internal Control over Financial Reporting

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

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

/s/ DELOITTE & TOUCHE LLP

Seattle, Washington
February 26, 2020

ITEM 9B: OTHER INFORMATION

No information was required to be disclosed in a report on Form 8-K during the fourth quarter of 2019 that was not reported.

PART III

ITEM 10: DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

The section entitled "Proposal 1 – Election of Directors" appearing in our Proxy Statement for the Annual Meeting of Shareholders to be held on May 7, 2020 (the 2020 Proxy Statement) sets forth certain information with regard to our directors as required by Item 401 of Regulation S-K and is incorporated herein by reference.

Certain information with respect to persons who are or may be deemed to be executive officers of Itron, Inc. as required by Item 401 of Regulation S-K is set forth under the caption "Information about our Executive Officers" in Part I of this Annual Report.

The section entitled "Delinquent Section 16(a) Reports" appearing in the 2020 Proxy Statement sets forth certain information as required by Item 405 of Regulation S-K and is incorporated herein by reference.

The section entitled "Corporate Governance" appearing in the 2020 Proxy Statement sets forth certain information with respect to the Registrant's code of conduct and ethics as required by Item 406 of Regulation S-K and is incorporated herein by reference. Our code of conduct and ethics can be accessed on our website, at www.itron.com under the Investors section.

There were no material changes to the procedures by which security holders may recommend nominees to Itron's board of directors during 2020, as set forth by Item 407(c)(3) of Regulation S-K.

The section entitled "Corporate Governance" appearing in the 2020 Proxy Statement sets forth certain information regarding the Audit/Finance Committee, including the members of the Committee and the Audit/Finance Committee financial experts, as set forth by Item 407(d)(4) and (d)(5) of Regulation S-K and is incorporated herein by reference.

ITEM 11: EXECUTIVE COMPENSATION

The sections entitled "Compensation of Directors" and "Executive Compensation" appearing in the 2020 Proxy Statement set forth certain information with respect to the compensation of directors and management of Itron as required by Item 402 of Regulation S-K and are incorporated herein by reference.

The section entitled "Corporate Governance" appearing in the 2020 Proxy Statement sets forth certain information regarding members of the Compensation Committee required by Item 407(e)(4) of Regulation S-K and is incorporated herein by reference.

The section entitled "Compensation Committee Report" appearing in the 2020 Proxy Statement sets forth certain information required by Item 407(e)(5) of Regulation S-K and is incorporated herein by reference.

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

The section entitled "Equity Compensation Plan Information" appearing in the 2020 Proxy Statement sets forth certain information required by Item 201(d) of Regulation S-K and is incorporated herein by reference.

The section entitled "Security Ownership of Certain Beneficial Owners and Management" appearing in the 2020 Proxy Statement sets forth certain information with respect to the ownership of our common stock as required by Item 403 of Regulation S-K and is incorporated herein by reference.

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

The section entitled "Corporate Governance" appearing in the 2020 Proxy Statement sets forth certain information required by Item 404 of Regulation S-K and is incorporated herein by reference.

The section entitled "Corporate Governance" appearing in the 2020 Proxy Statement sets forth certain information with respect to director independence as required by Item 407(a) of Regulation S-K and is incorporated herein by reference.

ITEM 14: PRINCIPAL ACCOUNTING FEES AND SERVICES

The section entitled "Independent Registered Public Accounting Firm's Audit Fees and Services" appearing in the 2020 Proxy Statement sets forth certain information with respect to the principal accounting fees and services and the Audit/Finance Committee's policy on pre-approval of audit and permissible non-audit services performed by our independent auditors as required by Item 9(e) of Schedule 14A and is incorporated herein by reference.

PART IV

ITEM 15: EXHIBITS, FINANCIAL STATEMENT SCHEDULE

(a) (1) Financial Statements:

The financial statements required by this item are submitted in Item 8 of this Annual Report on Form 10-K.

(a) (2) Financial Statement Schedule:

All schedules have been omitted because of the absence of conditions under which they are required or because the required information is included in the consolidated financial statements or the notes thereto.

(a) (3) Exhibits:

Exhibit Number	Description of Exhibits
2.1	Agreement and Plan of Merger, dated September 17, 2017, by and among Itron, Inc., Ivory Merger Sub, Inc., and Silver Spring, Inc. (Filed as Exhibit 2.1 to Itron Inc.'s Current Report on Form 8-K, filed on September 18, 2017)
3.1	Amended and Restated Articles of Incorporation of Itron, Inc. (Filed as Exhibit 3.1 to Itron, Inc.'s Annual Report on Form 10-K, filed on March 27, 2003)
3.2	Amended and Restated Bylaws of Itron, Inc. (Filed as Exhibit 3.2 to Itron, Inc.'s Annual Report on Form 10-K, filed on June 30, 2016)
4.1	Security Agreement dated August 5, 2011 among Itron, Inc. and Wells Fargo Bank, National Association (Filed as Exhibit 4.2 to Form 8-K filed on August 8, 2011)
4.2	First Amendment to Security Agreement dated June 23, 2015 among Itron, Inc. and Wells Fargo Bank, National Association. (Filed as Exhibit 4.2 to Itron, Inc.'s Current Report on Form 8-K, filed on June 23, 2015)
4.3	Indenture, dated as of December 22, 2017 among Itron, Inc., the guarantors from time to time party thereto and U.S. Bank National Association, as trustee. (Filed as Exhibit 4.1 to Itron, Inc.'s Current Report on Form 8-K, filed on December 22, 2017)
4.4	Second Amended and Restated Credit Agreement dated January 5, 2018 among Itron, Inc. and a syndicate of banks led by Wells Fargo Bank, National Association, JPMorgan Chase Bank, N.A., J.P. Morgan Europe Limited, J.P. Morgan Securities PLC, BNP Paribas, and Silicon Valley Bank (Filed as Exhibit 4.1 to Itron, Inc.'s Current Report on Form 8-K, filed on January 11, 2018)
4.5	Amendment No. 1 dated October 18, 2019, to the Second Amended and Restated Credit Agreement dated January 5, 2018 among Itron, Inc., certain foreign borrowers, guarantors, lenders and issuing parties thereto, and Wells Fargo Bank, National Association, as administrative agent. (Filed as Exhibit 4.1 to Itron, Inc.'s Current Report on Form 8-K, filed on October 24, 2019)
10.1*	Form of Amended and Restated Change in Control Severance Agreement for Executive Officers. (Filed as Exhibit 10.1 to Itron, Inc.'s Annual Report on Form 10-K, filed on February 22, 2013)
10.3*	Form of Indemnification Agreements between Itron, Inc. and certain directors and officers. (Filed as Exhibit 10.9 to Itron, Inc.'s Annual Report on Form 10-K, filed on March 30, 2000)
10.5*	Amended and Restated 2010 Stock Incentive Plan. (Filed as Appendix A to Itron, Inc.'s Proxy Statement for the 2014 Annual Meeting of Shareholders, filed on March 13, 2014)

Exhibit Number	Description of Exhibits
10.6*	Second Amended and Restated 2010 Stock Incentive Plan. (Filed as Appendix A to Itron, Inc.'s Proxy Statement for the 2017 Annual Meeting of Shareholders, filed on March 24, 2017)
10.7*	Rules of Itron Inc.'s Amended and Restated 2010 Stock Incentive Plan for the Grant of Restricted Stock Unit (RSU's) to Participants in France. (Filed as Exhibit 10.6 to Itron, Inc.'s Quarterly Report on Form 10-Q, filed on August 6, 2014)
10.8*	Executive Management Incentive Plan. (Filed as Appendix B to Itron, Inc.'s Proxy Statement for the 2010 Annual Meeting of Shareholders, filed on March 17, 2010)
10.9*	Terms of the Amended and Restated Equity Grant Program for Nonemployee Directors under the Itron, Inc. Amended and Restated 2000 Stock Incentive Plan. (Filed as Exhibit 10.4 to Itron, Inc.'s Annual Report on Form 10-K, filed on February 26, 2008)
10.10*	Form of Stock Option Grant Notice and Agreement for use in connection with both incentive and non-qualified stock options granted under Itron, Inc.'s Amended and Restated 2000 Stock Incentive Plan. (Filed as Exhibit 10.6 to Itron, Inc.'s Current Report on Form 8-K, filed on February 18, 2010)
10.11*	Form of RSU Award Notice and Agreement for U.S. Participants for use in connection with the Company's Long-Term Performance Plan (LTPP) and issued under Itron, Inc.'s Amended and Restated 2000 Stock Incentive Plan. (Filed as Exhibit 10.1 to Itron, Inc.'s Current Report on Form 8-K, filed on February 18, 2010)
10.12*	Form of RSU Award Notice and Agreement for International Participants (excluding France) for use in connection with the Company's LTPP and issued under Itron, Inc.'s Amended and Restated 2000 Stock Incentive Plan. (Filed as Exhibit 10.2 to Itron, Inc.'s Current Report on Form 8-K, filed on February 18, 2010)
10.13*	Form of RSU Award Notice and Agreement for Participants in France for use in connection with Itron, Inc.'s LTPP and issued under Itron, Inc.'s Amended and Restated 2000 Stock Incentive Plan. (Filed as Exhibit 10.3 to Itron, Inc.'s Current Report on Form 8-K, filed on February 18, 2010)
10.14*	Form of RSU Award Notice and Agreement for all Participants (excluding France) for use in connection with Itron, Inc.'s Amended and Restated 2000 Stock Incentive Plan. (Filed as Exhibit 10.4 to Itron, Inc.'s Current Report on Form 8-K, filed on February 18, 2010)
10.15*	Form of RSU Award Notice and Agreement for Participants in France for use in connection with Itron, Inc.'s Amended and Restated 2000 Stock Incentive Plan. (Filed as Exhibit 10.5 to Itron, Inc.'s Current Report on Form 8-K, filed on February 18, 2010)
10.16*	Form of Long Term Performance RSU Award Notice and Agreement for U.S. Participants for use in connection with Itron, Inc.'s Amended and Restated 2010 Stock Incentive Plan. (Filed as Exhibit 10.4 to Itron, Inc.'s Quarterly Report on Form 10-Q, filed on August 6, 2014)
10.17*	Form of Long Term Performance RSU Award Notice and Agreement for International Participants (excluding France) for use in connection with Itron, Inc.'s Amended and Restated 2010 Stock Incentive Plan. (Filed as Exhibit 10.19 to Itron, Inc.'s Annual Report on Form 10-K, filed on February 25, 2011)
10.18*	Form of Long Term Performance RSU Award Notice and Agreement for Participants in France for use in connection with Itron, Inc.'s Amended and Restated 2010 Stock Incentive Plan. (Filed as Exhibit 10.5 to Itron, Inc.'s Quarterly Report on Form 10-Q, filed on August 6, 2014)
10.19*	Form of RSU Award Notice and Agreement for all Participants (excluding France) for use in connection with Itron, Inc.'s Amended and Restated 2010 Stock Incentive Plan. (Filed as Exhibit 10.2 to Itron, Inc.'s Quarterly Report on Form 10-Q, filed on August 6, 2014)
10.20*	Form of RSU Award Notice and Agreement for Participants in France for use in connection with Itron, Inc.'s Amended and Restated 2010 Stock Incentive Plan. (Filed as Exhibit 10.3 to Itron, Inc.'s Quarterly Report on Form 10-Q, filed on August 6, 2014)

Exhibit Number	Description of Exhibits
10.21*	Form of RSU Award Notice and Agreement for Non-employee Directors for use in connection with Itron, Inc.'s Amended and Restated 2010 Stock Incentive Plan. (Filed as Exhibit 10.3 to Itron, Inc.’s Quarterly Report on Form 10-Q, filed on May 3, 2013)
10.22*	Form of Stock Option Grant Notice and Agreement for use in connection with both incentive and non-qualified stock options granted under Itron, Inc.'s Amended and Restated 2010 Stock Incentive Plan. (Filed as Exhibit 10.1 to Itron, Inc's Quarterly Report on Form 10-Q, filed on August 6, 2014)
10.23*	Amendment to the Executive Deferred Compensation Plan. (Filed as Exhibit 10.1 to Itron, Inc.’s Quarterly Report on Form 10-Q, filed on November 3, 2016)
10.24*	Amended and Restated 2002 Employee Stock Purchase Plan. (Filed as Exhibit 10.20 to Itron, Inc.’s Annual Report on Form 10-K, filed on February 26, 2009)
10.25*	Offer Letter, dated as of November 16, 2012, between Itron, Inc. and Philip C. Mezey. (Filed as Exhibit 10.1 to Itron, Inc.’s Current Report on Form 8-K, filed on November 19, 2012)
10.26	Cooperation Agreement by and among Itron, Inc., Coppersmith Capital Management LLC, Scopia Management, Inc. and certain of their specified affiliates, Jerome J. Lande and Peter Mainz, dated as of December 9, 2015. (Filed as Exhibit 10.1 to Itron, Inc.'s Current Report on Form 8-K, filed on December 11, 2015)
10.27	Amendment to Cooperation Agreement by and among Itron, Inc., Coppersmith Capital Management LLC, Scopia Management, Inc. and certain of their specified affiliates, Jerome J. Lande and Peter Mainz. (Filed as Exhibit 10.2 to Itron, Inc.’s Quarterly Report on Form 10-Q, filed on November 3, 2016)
10.28	First Amendment to Cooperation Agreement, dated November 1, 2017, by and among Itron, Inc., Scopia Management, Inc. and certain of their specified affiliates, Jerome J. Lande and certain other individuals. (Filed as Exhibit 10.1 to Itron, Inc.'s Current Report on Form 8-K, filed on November 2, 2017)
10.29*	Form of Stock Option Grant Notice and Agreement for use in connection with both incentive and non-qualified stock options granted under Itron, Inc.'s Amended and Restated 2010 Stock Incentive Plan. (Filed as Exhibit 10.1 to Itron, Inc.'s Quarterly Report on Form 10-Q, filed on May 4, 2017)
10.30*	Form of Long-Term Performance RSU Award Notice and Agreement for U.S. Participants for use in connection with Itron, Inc.'s Amended and Restated 2010 Stock Incentive Plan. (Filed as Exhibit 10.2 to Itron, Inc.'s Quarterly Report on Form 10-Q, filed on May 4, 2017)
10.31*	Form of RSU Award Notice and Agreement for all Participants for use in connection with Itron, Inc.'s Amended and Restated 2010 Stock Incentive Plan. (Filed as Exhibit 10.3 to Itron, Inc.'s Quarterly Report on Form 10-Q, filed on May 4, 2017)
10.32*	Form of Stock Option Grant Notice and Agreement for use in connection with both incentive and non-qualified stock options granted under Itron, Inc.'s Amended and Restated 2010 Stock Incentive Plan. (Filed as Exhibit 10.32 to Itron, Inc.'s Annual Report on Form 10-K, filed on February 28, 2019)
10.33*	Form of Long-Term Performance RSU Award Notice and Agreement for U.S. Participants for use in connection with Itron, Inc.'s Amended and Restated 2010 Stock Incentive Plan. (Filed as Exhibit 10.33 to Itron, Inc.'s Annual Report on Form 10-K, filed on February 28, 2019)
10.34*	Form of RSU Award Notice for awards with 1 year vesting and Agreement for all Participants for use in connection with Itron, Inc.'s Amended and Restated 2010 Stock Incentive Plan. (Filed as Exhibit 10.34 to Itron, Inc.'s Annual Report on Form 10-K, filed on February 28, 2019)
10.35*	Form of RSU Award Notice for awards with 2 year vesting and Agreement for all Participants for use in connection with Itron, Inc.'s Amended and Restated 2010 Stock Incentive Plan. (Filed as Exhibit 10.35 to Itron, Inc.'s Annual Report on Form 10-K, filed on February 28, 2019)

Exhibit Number	Description of Exhibits
10.36*	Form of RSU Award Notice for awards with 3 year vesting and Agreement for all Participants for use in connection with Itron, Inc.'s Amended and Restated 2010 Stock Incentive Plan. (Filed as Exhibit 10.36 to Itron, Inc.'s Annual Report on Form 10-K, filed on February 28, 2019)
10.37*	Transition and Retirement Agreement, dated as of January 21, 2019, by and between Itron, Inc. and Philip C. Mezey. (Filed as Exhibit 10.1 to Itron, Inc.'s Current Report on Form 8-K, filed on January 22, 2019)
10.38*	Employment agreement between Itron, Inc. and Thomas L. Deitrich, dated July 16, 2019. (Filed as Exhibit 10.1 to Itron, Inc.'s Current Report on Form 8-K, filed on July 22, 2019)
10.39*	Form of Long-Term Performance RSU Award Notice and Agreement for U.S Participants for use in connection with Itron, Inc.'s Second Amended and Restated 2010 Stock Incentive Plan. (filed with this report)
10.40*	Employment agreement between Itron, Inc. and Sarah Hlavinka, dated June 28, 2018 (filed with this report)
10.41*	Employment agreement between Itron, Inc. and Donald Reeves, dated July 3, 2018 (filed with this report)
21.1	Subsidiaries of Itron, Inc. (filed with this report)
23.1	Consent of Deloitte & Touche LLP Independent Registered Public Accounting Firm. (filed with this report)
31.1	Certification Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002. (filed with this report)
31.2	Certification Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002. (filed with this report)
32.1	Certification Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002. (furnished with this report)
101	The following financial information from Itron, Inc.'s Annual Report on Form 10-K for the year ended December 31, 2019 formatted in Inline XBRL (Extensible Business Reporting Language) includes: (i) the Consolidated Statements of Operations, (ii) the Consolidated Statements of Comprehensive Income (Loss), (iii) the Consolidated Balance Sheets, (iv) the Consolidated Statements of Equity, (v) the Consolidated Statements of Cash Flows, and (vi) Notes to the Consolidated Financial Statements.
104	Cover Page Interactive Data File (formatted as Inline XBRL and contained in Exhibit 101)
*	Management contract or compensatory plan or arrangement.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the Registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Liberty Lake, State of Washington, on the 26th day of February, 2020.

ITRON, INC.

By: /s/ JOAN S. HOOPER

Joan S. Hooper

Senior Vice President and Chief Financial Officer

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the Registrant and in the capacities indicated on the 26th day of February, 2020.

Signatures	Title
/s/ THOMAS L. DEITRICH **Thomas L. Deitrich**	President and Chief Executive Officer (Principal Executive Officer), Director
/s/ JOAN S. HOOPER **Joan S. Hooper**	Senior Vice President and Chief Financial Officer
/s/ THOMAS S. GLANVILLE **Thomas S. Glanville**	Director
/s/ FRANK M. JAEHNERT **Frank M. Jaehnert**	Director
/s/ JEROME J. LANDE **Jerome J. Lande**	Director
/s/ TIMOTHY M. LEYDEN **Timothy M. Leyden**	Director
/s/ DANIEL S. PELINO **Daniel S. Pelino**	Director
/s/ GARY E. PRUITT **Gary E. Pruitt**	Director
/s/ DIANA D. TREMBLAY **Diana D. Tremblay**	Director
/s/ LYNDA L. ZIEGLER **Lynda L. Ziegler**	Chair of the Board

ITRON, INC.
SECOND AMENDED AND RESTATED 2010 STOCK INCENTIVE PLAN

LONG TERM PERFORMANCE
RESTRICTED STOCK UNIT AWARD NOTICE
FOR U.S. PARTICIPANTS

Itron, Inc. (the "***Company***") hereby grants to Participant a performance restricted stock unit award (the "***Award***"). The Award is subject to all the terms and conditions set forth in this Long Term Performance Restricted Stock Unit Award Notice (the "***Award Notice***"), the Long Term Performance Restricted Stock Unit Award Agreement, including Appendices A and B (the "***Agreement***"), and the Itron, Inc. Second Amended and Restated 2010 Stock Incentive Plan (the "***Plan***"), all of which are incorporated into the Award Notice in their entirety.

Participant:	Participant Name
Grant Date:	Grant Date
Performance Period:	January 1, 2020 to December 31, 2022 ("***Performance Period***")
Number of Long-Term Performance Restricted Stock Units ("*PSUs*"):	The actual number of PSUs that vest shall be determined based on the attainment of the performance goals specified in Appendix A, as assessed by the Plan Administrator as soon as reasonably practicable after the end of the Performance Period. The aggregate target number of PSUs for the Performance Period is Number of Awards Granted (the ***"Target PSUs")***.

Additional Terms/Acknowledgement: This Award is subject to all the terms and conditions set forth in this Award Notice, the Agreement and the Plan which are attached to and incorporated into this Award Notice in their entirety.

Participant Name

I accept this Award subject to the terms and conditions stated herein.

Electronic Signature

ITRON, INC.
SECOND AMENDED AND RESTATED 2010 STOCK INCENTIVE PLAN

LONG TERM PERFORMANCE
RESTRICTED STOCK UNIT AWARD AGREEMENT
FOR U.S. PARTICIPANTS

Pursuant to your Long Term Performance Restricted Stock Unit Award Notice (the "***Award Notice***") and this Long Term Performance Restricted Stock Unit Award Agreement, including Appendices A and B (this "***Agreement***"), Itron, Inc. (the "***Company***") has granted you a performance restricted stock unit award (the "***Award***") under its Second Amended and Restated 2010 Stock Incentive Plan (the "***Plan***"). Capitalized terms not expressly defined in this Agreement but defined in the Plan shall have the same definitions as in the Plan, as applicable.

The details of the Award are as follows:

1. Number of PSUs Subject to Award

This Award is a performance-based award, the vesting of which is based on the attainment of the performance goals set by the Plan Administrator at the beginning of the performance period set forth in the Award Notice (the "***Performance Period***") and at the beginning of each Annual EPS Performance Period (as defined in Appendix A). The performance goals are set forth in Appendix A (or will be communicated to you as described in Appendix A) and the aggregate target number of PSUs for the Performance Period (the "***Target PSUs***") is set forth in the Award Notice and in Appendix A.

2. Vesting

The Award will vest to the extent the performance goals set forth in Appendix A are attained for the Performance Period, as determined by the Plan Administrator. The Plan Administrator shall determine as soon as reasonably practicable, but in any event within sixty (60) days, after the end of the Performance Period, the attainment level of the performance goals. One share of Common Stock will be issuable for each PSU that vests. PSUs that have vested are referred to herein as "***Vested PSUs***." PSUs that have not vested and remain subject to forfeiture are referred to herein as "***Unvested PSUs***." The Unvested and Vested PSUs are collectively referred to herein as the "***PSUs***." Except as provided in Section 3 below, the Award will terminate and the Unvested PSUs will be forfeited upon termination of your employment for any reason.

3. Termination of Employment; Change in Control Transaction

3.1 Retirement, Death and Disability

(a) If your employment terminates during the Performance Period but at least 12 months after the Grant Date by reason of Retirement, you will become eligible to receive that number of PSUs that vest based on the actual attainment of the performance goals as assessed after the end of the Performance Period and such PSUs shall be settled in accordance with

Section 4 below, provided that if you breach any of the covenants set forth in Appendix B to this Agreement after your Retirement, the Unvested PSUs will be forfeited immediately. For purposes of this Agreement, "Retirement" means your voluntary termination of employment after the date on which you have reached (i) the age of 55 and have a total of at least 10 years of continuous employment with the Company and/or a Related Corporation or (ii) the age of 60 and have a total of at least 5 years of continuous employment with the Company and/or a Related Corporation; provided however, in either case, you must provide advance written notice to the Company at least 90 days prior to the termination of your employment unless otherwise agreed to in writing by the Company. For the avoidance of doubt, if your employment terminates due to Retirement within 12 months after the Grant Date, all Unvested PSUs will be automatically forfeited.

(b) If your employment terminates during the Performance Period by reason of death or Disability, you will become eligible to receive that number of PSUs that vest based on the actual attainment of the performance goals as assessed after the Performance Period ending in the year of death or Disability, and such PSUs shall be settled in accordance with Section 4 below.

3.2 Change in Control Transaction

(a) In the event of a Change in Control Transaction, the PSUs will be subject to any change in control severance agreement or other agreement providing for change in control provisions between you and the Company (a "***CIC Agreement***"). If you are not party to a CIC Agreement, the provisions of this Section 3.2 shall apply.

(b) In the event of a Change in Control Transaction in which (i) the Unvested PSUs are not assumed, substituted for, or converted into an award of the acquiring or surviving corporation (or a publicly-traded parent thereof) in a manner which prevents dilution of your rights under the Award or (ii) the acquiring or surviving corporation (or parent thereof) is not publicly-traded, the Unvested PSUs shall become immediately and fully vested as of the date of the Change in Control Transaction.

(c) In the event of a Change in Control Transaction in which your Unvested PSUs are assumed, substituted for, or converted into an award of the acquiring or surviving public corporation (or a publicly-traded parent thereof) and your employment is terminated within twenty-four (24) months following such Change in Control Transaction and prior to settlement of the PSUs, other than (i) for Cause, (ii) by reason of Retirement, death or Disability (which shall be governed by Section 3.1), or (iii) by you without Good Reason, the Unvested PSUs shall become immediately and fully vested as of the date of the your termination of employment.

(d) Definitions - For purposes of this Agreement, the following capitalized terms shall have the meanings set forth below:

(i) "***Base Salary***" shall mean your annual base salary immediately prior to a Change in Control Transaction, as such salary may be increased from time to time (in which case such increased amount shall be the Base Salary for purposes hereof), but without giving effect to any reduction thereto.

(ii) “***Beneficial Owner***” shall have the meaning set forth in Rule 13d-3 under the Exchange Act.

(iii) “***Cause***” for termination of your employment by the Company or your employer, if different (the “***Employer***”) shall mean (A) your willful and continued failure (other than any such failure resulting from (1) your incapacity due to physical or mental illness, (2) any such actual or anticipated failure after the issuance of a notice of termination in a form prescribed by the Company by you for Good Reason or (3) the Employer's active or passive obstruction of the performance of your duties and responsibilities) to perform substantially the duties and responsibilities of your position with the Employer after a written demand for substantial performance is delivered to you by the Employer, which demand specifically identifies the manner in which the Employer believes that you have not substantially performed such duties or responsibilities; (B) your conviction by a court of competent jurisdiction for felony criminal conduct (or the equivalent under applicable local law); or (C) your willful engaging in fraud or dishonesty which is injurious to the Company and/or the Employer or its reputation, monetarily or otherwise. No act, or failure to act, on your part shall be deemed “willful” unless committed, or omitted by you in bad faith and without reasonable belief that your act or failure to act was in, or not opposed to, the best interest of the Company and/or the Employer.

(iv) “***Good Reason***” for termination of your employment by you shall mean the occurrence (without your express written consent) after any Change in Control Transaction of any one of the following acts by the Company or the Employer, or failures by the Company or the Employer to act, unless, in the case of any act or failure to act described in subsection (A), (B), (C), (D) or (E) below, such act or failure to act is corrected prior to the date of your termination specified in a notice of termination in a form prescribed by the Company given in respect thereof:

(A) an adverse change in your status or position(s) with the Employer as in effect immediately prior to the Change in Control Transaction, including, without limitation, any adverse change in your status or position as a result of a diminution of your duties or responsibilities (other than, if applicable, any such change directly and solely attributable to the fact that the Company is no longer publicly owned) or the assignment to you of any duties or responsibilities which are inconsistent with such status or position(s), or any removal of you from, or any failure to reappoint or reelect you to, such position(s);

(B) a reduction in your Base Salary;

(C) a reduction in your annual bonus opportunity or long term incentive opportunity, as compared to the year immediately preceding the year in which the Change in Control Transaction occurs;

(D) the failure to continue to provide welfare, pension and fringe benefits which are in each case, in the aggregate, substantially similar to those provided to you immediately prior to Change in Control Transaction; or

(E) the Employer requiring you to be based at an office that is greater than 50 miles from where your office is located immediately prior to the Change in Control Transaction except for required travel on the Employer's business to an extent substantially consistent with the business travel obligations which you undertook on behalf of the Employer prior to the Change in Control Transaction.

Notwithstanding the foregoing, the events described in clauses (B), (C) or (D) above shall not constitute Good Reason hereunder to the extent they are as a result of across-the-board reductions of the applicable compensation element following the Change in Control Transaction which are equally applicable to all similarly situated employees of the surviving corporation and its affiliates. Your right to terminate your employment for Good Reason shall not be affected by your incapacity due to physical or mental illness. In order for Good Reason to exist hereunder, you must provide notice to the Company of the existence of the condition or circumstance described above within 90 days of the initial existence of the condition or circumstance (or, if later, within 90 days of becoming aware of such condition or circumstance), and the Employer must have failed to cure such condition within 30 days of the receipt of such notice. Subject to the preceding sentence, your continued employment shall not constitute consent to, or a waiver of rights with respect to, any act or failure to act constituting Good Reason hereunder.

(v) “***Person***” shall have the meaning given in Section 3(a)(9) of the Exchange Act, as modified and used in Sections 13(d) and 14(d) thereof, except that such term shall not include (A) the Company or any of its subsidiaries, (B) a trustee or other fiduciary holding securities under an employee benefit plan of the Company or any of its affiliates, (C) an underwriter temporarily holding securities pursuant to an offering of such securities or (D) a corporation owned, directly or indirectly, by the stockholders of the Company in substantially the same proportions as their ownership of stock of the Company.

4. Settlement of Vested PSUs.

Vested PSUs shall be settled on the earliest to occur of (a) a date within 60 days following the end of the Performance Period, (b) a date within 30 days following the termination of your employment following a Change in Control Transaction pursuant to Section 3.2(c) above, or (c) the date of a Change in Control Transaction pursuant to Section 3.2(b) above that constitutes a “change in control event” within the meaning of U.S. Treasury Regulation Section 1.409A-3(i)(5).

5. Securities Law Compliance

5.1 You represent and warrant that you (a) have been furnished with a copy of the prospectus for the Plan and all information which you deem necessary to evaluate the merits and risks of receipt of the Award, (b) have had the opportunity to ask questions and receive answers concerning the information received about the Award and the Company, and (c) have been given the opportunity to obtain any additional information you deem necessary to verify the accuracy of any information obtained concerning the Award and the Company.

5.2 You hereby agree that you will in no event sell or distribute all or any part of the shares of Common Stock that you receive pursuant to settlement of this Award (the "***Shares***") unless (a) there is an effective registration statement under the U.S. Securities Act of 1933, as amended (the "***Securities Act***") and any applicable state and foreign securities laws covering any such transaction involving the Shares or (b) the Company receives an opinion of your legal counsel (concurred with by legal counsel for the Company) stating that such transaction is exempt from registration or the Company otherwise satisfies itself that such transaction is exempt from registration. You understand that the Company has no obligation to you to register the Shares with the U.S. Securities and Exchange Commission or any foreign securities regulator and has not represented to you that it will so register the Shares.

5.3 You confirm that you have been advised, prior to your receipt of the Shares, that neither the offering of the Shares nor any offering materials have been reviewed by any regulator under the Securities Act or any other applicable securities act (the "***Acts***") and that the Shares cannot be resold unless they are registered under the Acts or unless an exemption from such registration is available.

5.4 You hereby agree to indemnify the Company and hold it harmless from and against any loss, claim or liability, including attorneys' fees or legal expenses, incurred by the Company as a result of any breach by you of, or any inaccuracy in, any representation, warranty or statement made by you in this Agreement or the breach by you of any terms or conditions of this Agreement.

6. Transfer Restrictions

PSUs shall not be sold, transferred, assigned, encumbered, pledged or otherwise disposed of, whether voluntarily or by operation of law, other than pursuant to a beneficiary designation in accordance with the following sentence. You may, from time to time, name any beneficiary or beneficiaries (who may be named contingently or successively) to whom any benefit under this Agreement is to be paid in case you do not receive any or all such benefit during your lifetime. Each such designation shall revoke all of your prior designations, shall be in a form prescribed by the Company, and will be effective only when completed in accordance with any instructions provided by the Company during your lifetime. In the absence of any such designation, benefits remaining unpaid to you during your lifetime shall be paid to your estate.

7. No Rights as Shareholder

You shall not have voting or other rights as a shareholder of the Company with respect to the PSUs.

8. Book Entry Registration of Shares

The Company will issue the Shares by registering the Shares in book entry form with the Company's transfer agent in your name and the applicable restrictions will be noted in the records of the Company's transfer agent and in the book entry system.

9. Responsibility for Taxes

9.1 Regardless of any action the Company (or your Employer, if different) takes with respect to any and all income tax, social insurance, payroll tax, fringe benefits tax, payment on account or other tax-related items related to your participation in the Plan and legally applicable to you ("***Tax-Related Items***"), you acknowledge that the ultimate liability for all Tax-Related Items is and remains your responsibility and may exceed the amount actually withheld by the Company and/or the Employer. You further acknowledge that the Company and the Employer (a) make no representations or undertakings regarding the treatment of any Tax-Related Items in connection with any aspect of the Award, including, but not limited to, the granting or vesting of the Award, the settlement of Vested PSUs, the issuance of Shares upon settlement of the Vested PSUs, the subsequent sale of Shares acquired upon settlement of the Vested PSUs and the receipt of any dividends; and (b) do not commit to and are under no obligation to structure the terms of the grant or any aspect of the Award to reduce or eliminate your liability for Tax-Related Items or achieve any particular tax result. Further, if you have become subject to Tax-Related Items in more than one jurisdiction between the Grant Date and the date of any relevant taxable or tax withholding event, as applicable, you acknowledge that the Company and/or the Employer (or former employer, as applicable) may be required to withhold or account for Tax-Related Items in more than one jurisdiction.

9.2 Prior to any relevant taxable or tax withholding event, as applicable, you will pay or make adequate arrangements satisfactory to the Company and or the Employer to satisfy all Tax-Related Items.

(a) In this regard, you hereby irrevocably appoint Fidelity or any stock plan service provider or brokerage firm designated by the Company for such purpose (the "***Agent***") as your Agent, and authorize the Agent, to:

(i) Sell on the open market at the then prevailing market price(s), on your behalf, as soon as practicable on or after the settlement date for any Vested PSU, a number of Shares (rounded up to the next whole number) sufficient to generate proceeds to cover the Tax-Related Items and all applicable fees and commissions due to, or required to be collected by, the Agent;

(ii) Remit directly to the Company the cash amount necessary to cover the Tax-Related Items;

(iii) Retain the amount required to cover all applicable fees and commissions due to, or required to be collected by, the Agent, relating directly to the sale of Shares referred to in clause (i) above; and

(iv) Remit any remaining funds to you.

(b) If the sale of Shares required by Section 9.2(a)(i) above is prohibited by a legal, contractual or regulatory restriction, is otherwise impossible as described in the 10b5-1 Plan set forth in Section 9.3 below, or if the obligation for withholding of Tax-Related Items arises at a time other than the settlement of the Vested PSUs, then in addition to the withholding mechanism described in Section 9.2(a), you authorize the Company and/or the Employer, at their discretion, to satisfy the obligations with regard to all Tax-Related Items by:

(i) requiring you to pay to the Company or the Employer any amount of the Tax-Related Items; and/or

(ii) withholding any amount of the Tax-Related Items from your wages or other cash compensation paid to you by the Company and/or the Employer; and/or

(iii) withholding in Shares to be issued upon settlement of the Vested PSUs provided, however, that if you are a Section 16 officer of the Company under the Exchange Act, then the Plan Administrator (as constituted to satisfy Rule 16b-3 of the Exchange Act) shall establish any alternative method of withholding as may be required from the alternatives (i) – (iii) herein and, if the Plan Administrator does not exercise its discretion prior to the Tax-Related Items withholding event, then the method of withholding set forth in alternative (iii) shall apply.

(c) Depending on the withholding method, the Company may withhold or account for Tax-Related Items by considering applicable minimum statutory withholding amounts or other applicable withholding rates, including maximum applicable rates, in which case you will receive a refund of any over-withheld amount in cash and will have no entitlement to the equivalent amount in Shares. If the obligation for Tax-Related Items is satisfied by withholding in Shares, for tax purposes, you will be deemed to have been issued the full number of Shares subject to the Vested PSUs notwithstanding that a number of the Shares are held back solely for the purpose of paying the Tax-Related Items due as a result of any aspect of your participation in the Plan. The Company may refuse to issue or deliver Shares to you if you fail to comply with your obligations in connection with the Tax-Related Items.

9.3 You acknowledge that the authorization and instruction to the Agent set forth in Section 9.2(a)(i) above to sell Shares to cover the Tax-Related Items is intended to comply with the requirements of Rule 10b5-1(c)(1)(i)(B) under the Exchange Act and to be interpreted to comply with the requirements of Rule 10b5-1(c) under the Exchange Act (regarding trading of the Company's securities on the basis of material nonpublic information) (a "***10b5-1 Plan***").

This 10b5-1 Plan is being adopted to permit you to sell a number of Shares issued upon settlement of Vested PSUs sufficient to pay the Tax-Related Items.

You acknowledge that the broker is under no obligation to arrange for the sale of Shares at any particular price. You further acknowledge that you will be responsible for all brokerage fees and other costs of sale, and you agree to indemnify and hold the Company harmless from any losses, costs, damages, or expenses relating to any such sale. You acknowledge that it may not be possible to sell Shares during the term of this 10b5-1 Plan due to (a) a legal or contractual restriction applicable to you or to the broker, (b) a market disruption, (c) rules governing order execution priority on the Nasdaq or other exchange where the Shares may be traded, (d) a sale effected pursuant to this 10b5-1 Plan that fails to comply (or in the reasonable opinion of the Agent's counsel is likely not to comply) with the Securities Act, or (e) if the Company determines that sales may not be effected under this 10b5-1 Plan. In the event of the Agent's inability to sell Shares, you will continue to be responsible for the Tax-Related Items.

You hereby agree to execute and deliver to the Agent any other agreements or documents as the Agent reasonably deems necessary or appropriate to carry out the purposes and intent of the 10b5-1 Plan. You acknowledge that this 10b5-1 Plan is subject to the terms of any policy adopted now or hereafter by the Company governing the adoption of 10b5-1 plans. The Agent is a third party beneficiary of Section 9.2(a)(i) and this 10b5-1 Plan.

10. Nature of Grant

In accepting the grant, you acknowledge, understand and agree that:

(a) the Plan is established voluntarily by the Company, it is discretionary in nature and it may be modified, amended, suspended or terminated by the Company at any time, to the extent permitted by the Plan;

(b) the grant of the Award is exceptional, voluntary and occasional and does not create any contractual or other right to receive future grants of performance restricted stock units, or benefits in lieu of performance restricted stock units, even if performance restricted stock units have been granted in the past;

(c) all decisions with respect to future grants of performance restricted stock units, if any, will be at the sole discretion of the Company;

(d) the grant of the Award and your participation in the Plan shall not create a right to employment or be interpreted as forming an employment or service contract with the Employer, the Company or any Related Corporation and shall not interfere with the ability of the Employer, the Company or any Related Corporation to terminate your employment or service relationship (if any);

(e) you are voluntarily participating in the Plan;

(f) the Award and the Shares subject to the Award are not intended to replace any pension rights or compensation;

(g) the Award and the Shares subject to the Award, and the income and value of same, are not part of normal or expected compensation for any purpose, including but not limited to, calculating any severance, resignation, termination, redundancy, dismissal, end of service payments, bonuses, long-service awards, pension or retirement or welfare benefits or similar payments;

(h) the future value of the underlying Shares is unknown, indeterminable and cannot be predicted with certainty;

(i) no claim or entitlement to compensation or damages shall arise from forfeiture of the Award resulting from your ceasing to provide employment or other services to the Company or the Employer (for any reason whatsoever, and whether or not later found to be invalid or in breach of employment laws in the jurisdiction where you are employed or the terms of your employment agreement, if any);

(j) for purposes of the Award, your employment will be considered terminated as of the date you cease to actively provide services to the Company or a Related Corporation; further, in the event of termination of your employment or other services (for any reason whatsoever, whether or not later found to be invalid or in breach of employment laws in the jurisdiction where you are employed or the terms of your employment agreement, if any), unless otherwise provided in this Agreement or determined by the Company, your right to vest in the Award, if any, will terminate effective as of the date that you are no longer actively providing services and will not be extended by any notice period (*e.g.*, active service would not include any contractual notice period or any period of “garden leave” or similar period mandated under employment laws in the jurisdiction where you are employed or the terms of your employment agreement, if any); the Company’s Chief Executive Officer shall have the exclusive discretion to determine when you are no longer actively providing services for purposes of the Award (including whether or not you may still be considered to be providing services while on an approved leave of absence); and

(k) unless otherwise provided in the Plan or by the Company in its discretion, the Award and the benefits evidenced by this Agreement do not create any entitlement to have the Award or any such benefits transferred to, or assumed by, another company nor to be exchanged, cashed out or substituted for, in connection with any corporate transaction affecting the shares of the Company.

11. No Advice Regarding Grant

The Company is not providing any tax, legal or financial advice, nor is the Company making any recommendations regarding your participation in the Plan or your acquisition or sale of the underlying Shares. You are hereby advised to consult with your own personal tax, legal and financial advisors regarding your participation in the Plan before taking any action related to the Plan. You acknowledge that you have either consulted with competent advisors independent of the Company to obtain advice concerning the receipt of the Award and the acquisition or disposition of any Shares to be issued pursuant to the Award in light of your specific situation or had the opportunity to consult with such advisors but chose not to do so.

12. ***Data Privacy***

You hereby explicitly and unambiguously consent to the collection, use and transfer, in electronic or other form, of your personal data as described in this Agreement and any other Award materials by and among, as applicable, the Employer, the Company and its Related Corporations for the exclusive purpose of implementing, administering and managing your participation in the Plan.

You understand that the Company and the Employer may hold and process certain personal information about you, including, but not limited to, your name, home address, email address and telephone number, date of birth, social insurance number, passport or other identification number, salary, nationality, job title, any shares of stock or directorships held in the Company, details of all Awards or any other entitlement to shares of stock awarded, canceled, exercised, vested, unvested or outstanding in your favor, for the exclusive purpose of implementing, administering and managing the Plan ("Data").

You understand that Data will be transferred to Fidelity or such other stock plan service provider as may be selected by the Company in the future, which is assisting the Company with the implementation, administration and management of the Plan. You understand that the recipients of Data may be located in the United States or elsewhere, and that the recipients' country (e.g., the United States) may have different data privacy laws and protections than your country. You understand that you may request a list with the names and addresses of any potential recipients of Data by contacting your local human resources representative. You authorize the Company, Fidelity and any other possible recipients which may assist the Company (presently or in the future) with implementing, administering and managing the Plan to receive, possess, use, retain and transfer Data, in electronic or other form, for the sole purpose of implementing, administering and managing your participation in the Plan. You understand that Data will be held only as long as is necessary to implement, administer and manage your participation in the Plan. You understand that you may, at any time, view Data, request additional information about the storage and processing of Data, require any necessary amendments to Data or refuse or withdraw the consents herein, in any case without cost, by contacting in writing your local human resources representative. Further, you understand that you are providing the consents herein on a purely voluntary basis. If you do not consent, your employment status or service and career with the Employer will not be affected; the only consequence of refusing or withdrawing your consent is that the Company would not be able to grant you the Award or other equity awards or administer or maintain such awards. Therefore, you understand that refusing or withdrawing your consent may affect your ability to participate in the Plan. For more information on the consequences of your refusal to consent or withdrawal of consent, you understand that you may contact your local human resources representative.

Finally, upon request of the Company and/or the Employer, you agree to provide an executed data privacy consent form (or any other agreements or consents) that the Company and/or the Employer may deem necessary to obtain from you for the purpose of administering the Award in compliance with the data privacy laws in your country, either now or in the future. You understand and agree that you will not be able to accept the Award if you fail to provide such consent or agreement as requested by the Company and/or the Employer.

13. Electronic Delivery and Participation

The Company may, in its sole discretion, decide to deliver any documents related to current or future participation in the Plan by electronic means. You hereby consent to receive such documents by electronic delivery and agree to participate in the Plan through an online or electronic system established and maintained by the Company or a third party designated by the Company.

14. Language

You acknowledge that you are sufficiently proficient in English to understand the terms and conditions of the Agreement. Furthermore, if you have received this Agreement or any other document related to the Plan translated into a language other than English and if the meaning of the translated version is different from the English version, the English version will control.

15. General Provisions

15.1 Successors and Assigns. The provisions of this Agreement will inure to the benefit of the successors and assigns of the Company and be binding upon you and your heirs, executors, administrators, successors and assigns.

15.2 Section 409A.

(a) For purposes of U.S. taxpayers, the PSUs and the settlement of the PSUs are intended to comply with Section 409A of the Code, and this Agreement will be interpreted, operated and administered in a manner that is consistent with this intent. In furtherance of this intent, the Plan Administrator may, at any time and without your consent, modify the terms of the Award as it determines appropriate to comply with the requirements of Section 409A of the Code and the related U.S. Department of Treasury guidance or to mitigate any additional tax, interest and/or penalties that may apply under Section 409A of the Code if compliance is not practicable. The Company makes no representation or covenant to ensure that the PSUs, settlement of the PSUs or other payment hereunder are compliant with Section 409A of the Code and neither the Company nor any of its affiliates shall under any circumstances have any liability to you or any other party if the settlement of the PSUs or other payment hereunder that is intended to be compliant with Section 409A of the Code is not compliant or for any action taken by the Plan Administrator with respect thereto.

(b) Notwithstanding anything in this Agreement to the contrary, any PSUs that become vested under this Agreement by reason of a termination of employment and that constitute an item of non-qualified deferred compensation subject to Section 409A of the Code shall not be settled unless you experience a “separation from service” within the meaning of Section 409A of the Code (a “***Separation from Service***”) and such PSUs shall be settled within 90 days of a Separation from Service; provided, however, that if you are a “specified employee” within the meaning of Section 409A of the Code as of the date of the Separation from Service (as determined according to the methodology established by the Company as in effect on the date of your termination of employment), such PSUs shall instead be settled on the first business day that is after the earlier of (i) the date that is six months following the date of the Separation from Service or (ii) the date of your death, to the extent such delayed payment is otherwise required in order to avoid a prohibited distribution under Section 409A(a)(2) of the Code, or any successor provision thereto.

15.3 Governing Law and Choice of Venue. The Award and the provisions of this Agreement will be construed and administered in accordance with and governed by the laws of the State of Washington without giving effect to such state’s principles of conflict of laws. For the purposes of litigating any dispute that arises under this grant of this Agreement, the parties hereby submit to and consent to the exclusive jurisdiction of the State of Washington and agree that such litigation shall be conducted in the courts of Spokane County, Washington, or the federal courts for the United States for the Eastern District of Washington, where this grant is made and/or to be performed.

15.4 Severability. The provisions of this Agreement are severable and if any one or more provisions are determined to be illegal or otherwise unenforceable, in whole or in part, the remaining provisions shall nevertheless be binding and enforceable.

15.5 Notice. Any notice required or permitted hereunder shall be made in writing and sent to the following address:

Itron, Inc.
Attn. General Counsel
2111 N. Molter Road
Liberty Lake, WA USA 99019

16. Intentionally Omitted

17. Imposition of Other Requirements

The Company reserves the right to impose other requirements on your participation in the Plan, on the Award and on any Shares acquired under the Plan, to the extent the Company determines it is necessary or advisable for legal or administrative reasons, and to require you to sign any additional agreements or undertakings that may be necessary to accomplish the foregoing.

18. Waiver

You acknowledge that a waiver by the Company of breach of any provision of this Agreement shall not operate or be construed as a waiver of any other provision of this Agreement, or of any subsequent breach by you or any other Participant.

19. Repayment/Clawback/Recovery

If Participant is subject to the Company's Incentive Repayment Policy (the "***Repayment Policy***") at any time between the Grant Date and the date the PSUs are settled, any Shares, payment or benefit made under the Award shall be subject to repayment in accordance with the provisions of the Repayment Policy. In addition, any Shares, payment or benefit made under the Award will be subject to recoupment in accordance with any clawback policy that the Company is required to adopt pursuant to the listing standards of any national securities exchange or association on which the Company's securities are listed or as is otherwise required by the Dodd-Frank Wall Street Reform and Consumer Protection Act or other applicable law.

APPENDIX A

ITRON, INC.
SECOND AMENDED AND RESTATED 2010 STOCK INCENTIVE PLAN

LONG TERM PERFORMANCE
RESTRICTED STOCK UNIT AWARD NOTICE

Appendix A sets forth the performance goals for the performance restricted stock unit award (the *"**Award**"*) under the Itron, Inc. Second Amended and Restated 2010 Stock Incentive Plan (the *"**Plan**"*) evidenced by the Long Term Performance Restricted Stock Unit Award Agreement (the *"**Agreement**"*) to which it is attached. Capitalized terms not expressly defined in this Appendix A but defined in the Plan or the Agreement shall have the same definitions as in the Plan and/or the Agreement, as applicable. Please refer to the schedule that is attached to Appendix A for supplemental information explaining the operation of the performance goals applicable to the Award.

The aggregate target number of PSUs for the Performance Period is: Number of Awards Granted (the "***Target PSUs***").

The actual number of PSUs that shall vest is based on the level of attainment of a combination of the following two performance goals: non-GAAP Earnings Per Share ("***EPS***") of the Company as calculated for purposes of the Company's earnings release as described in the Company's public filings and Total Shareholder Return ("***TSR***") of the Company during the Performance Period as further described below.

The total number of PSUs that is eligible to vest under this Award is between 0% - 200% of the Target PSUs based on attainment of the EPS performance goal and the TSR performance goal. The total number of PSUs that will actually vest will be equal to the sum of (i) the EPS-Based Vested PSUs, plus (ii) the product of (x) the TSR Performance Goal Multiplier, multiplied by (y) the EPS-Based Vested PSUs (as these terms are defined and further described below).

Any PSUs that vest shall be settled in accordance with Section 4 of the Agreement.

EPS Performance Goal:

A number of PSUs that is equal to between 0% - 160% of the Target PSUs is eligible to vest based on the attainment of EPS performance goals in accordance with the following terms:

An annual "***EPS Performance Goal***" (including "***Threshold Goal***" and "***Maximum Goal***") shall be established at the beginning of each year for each of the calendar years contained in the Performance Periods (each, an "***Annual EPS Performance Period***"). Immediately following the end of each Annual EPS Performance Period, the Plan Administrator shall assess the attainment level of the Company's EPS against the annual EPS Performance Goal corresponding to the Annual EPS Performance Period and assign a percentage of attainment of between 0% - 160% (with attainment between the Threshold Goal and Maximum Goal subject to interpolation). The number of PSUs that is eligible to vest at the end of the Performance Period based on the attainment of the EPS Performance Goal shall be equal to the product of (a) the average of the attainment level of the EPS Performance Goal for each of the Annual EPS Performance Periods contained in the Performance Period (expressed as a percentage), multiplied by (b) the portion of the Target PSUs for the Performance Period (the "***EPS-Based Vested PSUs***").

No PSUs will become eligible for vesting if the Company's EPS is below the Threshold Goal.

TSR Performance Goal Multiplier:

The number of PSUs that is eligible to vest may be greater or less than the number of EPS-Based Vested PSUs depending on the level of attainment of Company TSR performance relative to the TSR attained by companies comprising the Russell 3000 Index (such increase or decrease to the number of PSUs eligible to vest, the "***TSR Performance Goal Multiplier***," and the index, the "***Peer Group TSR***"). For purposes of calculating the Company's TSR, the value of the Common Stock on the first day of the Performance Period shall be deemed to be the average of the closing price of the Common Stock for the 20 trading days ending on the first trading day of the Performance Period and the value of the Common Stock for the last day of the Performance Period shall be deemed to be the average of the closing price of the Common Stock for the 20 trading days ending on the last trading day of the Performance Period. The TSR Performance Goal Multiplier shall be between 0.75 and 1.25, as determined in accordance with the following schedule:

- If Company TSR is at or below the 25th percentile of the Peer Group TSR, the TSR Performance Goal Multiplier shall be equal to 0.75.

- If Company TSR is at the 50th percentile of the Peer Group TSR, the TSR Performance Goal Multiplier shall be equal to 1.

- If Company TSR is at or above the 75th percentile of the Peer Group TSR, the TSR Performance Goal Multiplier shall be equal to 1.25.

- If Company TSR is above the 25th or below the 75th percentile of the Peer Group TSR, the attainment between the goals shall be subject to interpolation.

The performance goals may be adjusted per the 2014 Long-Term Performance Plan Guidelines, as approved by the Plan Administrator, provided that the Plan Administrator may also adjust the performance goals in a manner that would result in a decrease to the number of PSUs that would otherwise become eligible for vesting.

<u>**SCHEDULE TO APPENDIX A**</u>

2020 Long-Term Performance Plan Criteria:

- **Metrics: Annual Non-GAAP Earnings Per Share (EPS) and a 3 year Total Shareholder Return (TSR) multiplier. Performance against EPS targets averaged over the 3 year term and the TSR modifier applied.**

- **Award vesting: Immediate vest at end of the performance period.**

<u>**EPS Metrics:**</u>

EPS Performance Metric - 3 Years	Attainment %	2020	2021	2022
Threshold	XX%	$X.XX	TBD	TBD
Budget/Target	XXX%	$X.XX	TBD	TBD
Maximum	XXX%	$X.XX	TBD	TBD

EPS threshold, target and maximum for the 2021 and 2022 time period will be established, reviewed and approved by the Board of Directors during the applicable fiscal year planning process.

<u>**Three Year EPS Multiplier:**</u>

Attainment Level	Multiplier	Relative Ranking vs. Russell 3000 (3-Year)
Threshold	0.75	25th Percentile
Target	1	50th Percentile
Maximum	1.25	$\geq$ 75th Percentile

APPENDIX B

Restrictive Covenants

(a) **Confidential Information**. The person entering into the Agreement with the Company (the "**Participant**") shall hold in a fiduciary capacity for the benefit of the Company and its Subsidiaries (collectively, the "**Affiliated Group**"), all secret or confidential information, knowledge or data relating to the Affiliated Group and its businesses (including, without limitation, any proprietary and not publicly available information concerning any processes, methods, trade secrets, research or secret data, costs, names of users or purchasers of their respective products or services, business methods, operating procedures or programs or methods of promotion and sale) that the Participant obtains during the Participant's employment that is not public knowledge (other than as a result of the Participant's violation of this Section (a)) ("**Confidential Information**"). The Participant shall not communicate, divulge or disseminate Confidential Information at any time during or after the Participant's employment, except with the prior written consent of the Company, or as otherwise required by law or legal process, or as may be required in the course of the Participant performing his or her duties and responsibilities with the Affiliated Group; provided, however, that no Company policies or practices, including the sections addressing confidentiality obligations, is intended to or shall limit, prevent, impede or interfere in any way with an employee's right, without prior notice to the Company, to provide information to the government, participate in investigations, testify in proceedings regarding the Company's past or future conduct, or engage in any activities protected under whistle blower statutes. Pursuant to the Defend Trade Secrets Act of 2016, an employee shall not be held criminally, or civilly, liable under any Federal or State Trade secret law for the disclosure of a trade secret that is made in confidence either directly or indirectly to a Federal, State, or local government official, or an attorney, for the sole purpose of reporting, or investigating, a violation of law. Moreover, employees may disclose trade secrets in a complaint, or other document, filed in a lawsuit, or other proceeding, if such filing is made under seal. Finally, an employee who files a lawsuit alleging retaliation by the company for reporting a suspected violation of the law may disclose the trade secret to the attorney of the employee and use the trade secret in the court proceeding, if the employee: files any document containing the trade secret under seal and does not disclose the trade secret, except pursuant to court order. Upon his or her termination of employment for any reason, the Participant shall promptly return to the Company all records, files, memoranda, correspondence, notebooks, notes, reports, customer lists, drawings, plans, documents, and other documents and the like relating to the business of the Affiliated Group or containing any trade secrets relating to the Affiliated Group or that the Participant uses, prepares or comes into contact with during the course of the Participant's employment with the Affiliated Group, and all keys, credit cards and passes, and such materials shall remain the sole property of the Affiliated Group. The Participant agrees to execute any standard-form confidentiality agreements with the Company that the Company in the future generally enters into with similarly situated employees.

(b) **Non-Recruitment of Affiliated Group Employees**. The Participant acknowledges that employees are a significant part of the goodwill of the Affiliated Group, such as, without limitation, their relationships and contacts with customers and suppliers as well as the training and knowledge they receive from the Affiliated Group in the course of their employment. The Participant shall not, at any time during the Non-solicitation Period (as defined below), without the prior written consent of the Company, directly or indirectly, solicit, recruit, or employ (whether as an employee, officer, agent, consultant or independent contractor) any person who is or was at any time during the previous 12 months, an employee, representative, officer or director of any member of the Affiliated Group. Further, during the Non-solicitation Period, the Participant shall not take any action that could reasonably be expected to have the effect of directly encouraging or inducing any person to cease their relationship with any member of the Affiliated Group for any reason. A general employment advertisement by an entity of which the Participant is a part will not constitute solicitation or recruitment. The "**Non-solicitation Period**" shall mean the period from the Date of Grant through the first anniversary of the Participant's termination of employment.

(c) **Non-Competition – Solicitation of Business**. Participant recognizes and agrees that the Affiliated Group has provided Confidential Information to Participant and has an interest in protecting this information from disclosure. Participant further understands that the goodwill of the Affiliated Group is an interest worthy of protection. For the protection of these and other interests, during the Non-competition Period (as defined below), the Participant shall not, either directly or indirectly, compete with the business of the Affiliated Group by (i) becoming an officer, agent, employee, partner or director of any other corporation, partnership or other entity, or otherwise render services to or assist or hold an interest (except as a less than 3-percent shareholder of a publicly traded corporation or as a less than 5-percent shareholder of a corporation that is not publicly traded) in any Competitive Business (as defined below), or (ii) soliciting, servicing, or accepting the business of (A) any active customer of any member of the Affiliated Group, or (B) any person or entity who is or was at any time during the previous twelve months a customer of any member of the Affiliated Group, provided that such business is competitive with any significant business of any member of the Affiliated Group. "**Competitive Business**" shall mean any person or entity (including any joint venture, partnership, firm, corporation, or limited liability company) that conducts a business that is competitive with any business of the Affiliated Group as of the date of termination (or any business that is being actively pursued as of the date of termination by the Affiliated Group). The Affiliated Group designs, manufactures, sells and licenses its products and technology worldwide. In addition, Competitive Businesses, as defined above, are not tied or limited to any specific geographic location. Accordingly, the scope of this Non-Competition provision is worldwide. The "**Non-competition Period**" shall mean the period from the Date of Grant through the first anniversary of the date of termination of the Participant's employment.

(d) **Remedies**. The Participant acknowledges and agrees that the terms of this Appendix B: (i) are reasonable in geographic and temporal scope, (ii) are necessary to protect legitimate proprietary and business interests of the Affiliated Group in, inter alia, customer relationships and confidential information. The Participant further acknowledges and agrees that the Participant's breach of the provisions of this Appendix B will cause the Affiliated Group irreparable harm, which cannot be adequately compensated by money damages. The Participant consents and agrees that the forfeiture provisions contained in the Agreement are reasonable remedies in the event the Participant commits any such breach. If any of the provisions of this Appendix B are determined to be wholly or partially unenforceable, the Participant hereby agrees that Appendix B or any provision hereof may be reformed so that it is enforceable to the maximum extent permitted by law. If any of the provisions of this Appendix B are determined to be wholly or partially unenforceable in any jurisdiction, such determination shall not be a bar to or in any way diminish the Affiliated Group's right to enforce any such covenant in any other jurisdiction.

Thursday June 28, 2018
Sarah Hlavinka
[redacted]

[redacted]

Dear Sarah,

We are pleased to offer you the position of Senior Vice President, General Counsel & Corporate Secretary reporting to Philip Mezey, President and CEO. This is an exempt position, and the salary being offered bi-weekly at $18,269.24, which equates to $475,000 annually. Your anticipated start date is August 6, 2018. This position is based out of Austin Texas.

Additionally, Itron will offer you:

- Participation in the Executive Management Incentive Plan ("EMIP") with a target of 75% of your annual gross salary. Your 2018 participation will be prorated based on your date of hire.

- A New Hire Stock grant valued at $500,000. This grant will be in the form of time-based Restricted Stock Units which vest one year from the anniversary date of the grant. This grant will be made at the next regular Board Meeting following your date of hire.

- A sign on bonus of $650,000 to be payable following your relocation to the Austin Texas area. You will be required to pay back this sign on bonus if you voluntarily terminate from Itron within two years from your date of hire. The reimbursement schedule is as follows:

Length of Service from Date of Hire	% Due Back to Itron
12 Months or Less	100%
13-16 Months	75%
17-20 Months	50%
21-24 Months	25%

- Your position is considered an eligible position in the Itron Long Term Incentive plan. Grant values are determined annually. For 2018, we will provide you a grant valued at $800,000 with 50% of the value in performance shares, 25% in Time-Based RSU's and 25% in Stock Options, made at the next regular Board Meeting following your date of hire.

- Vacation Accrual at a rate of four weeks per year

- Relocation assistance to the Austin area.

We have included the following for your review:

- 2018 US Employee Benefits Summary
- 2018 Itron Restorations Savings Plan Highlights
- Change in Control Agreement
- Employee Invention and Non-Disclosure Agreement

You understand that your employment is terminable-at-will, that you are not being employed for any specified period, and that either you or the company may terminate your employment at any time, with or without cause or notice. Further, and in consideration of the foregoing, your Employee Invention and Non-Disclosure Agreement will include customary non-solicit and non-compete provisions.

This offer is contingent upon successfully fulfilling the requirements of all pre-employment procedures, which includes a drug and alcohol screening, background check, credit check, and the executive reference process. If this letter meets your approval, please sign and return a signed copy of the offer letter to my attention via robyn.nordby@itron.com no later than Tuesday, July 3, 2018.

We hope that you anticipate your adventure and opportunity with Itron as much as we look forward to having you aboard.

We would like to take this time and welcome you to the Itron team! Please watch for additional emails to begin your new hire process.

Sincerely,

/s/ Michel Cadieux

Michel Cadieux
SVP, Human Resources

/s/ Sarah Hlavinka 7/2/2018
Sarah Hlavinka Date

c: Personal File

2111 North Molter Road tel 509-924-9900
Liberty Lake, WA 99019 fax 509-891-3355
www.itron.com toll-free 800-635-5461

July 3, 2018

Don Reeves Via Email

Dear Don:

We are pleased to offer you the position of Senior Vice President, Services. As discussed, you will report directly to Tom Deitrich, Executive Vice President & COO, and we anticipate you will begin this role on July 2, 2018.

This is an exempt position and your new salary is payable bi-weekly at $16,346.15, which equates to $425,000 annually. You will also be eligible to participate in the Executive Management Incentive Plan ("EMIP") with a target of 50% of your annual gross salary effective July 1, 2018 and removed from eligibility for the Management Incentive Plan (MIP) as of June 30, 2018. You will remain eligible for any bonus payable from the MIP for the period January through June 2018.

We will also provide you a stock grant valued at $300,000 with 50% of the value in performance shares, 25% in Time Based RSU's and 25% in Stock Options. This grant will vest ratably over a three-year period. This grant will be made following our next regular Board meeting in September 2018.

Additionally, as part of your acceptance of the Company's offer, please return a signed and dated copy of Attachment A (Termination of Employment and Severance Benefits). This offer letter, together with Attachment A, set forth the terms of your employment opportunity and your agreement with the Company, and supersede all prior agreements, promises, covenants, arrangements, communications, representations or warranties, whether oral or written, by any officer, employee or representative of the Company. Neither this letter nor Attachment A may be modified or amended except by a written agreement signed by the Senior Vice President of Human Resources and by you.

We congratulate you on this new opportunity and wish you continued success with Itron.

Sincerely,

/s/ Michel Cadieux

Michel Cadieux
SVP, Human Resources

ATTACHMENT A
TERMINATION OF EMPLOYMENT AND SEVERANCE
BENEFITS

1. Termination of Employment.

a. At-Will Employment. Your employment with Itron, Inc. (the "Company") is at-will, meaning either you or the Company may terminate your employment at any time without cause and without advance notice. Neither you nor the Company can change the at-will nature of your employment, unless there is a signed contract that explicitly changes your status as an at-will employee.

b. Payment & Benefits Upon Termination. You are entitled to the following payment and benefits upon termination, as follows:

i. Termination Without Cause. On or before January 5, 2019, if your employment is terminated involuntarily without Cause, as defined in Section 3, below:

A. you will receive payment for any earned and unpaid salary and bonus, and vested stock grants, as of the date your employment is terminated; and,

B. if you sign, and do not revoke, a separation and release agreement ("Release"), to be drafted by the Company based on its standard forms, so that the Release is effective not later than 60 days following your termination date (the "Termination Release Deadline"), you will be offered the Separation Compensation, as defined in Sections 2(a) through 2(d), below. You will not be entitled to or offered any form of additional severance pay or benefits other than the Separation Compensation.

ii. Limited Separation Compensation. After January 5, 2019, but on or before May 10, 2020, if your employment is terminated involuntarily without Cause, as defined in Section 3, below:

A. you will receive payment for any earned and unpaid salary and bonus, and vested stock grants, as of the date your employment is terminated; and,

B. if you sign, and do not revoke the Release, so that the Release is effective not later than the Termination Release Deadline, you will be offered the Limited Separation Compensation, as defined in Section 2(c), below. You will not be entitled to or offered any form of additional severance pay or benefits other than the Limited Separation Compensation.

iii. Voluntary Termination. If you voluntarily terminate your employment or give notice that you will voluntarily terminate your employment at any future date (regardless whether the Company accelerates the effective date of your resignation to an earlier termination date), you will receive payment for all earned and unpaid salary and bonus, and vested stock grants, as of the date of termination. You will not be entitled to the Separation Compensation.

iv. Termination for Cause. If your employment is terminated for Cause, you will receive payment for all earned and unpaid salary and bonus, and vested stock grants, as of the date your employment is terminated. You will not be entitled to the Separation Compensation.

2. Separation Compensation. If you are entitled to Separation Compensation under Section 1(b)(i), above, your Separation Compensation will include the following:

a. Continued payment of your then current base salary for the first 12 months following your termination date, in installments in accordance with our payroll schedule, provided that no payments will be made prior to the Termination Release Deadline, and on such date, the Company will make a payment equal to three (3) months of your then current base salary, and the remainder shall be paid in monthly installments beginning on the 1st day of the fourth month following your termination of employment, such that all amounts are paid not later than the end of the first payroll pay date following the date that is 12 months after the termination date.

b. A single lump sum cash payment equal to a prorated amount of your target bonus, as described in the attached offer letter, equal to (x) the product of your target bonus (or portion thereof) for the performance period in effect at the time of your termination and (y) a fraction, the numerator of which is the number of days of employment you have provided to the Company in that performance period prior to your termination date and the denominator of which is the number of days in the then-ongoing performance period, with such amount paid on the first regular payday following the Termination Release Deadline.

c. Effective as of your termination date, you will become vested in 100% of the then unvested shares subject to the equity awards that were assumed by the Company pursuant to the Agreement and Plan of Merger, dated September 17, 2017, between Silver Spring Networks, Inc. ("SSN") and the Company (but not any other equity awards that may be granted to you by the Company).

d. If you timely elect continued health insurance coverage pursuant to COBRA, you will be reimbursed, on a taxable basis, for such coverage for yourself and your eligible dependents until the earliest of (x) 12 months of such coverage, (y) the date you or your dependents cease to be eligible for such coverage, and (z) the date you become eligible for group health insurance coverage from a new employer. No payments will occur prior to the Termination Release Deadline, and on the first regular payday on or following the Termination Release Deadline, you will be paid all amounts that would otherwise have been paid prior to such date, with the balance paid thereafter on the original schedule.

3. Cause. For purposes of this letter agreement, "Cause" for termination of your employment will exist if you are terminated for any of the following reasons:

a. your material failure to perform your duties and responsibilities to the Company, SSN, and their respective affiliates (the "Company Group"), including but not limited to a failure to cooperate with the Company Group in any investigation or formal proceeding;

b. your commission of any act of fraud, embezzlement, dishonesty or any other intentional misconduct that results in material injury to the Company Group;

c. the unauthorized use or disclosure by you of any proprietary information or trade secrets of the Company Group or any other party to whom you owe an obligation of nondisclosure as a result of your relationship with the Company Group;

d. you are convicted of, or enter a no contest plea to, a felony; or

e. your willful, wrongful and uncured breach of any of your obligations under any Company Group policy, written agreement or covenant with the Company Group (including this letter agreement). The determination as to whether you are being terminated for Cause shall be made in good faith by the Company's Board of Directors.

4. Waiver. In consideration of the mutual promises, covenants and agreements entered herein, the legal sufficiency of which is acknowledged by you, you hereby waive, effectively immediately, any and all right to resign and right to receive compensation due to a Change of Control of the Company. "Change of Control" of the Company is defined as: (a) the date any "person" (as such term is used in Section 13(d) and 14(d) of the Securities Exchange Act of 1934, as amended) becomes, subsequent to the date hereof, the "beneficial owner" (as defined in Rule 13d-3 under said Act), directly or indirectly, of securities of the Company representing fifty percent (50%) or more of the total voting power represented by the Company's then outstanding voting securities, other than pursuant to a sale by the Company of its securities in a transaction or series of related transactions the primary purpose of which is to raise capital for the Company; (b) the date of the consummation of a merger or consolidation of the Company with any other corporation that has been approved by the stockholders of the Company, other than a merger or consolidation which would result in the voting securities of the Company outstanding immediately prior thereto continuing to represent (either by remaining outstanding or by being converted into voting securities of the surviving entity) more than fifty percent (50%) of the total voting power represented by the voting securities of the Company or such surviving entity outstanding immediately after such merger or consolidation; (c) the date of the consummation of the sale or disposition by the Company of all or substantially all the Company's assets; or (d) the date of a change in the composition of the Company's Board of Directors such that a majority of the members of the Board immediately following such change in the composition are no longer "Incumbent Directors." For purposes of the foregoing clause (d), "Incumbent Directors" means (i) members of the Company's Board of Directors as of the date of this letter agreement, or (ii) members of the Company's Board of Directors elected or appointed to the Board following the date of this letter agreement other than in connection with an actual or threatened proxy context.

5. Code Section 409A. The Company does not guarantee the tax treatment of any payment hereunder. The parties intend that payments under this letter agreement be exempt from Section 409A of the Internal Revenue Code of 1986, as amended (the "Code") and the regulations and guidance promulgated thereunder. For the sake of clarity, payments under this Retention Agreement are intended to comply with Treasury Regulation Section 1.409A-l(b)(4) and l.409A-l(b)(9) to the greatest extent possible, and this letter agreement will be construed and administered in such a manner. With respect to amounts intended to be exempt under Treasury Regulation Section 1.409A-1(b)(4), payments will be made

no later than the date that is the 15th day of the third calendar month of the applicable year following the year in which all or a portion of the payment is no longer subject to a "substantial risk of forfeiture" within the meaning of Treasury Regulation Section 1.409A-l(d). Each amount to be paid under this Retention Agreement shall be construed as a separate identified payment for purposes of Section 409A of the Code. If the Company Group determines that you are a "specified employee" within the meaning of Section 409A at the time of your separation from service, then no severance pay or benefits payable to you, pursuant to this Retention Agreement or otherwise, that are considered deferred compensation for purposes of Section 409A (together, the "Deferred Payments") will be paid until the date that is six (6) months and one (1) day following the date of your separation from service. All subsequent Deferred Payments, if any, will be payable in accordance with the payment schedule applicable to each payment or benefit. If you die prior to the six (6) month anniversary of the separation from service, then any payments delayed by this paragraph will be payable in a lump sum as soon as administratively practicable after the date of your death and all other Deferred Payments will be payable in accordance with the original payment schedule applicable to each payment or benefit.

6. Code Section 280G. If the Separation Compensation or any other amounts owed to you by the Company Group (i) constitute "parachute payments" within the meaning of Section 280G of the Code, and (ii) would be subject to the excise tax imposed by Section 4999 of the Code (the "Excise Tax"), then your benefits under this letter agreement shall be either (a) delivered in full; or (b) delivered as to such lesser extent that would result in no portion of such benefits being subject to the Excise Tax, whichever of the foregoing amounts, taking into account the applicable federal, state and local income taxes and the Excise Tax, results in your receipt on an after-tax basis, of the greatest amount of benefits, notwithstanding that all or some portion of such benefits may be taxable under Section 4999 of the Code. If a reduction is necessary, the reduction will occur in the following order: (1) cash payments subject to Section 409A of the Code as deferred compensation, (2) cash payments not subject to Section 409A of the Code, (3) employee benefits that are subject to Section 409A of the Code as deferred compensation, (4) employee benefits not subject to Section 409A of the Code, (5) equity-based compensation subject to Section 409A of the Code as deferred compensation and (6) equity-based compensation not subject to Section 409A of the Code. The determinations required by this Section shall be made in writing by BDO USA LLP (the "Accountants"), whose determination shall be conclusive and binding upon you and the Company Group for all purposes. For purposes of making the calculations required by this Section, the Accountants may make reasonable assumptions and approximations concerning applicable taxes and may rely on reasonable, good faith interpretations concerning the application of Sections 280G and 4999 of the Code. You and the Company Group shall furnish to the Accountants such information and documents as the Accountants may reasonably request in order to make a determination under this Section. The Company Group shall bear all costs the Accountants may reasonably incur in connection with any calculations contemplated by this Section.

7. Governing Law. The validity, interpretation, construction and performance of this letter agreement will be governed by the laws of the State of Washington, without giving effect to its conflicts of law. Each party irrevocably agrees that any legal action, suit or proceeding against it arising out of or in connection with this letter agreement will be filed in the courts of the State of Washington. EACH PARTY WAIVES ANY RIGHT TO TRIAL BY JURY WITH RESPECT TO ANY CLAIM, COUNTERCLAIM OR ACTION ARISING OUT OF OR RELATING TO THIS AGREEMENT.

Accepted and Agreed:

/s/ Don Reeves

Don Reeves

Exhibit 21.1

CONSOLIDATED SUBSIDIARIES OF THE REGISTRANT AT DECEMBER 31, 2019

Itron, Inc. Domestic Subsidiaries	**State of Incorporation**
Itron International, Inc.	Delaware
Itron Networked Solutions, Inc.	Delaware
Itron Brazil I, LLC	Washington
Itron Brazil II, LLC	Washington
Silver Spring Networks Holdings, LLC	Delaware
Royal Cautivo Insurance, Inc.	Utah

Itron, Inc. International Subsidiaries	**Jurisdiction of Incorporation or Organization**
Itron Argentina S.A.	Argentina
Itron Australasia Pty Limited	Australia
Itron Austria GmbH	Austria
Itron Belgium SA	Belgium
Itron Sistemas e Tecnologia Ltda	Brazil
Itron Soluções para Energia e Àgua Ltda.	Brazil
Itron China Gas Holding Co. Ltd.	British Virgin Islands
Itron Canada, Inc.	Canada
Compañía Chilena de Medición S.A.	Chile
Itron Metering Solutions (Suzhou) Co., Ltd.	China
Itron Metering Systems (Suzhou) Co., Ltd.	China
Comverge International, Ltd.	Cyprus
Itron Czech Republic s.r.o.	Czech Republic
Itron Denmark ApS	Denmark
Asais S.A.S	France
Asais Conseil S.A.S.	France
Itron France S.A.S.	France
Itron Holding France S.A.S.	France
Itron Holding Germany GmbH	Germany
Itron GmbH	Germany
Itron Zähler & Systemtechnik GmbH	Germany
Itron Unterstutzungskasse GmbH	Germany
Allmess GmbH	Germany
Itron Unterstutzungseinrichtung GmbH	Germany
SEWA GmbH	Germany
Ganz Meter Company Ltd.	Hungary
Itron Labs Kft	Hungary
Itron India Private Limited	India
Itron Metering Solutions India Private Limited	India
PT Mecoindo (J.V.)	Indonesia
Itron Management Services Ireland, Limited	Ireland
Temetra Limited	Ireland
Itron Italia SpA	Italy
Itron Japan Co., Ltd.	Japan
Itron Metering Solutions Luxembourg SARL	Luxembourg

Itron, Inc. International Subsidiaries	**Jurisdiction of Incorporation or Organization**
Itron Global SARL	Luxembourg
Metertek Sdn Bhd (J.V. 100% indirectly owned)	Malaysia
Itron Servicios, S.A. de C.V.	Mexico
Itron Distribución S.A. de C.V.	Mexico
Itron Nederland B.V.	Netherlands
Itron Polska SP ZOO	Poland
Itron Portugal, Unipessoal, LDA.	Portugal
Itron Imobiliaria, Unipessoal, LDA.	Portugal
Itron Sistemas de Medição Lda.	Portugal
Itron Middle East LLC	Qatar
Comverge South Africa PTY Ltd.	Republic of South Africa
Itron Measurement and Systems (Proprietary) Limited	Republic of South Africa
Itron LLC	Russia
Arabian Metering Company	Saudi Arabia
Itron Metering Systems Singapore Pte Ltd.	Singapore
Itron Spain SLU	Spain
Itron Sweden AB	Sweden
Itron Ukraine	Ukraine
Itron Ukrgas Meters Company (J.V. Majority)	Ukraine
Itron Metering Solutions UK Ltd.	United Kingdom
Itron Development UK Ltd.	United Kingdom
Itron Metering Solutions (Thailand) Co. Ltd.	Thailand
Itron New Zealand Limited	New Zealand
Silver Spring Networks Pty Limited	Australia
Silver Spring Networks Hong Kong Limited	Hong Kong
Silver Spring Networks India LLP	India
Silver Spring Networks Mayalsia Sdn. Bhd.	Malaysia
Silver Spring Networks Wireless Trading Middle East, LLC	Dubai
Silver Spring Networks (UK) Limited	United Kingdom
Silver Spring Networks International Limited	Cayman Islands

Exhibit 23.1

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in Registration Statement Nos. 333-40356, 333-89966, 333-97571, 333-110703, 333-115987, 333-125461, 333-134749, 333-143048, 333-166601, 333-181685, 333-193970, 333-195633, 333-218086, 333-222480, and 333-226020 on Form S-8 of our reports dated February 26, 2020, relating to the financial statements of Itron, Inc. and the effectiveness of the Itron, Inc.'s internal control over financial reporting appearing in this Annual Report on Form 10-K for the year ended December 31, 2019.

/s/ DELOITTE & TOUCHE LLP

Seattle, Washington
February 26, 2020

Exhibit 31.1

CERTIFICATION PURSUANT TO 18 U.S.C. SECTION 1350
AS ADOPTED PURSUANT TO SECTION 302 OF THE
SARBANES-OXLEY ACT OF 2002

I, Thomas L. Deitrich, certify that:

1. I have reviewed this Annual Report on Form 10-K of Itron, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations, and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting, which are reasonably likely to adversely affect the registrant's ability to record, process, summarize, and report financial information; and

   b) Any fraud, whether or not material that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

ITRON, INC.

By: /s/ THOMAS L. DEITRICH

Thomas L. Deitrich
President and Chief Executive Officer

Date: February 26, 2020

Exhibit 31.2

**CERTIFICATION PURSUANT TO 18 U.S.C. SECTION 1350
AS ADOPTED PURSUANT TO SECTION 302 OF THE
SARBANES-OXLEY ACT OF 2002**

I, Joan S. Hooper, certify that:

1. I have reviewed this Annual Report on Form 10-K of Itron, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations, and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting, which are reasonably likely to adversely affect the registrant's ability to record, process, summarize, and report financial information; and

   b) Any fraud, whether or not material that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

ITRON, INC.

By: /s/ JOAN S. HOOPER

Joan S. Hooper
Senior Vice President and Chief Financial Officer

Date February 26, 2020

Exhibit 32.1

**CERTIFICATION PURSUANT TO 18 U.S.C. SECTION 1350
AS ADOPTED PURSUANT TO SECTION 906 OF THE
SARBANES-OXLEY ACT OF 2002**

The certification set forth below is being submitted in connection with the Annual Report of Itron, Inc. (the Company) on Form 10-K for the year ended December 31, 2019 (the Report) for the purpose of complying with Rule 13a-14(b) or Rule 15d-14(b) of the Securities Exchange Act of 1934 and Section 1350 of Chapter 63 of Title 18 of the United States Code.

Thomas L. Deitrich, the Chief Executive Officer and Joan S. Hooper, the Chief Financial Officer of the Company, each certifies that to the best of his or her knowledge:

(1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

/s/ THOMAS L. DEITRICH

Thomas L. Deitrich
President and Chief Executive Officer

/s/ JOAN S. HOOPER

Joan S. Hooper
Senior Vice President and Chief Financial Officer