UNITED STATES SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549
Form 10-Q

(Mark One)

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

For the quarterly period ended March 31, 2020.

or

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

For the transition period from to .

Commission file no. 001-13831

Quanta Services, Inc.
(Exact name of registrant as specified in its charter)

Delaware	74-2851603
(State or other jurisdiction of incorporation or organization)	*(I.R.S. Employer Identification No.)*

2800 Post Oak Boulevard, Suite 2600
Houston, Texas 77056
(Address of principal executive offices, including zip code)

(713) 629-7600
(Registrant's telephone number, including area code)

N/A
(Former name, former address and former fiscal year, if changed since last report)

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, $0.00001 par value	PWR	New York Stock Exchange

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

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

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

Large accelerated filer	☑	Accelerated filer	☐
Non-accelerated filer	☐	Smaller reporting company	☐
		Emerging growth company	☐

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

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

As of May 5, 2020, the number of outstanding shares of Common Stock of the registrant was 137,646,608.

QUANTA SERVICES, INC. AND SUBSIDIARIES

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PART I - FINANCIAL INFORMATION

Item 1. ***Financial Statements.***

QUANTA SERVICES, INC. AND SUBSIDIARIES
CONDENSED CONSOLIDATED BALANCE SHEETS
(In thousands, except share information)
(Unaudited)

	March 31, 2020	December 31, 2019
ASSETS		
Current Assets:		
Cash and cash equivalents	$ 377,205	$ 164,798
Accounts receivable, net of allowances of $14,446 and $9,398	2,593,285	2,747,911
Contract assets	569,180	601,268
Inventories	50,365	55,719
Prepaid expenses and other current assets	168,565	261,290
Total current assets	3,758,600	3,830,986
Property and equipment, net of accumulated depreciation of $1,252,001 and $1,250,197	1,388,436	1,386,654
Operating lease right-of-use assets	287,157	284,369
Other assets, net	392,648	393,264
Other intangible assets, net of accumulated amortization of $446,573 and $437,886	395,638	413,734
Goodwill	2,006,465	2,022,675
Total assets	$ 8,228,944	$ 8,331,682
LIABILITIES AND EQUITY		
Current Liabilities:		
Current maturities of long-term debt and short-term debt	$ 73,426	$ 74,869
Current portion of operating lease liabilities	91,389	92,475
Accounts payable and accrued expenses	1,360,007	1,489,559
Contract liabilities	591,087	606,146
Total current liabilities	2,115,909	2,263,049
Long-term debt, net of current maturities	1,589,318	1,292,195
Operating lease liabilities, net of current portion	200,817	196,521
Deferred income taxes	217,778	214,779
Insurance and other non-current liabilities	309,944	311,307
Total liabilities	4,433,766	4,277,851
Commitments and Contingencies		
Equity:		
Common stock, $.00001 par value, 600,000,000 shares authorized, 161,289,117 and 159,415,540 shares issued, and 137,645,986 and 142,324,318 shares outstanding	2	2
Exchangeable shares, no par value, 0 and 36,183 shares issued and outstanding	—	—
Additional paid-in capital	2,040,383	2,024,610
Retained earnings	2,881,416	2,854,271
Accumulated other comprehensive loss	(324,786)	(241,818)
Treasury stock, 23,643,131 and 17,091,222 common shares	(806,523)	(586,773)
Total stockholders’ equity	3,790,492	4,050,292
Non-controlling interests	4,686	3,539
Total equity	3,795,178	4,053,831
Total liabilities and equity	$ 8,228,944	$ 8,331,682

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

QUANTA SERVICES, INC. AND SUBSIDIARIES
CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS
(In thousands, except per share information)
(Unaudited)

	Three Months Ended March 31, 2020	Three Months Ended March 31, 2019
Revenues	$ 2,764,095	$ 2,807,259
Cost of services (including depreciation)	2,431,899	2,443,278
Gross profit	332,196	363,981
Selling, general and administrative expenses	230,793	231,908
Amortization of intangible assets	17,908	12,670
Change in fair value of contingent consideration liabilities	2,758	(84)
Operating income	80,737	119,487
Interest expense	(14,006)	(13,876)
Interest income	759	309
Other income (expense), net	(9,827)	58,959
Income before income taxes	57,663	164,879
Provision for income taxes	16,160	43,844
Net income	41,503	121,035
Less: Net income attributable to non-controlling interests	2,817	547
Net income attributable to common stock	$ 38,686	$ 120,488
Earnings per share attributable to common stock:		
Basic	$ 0.27	$ 0.83
Diluted	$ 0.26	$ 0.82
Shares used in computing earnings per share:		
Weighted average basic shares outstanding	144,454	145,110
Weighted average diluted shares outstanding	146,787	146,458
Cash dividends declared per common share	$ 0.05	$ 0.04

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

QUANTA SERVICES, INC. AND SUBSIDIARIES
CONDENSED CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME (LOSS)
(In thousands)
(Unaudited)

	Three Months Ended March 31,	
	2020	**2019**
Net income	$ 41,503	$ 121,035
Other comprehensive income (loss), net of tax provision:		
Foreign currency translation adjustment, net of tax of $0 and $0	(82,968)	18,863
Other, net of tax of $0 and $6	—	(16)
Other comprehensive income (loss)	(82,968)	18,847
Comprehensive income (loss)	(41,465)	139,882
Less: Comprehensive income attributable to non-controlling interests	2,817	547
Total comprehensive income (loss) attributable to common stock	$ (44,282)	$ 139,335

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QUANTA SERVICES, INC. AND SUBSIDIARIES
CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS
(In thousands)
(Unaudited)

	Three Months Ended March 31,	
	2020	**2019**
Cash Flows from Operating Activities:		
Net income	$ 41,503	$ 121,035
Adjustments to reconcile net income to net cash provided by (used in) operating activities—		
Depreciation	54,410	52,216
Amortization of intangible assets	17,908	12,670
Change in fair value of contingent consideration liabilities	2,758	(84)
Equity in (earnings) losses of unconsolidated affiliates	2,683	(60,390)
Amortization of debt issuance costs	589	408
Gain on sale of property and equipment	(814)	(59)
Provision for credit losses	273	2,823
Deferred income tax provision	4,210	24,558
Non-cash stock-based compensation	14,912	13,012
Foreign currency and other (gain) loss	(353)	1,217
Changes in operating assets and liabilities, net of non-cash transactions	89,470	(250,156)
Net cash provided by (used in) operating activities	227,549	(82,750)
Cash Flows from Investing Activities:		
Capital expenditures	(68,109)	(68,626)
Proceeds from sale of property and equipment	4,790	10,843
Proceeds from insurance settlements related to property and equipment	198	8
Cash paid for acquisitions, net of cash, cash equivalents and restricted cash acquired	(22,794)	(51,553)
Proceeds from disposition of business	2,474	—
Investments in unconsolidated affiliates and other entities	(5,692)	(37,803)
Cash paid for intangible assets	—	(25)
Net cash used in investing activities	(89,133)	(147,156)
Cash Flows from Financing Activities:		
Borrowings under credit facility	1,474,452	1,647,074
Payments under credit facility	(1,171,059)	(1,347,442)
Payments of other long-term debt	(446)	(261)
Net repayments of short-term debt, net of borrowings	(2,799)	(23,220)
Payments for contingent consideration liabilities	(989)	—
Distributions to non-controlling interests	(1,963)	(528)
Payments related to tax withholding for stock-based compensation	(15,886)	(13,678)
Payments of dividends	(7,384)	(5,752)
Repurchase of common stock	(200,000)	(19,933)
Net cash provided by financing activities	73,926	236,260
Effect of foreign exchange rate changes on cash, cash equivalents and restricted cash	(449)	(118)
Net increase in cash, cash equivalents and restricted cash	211,893	6,236
Cash, cash equivalents and restricted cash, beginning of period	169,745	83,256
Cash, cash equivalents and restricted cash, end of period	$ 381,638	$ 89,492

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

QUANTA SERVICES, INC. AND SUBSIDIARIES
CONDENSED CONSOLIDATED STATEMENTS OF EQUITY
(In thousands, except share data)
(Unaudited)

	Common Stock		Exchangeable Shares		Additional Paid-In Capital	Retained Earnings	Accumulated Other Comprehensive Income (Loss)	Treasury Stock	Total Stockholders' Equity	Non-controlling Interests	Total Equity
	Shares	Amount	Shares	Amount							
Balance, December 31, 2019	142,324,318	$ 2	36,183	$ —	$ 2,024,610	$ 2,854,271	$ (241,818)	$ (586,773)	$ 4,050,292	$ 3,539	$ 4,053,831
Credit loss cumulative effect adjustment	—	—	—	—	—	(3,841)	—	—	(3,841)	—	(3,841)
Other comprehensive income	—	—	—	—	—	—	(82,968)	—	(82,968)	—	(82,968)
Acquisitions	121,089				4,329			—	4,329	—	4,329
Stock-based compensation activity	1,124,530	—	—	—	11,444	—	—	(19,750)	(8,306)	—	(8,306)
Exchange of exchangeable shares	36,183	—	(36,183)	—	—	—	—	—	—	—	—
Common stock repurchases	(5,960,134)	—	—	—	—	—	—	(200,000)	(200,000)	—	(200,000)
Dividends declared	—	—	—	—	—	(7,184)	—	—	(7,184)	—	(7,184)
Distributions to non-controlling interests	—	—	—	—	—	—	—	—	—	(1,963)	(1,963)
Other	—	—	—	—	—	(516)	—	—	(516)	293	(223)
Net income	—	—	—	—	—	38,686	—	—	38,686	2,817	41,503
Balance, March 31, 2020	137,645,986	$ 2	—	$ —	$ 2,040,383	$ 2,881,416	$ (324,786)	$ (806,523)	$ 3,790,492	$ 4,686	$ 3,795,178

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

QUANTA SERVICES, INC. AND SUBSIDIARIES
CONDENSED CONSOLIDATED STATEMENTS OF EQUITY
(In thousands, except share data)
(Unaudited)

	Common Stock		Exchangeable Shares		Series G Preferred Stock		Additional Paid-In	Retained	Accumulated Other Comprehensive	Treasury	Total Stockholders'	Non-controlling	Total
	Shares	Amount	Shares	Amount	Shares	Amount	Capital	Earnings	Income (Loss)	Stock	Equity	Interests	Equity
Balance, December 31, 2018	141,103,900	$ 2	486,112	$ —	1	$ —	$ 1,967,354	$ 2,477,291	$ (286,048)	$ (554,440)	$ 3,604,159	$ 1,294	$ 3,605,453
Other comprehensive income	—	—	—	—	—	—	—	—	18,847	—	18,847	—	18,847
Stock-based compensation activity	903,082	—	—	—	—	—	17,151	—	—	(19,052)	(1,901)	—	(1,901)
Exchange of exchangeable shares	449,929	—	(449,929)	—	—	—	—	—	—	—	—	—	—
Retirement of preferred stock	—	—	—	—	(1)	—	—	—	—	—	—	—	—
Common stock repurchases	(375,536)	—	—	—	—	—	—	—		(11,953)	(11,953)	—	(11,953)
Dividends declared	—	—	—	—	—	—	—	(5,896)	—	—	(5,896)	—	(5,896)
Distributions to non-controlling interests	—	—	—	—	—	—	—	—	—	—	—	(528)	(528)
Net income	—	—	—	—	—	—	—	120,488	—	—	120,488	547	121,035
Balance, March 31, 2019	142,081,375	$ 2	36,183	$ —	—	$ —	$ 1,984,505	$ 2,591,883	$ (267,201)	$ (585,445)	$ 3,723,744	$ 1,313	$ 3,725,057

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

1. BUSINESS AND ORGANIZATION:

Quanta Services, Inc. (Quanta) is a leading provider of specialty contracting services, delivering comprehensive infrastructure solutions for the electric power, energy and communications industries in the United States, Canada, Australia and select other international markets. Quanta reports its results under two reportable segments: (1) Electric Power Infrastructure Services and (2) Pipeline and Industrial Infrastructure Services.

Electric Power Infrastructure Services Segment

The Electric Power Infrastructure Services segment provides comprehensive network solutions to customers in the electric power industry. Services performed by the Electric Power Infrastructure Services segment generally include the design, installation, upgrade, repair and maintenance of electric power transmission and distribution infrastructure and substation facilities along with other engineering and technical services. This segment also provides emergency restoration services, including the repair of infrastructure damaged by inclement weather, the energized installation, maintenance and upgrade of electric power infrastructure utilizing unique bare hand and hot stick methods and Quanta's proprietary robotic arm techniques, and the installation of "smart grid" technologies on electric power networks. In addition, this segment provides services that support the development of renewable energy generation, including solar, wind, hydro power and backup natural gas generation facilities, and related switchyards and transmission infrastructure. This segment also provides comprehensive communications infrastructure services to wireline and wireless telecommunications companies, cable multi-system operators and other customers within the communications industry (including services in connection with 5G wireless deployment); services in connection with the construction of electric power generation facilities; and the design, installation, maintenance and repair of commercial and industrial wiring. This segment also includes a majority of the financial results of Quanta's postsecondary educational institution, which specializes in pre-apprenticeship training, apprenticeship training and specialized utility task training for electric workers, as well as training for the gas distribution and communications industries.

Pipeline and Industrial Infrastructure Services Segment

The Pipeline and Industrial Infrastructure Services segment provides comprehensive infrastructure solutions to customers involved in the development, transportation, distribution, storage and processing of natural gas, oil and other products. Services performed by the Pipeline and Industrial Infrastructure Services segment generally include the design, installation, upgrade, repair and maintenance of pipeline transmission and distribution systems, gathering systems, production systems, storage systems and compressor and pump stations, as well as related trenching, directional boring and mechanized welding services. In addition, this segment's services include pipeline protection, integrity testing, rehabilitation and replacement, and the fabrication of pipeline support systems and related structures and facilities for natural gas utilities and midstream companies. Quanta also provides high-pressure and critical-path turnaround services to the downstream and midstream energy markets and instrumentation and electrical services, piping, fabrication and storage tank services. To a lesser extent, this segment serves the offshore energy market and designs, installs and maintains fueling systems and water and sewer infrastructure.

Acquisitions

During the three months ended March 31, 2020, Quanta acquired an industrial services business located in Canada that performs catalyst handling services, including changeover and shutdown maintenance, to customers in the refining and chemical industries and an electric power infrastructure business located in the United States that primarily provides underground conduit services. Beginning on the respective acquisition dates, the results of the acquired businesses have been included in Quanta's consolidated financial statements, with the results of the industrial services business generally included in the Pipeline and Industrial Infrastructure Services segment and the results of the electric power infrastructure business generally included in the Electric Power Infrastructure Services segment.

During the year ended December 31, 2019, Quanta acquired The Hallen Construction Co., Inc. (Hallen), a pipeline and industrial services business located in the United States that specializes in gas distribution and transmission services, and to a lesser extent, underground electric distribution and transmission services. During the year ended December 31, 2019, Quanta also acquired two specialty utility foundation and pole-setting contractors serving the southeast United States; an electric power specialty contracting business located in the United States that provides aerial power line and construction support services; a business located in the United States that provides technical training materials to electric utility workers; an electric power company specializing in project management and, to a lesser extent, water and wastewater projects located in the United States; and an electrical infrastructure services business located in Canada. Beginning on the respective acquisition dates, the results of the acquired businesses have been included in Quanta's consolidated financial statements, with the results of Hallen generally included in the Pipeline and Industrial Infrastructure Services segment and the results of the other acquired businesses generally included in the Electric Power Infrastructure Services segment.

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES:

Principles of Consolidation

The condensed consolidated financial statements of Quanta include the accounts of Quanta Services, Inc. and its wholly-owned subsidiaries, which are also referred to as its operating units. The condensed consolidated financial statements also include the accounts of certain of Quanta's investments in joint ventures, which are either consolidated or proportionately consolidated, as discussed in the following summary of significant accounting policies. Investments in affiliated entities in which Quanta does not have a controlling financial interest, but over which Quanta has significant influence, usually because Quanta holds a voting interest of between 20% and 50%, are accounted for using the equity method. All significant intercompany accounts and transactions have been eliminated in consolidation. Unless the context requires otherwise, references to Quanta include Quanta Services, Inc. and its consolidated subsidiaries.

Interim Condensed Consolidated Financial Information

These unaudited condensed consolidated financial statements have been prepared pursuant to the rules of the U.S. Securities and Exchange Commission (SEC). Certain information and footnote disclosures, normally included in annual financial statements prepared in accordance with generally accepted accounting principles in the United States (GAAP), have been condensed or omitted pursuant to those rules and regulations. Quanta believes that the disclosures made are adequate to make the information presented not misleading. In the opinion of management, all adjustments, consisting only of normal recurring adjustments, necessary to fairly state the financial position, results of operations, comprehensive income and cash flows with respect to the interim condensed consolidated financial statements have been included. The results of operations and comprehensive income for the interim periods are not necessarily indicative of the results for the entire fiscal year. The results of Quanta have historically been subject to significant seasonal fluctuations.

Quanta recommends that these unaudited condensed consolidated financial statements be read in conjunction with the audited consolidated financial statements and notes thereto of Quanta and its consolidated subsidiaries included in Quanta's Annual Report on Form 10-K for the year ended December 31, 2019 (2019 Annual Report), which was filed with the SEC on February 28, 2020.

Use of Estimates and Assumptions

The preparation of financial statements in conformity with GAAP requires the use of estimates and assumptions by management in determining the reported amounts of assets and liabilities, disclosures of contingent assets and liabilities known to exist as of the date the financial statements are published, and the reported amounts of revenues and expenses recognized during the periods presented. Quanta reviews all significant estimates affecting its consolidated financial statements on a recurring basis and records the effect of any necessary adjustments prior to their publication. Judgments and estimates are based on Quanta's beliefs and assumptions derived from information available at the time such judgments and estimates are made. Uncertainties with respect to such estimates and assumptions are inherent in the preparation of financial statements. Estimates are primarily used in Quanta's assessment of the allowance for credit losses, valuation of inventory, useful lives of assets, fair value assumptions in analyzing goodwill, other intangibles and long-lived asset impairments, equity and other investments, purchase price allocations, acquisition-related contingent consideration liabilities, multiemployer pension plan withdrawal liabilities, contingent liabilities associated with, among other things, legal proceedings and claims, parent guarantees and indemnity obligations, revenue recognition for construction contracts inclusive of contractual change orders and claims, estimated insurance claim recoveries, stock-based compensation, operating results of reportable segments, provision for income taxes, and uncertain tax positions.

Revenue Recognition

Contracts

Quanta designs, installs, upgrades, repairs and maintains infrastructure for customers in the electric power, energy and communications industries. These services may be provided pursuant to master service agreements (MSAs), repair and maintenance contracts and fixed price and non-fixed price installation contracts. These contracts are classified into three categories based on how transaction prices are determined and revenue is recognized: unit-price contracts, cost-plus contracts and fixed price contracts. Transaction prices for unit-price contracts are determined on a per unit basis, transaction prices for cost-plus contracts are determined by applying a profit margin to costs incurred on the contracts and transaction prices for fixed price contracts are determined on a lump-sum basis. All of Quanta's revenues are recognized from contracts with its customers. In addition to the considerations described below, revenue is not recognized unless collectability under the contract is considered probable, the contract has commercial substance and the contract has been approved. Additionally, the contract must contain payment terms, as well as the rights and commitments of both parties.

Performance Obligations

A performance obligation is a promise in a contract with a customer to transfer a distinct good or service. Most of Quanta's contracts are considered to have a single performance obligation whereby Quanta is required to integrate complex activities and equipment into a deliverable for a customer. For contracts with multiple performance obligations, Quanta allocates a portion of the total transaction price to each performance obligation using its best estimate of the standalone selling price of the distinct good or service associated with each performance obligation. Standalone selling price is estimated using the expected costs plus a margin.

At March 31, 2020 and December 31, 2019, the aggregate transaction price allocated to unsatisfied or partially satisfied performance obligations was approximately $5.37 billion and $5.30 billion, of which 63.6% and 59.5% were expected to be recognized in the subsequenttwelve months. These amounts represent management's estimate of the consolidated revenues that are expected to be realized from the remaining portion of firm orders under fixed price contracts not yet completed or for which work had not yet begun. For purposes of calculating remaining performance obligations, Quanta includes all estimated revenues attributable to consolidated joint ventures and variable interest entities, revenues from funded and unfunded portions of government contracts to the extent they are reasonably expected to be realized and revenues from change orders and claims to the extent management believes additional contract revenues will be earned and are deemed probable of collection. Excluded from remaining performance obligations are potential orders under MSAs and non-fixed price contracts expected to be completed within one year.

Recognition of Revenue Upon Satisfaction of Performance Obligations

A transaction price is determined for each contract, and that amount is allocated to each performance obligation within the contract and recognized as revenue when, or as, the performance obligation is satisfied. Quanta generally recognizes revenue over time as it performs its obligations because there is a continuous transfer of control of the deliverable to the customer. Under unit-price contracts with an insignificant amount of partially completed units, Quanta recognizes revenue as units are completed based on contractual pricing amounts. Under unit-price contracts with more than an insignificant amount of partially completed units and fixed price contracts, Quanta recognizes revenues as performance obligations are satisfied over time, with the percentage completion generally measured as the percentage of costs incurred to total estimated costs for such performance obligation. Under cost-plus contracts, Quanta recognizes revenue on an input basis, as labor hours are incurred, materials are utilized and services are performed.

Under contracts where Quanta has a right to consideration in an amount that directly corresponds to the value of completed performance, Quanta recognizes revenue in such amount and does not include such performance as a remaining performance obligation. Also, contract consideration is not adjusted for a significant financing component if payment is expected to be collected less than one year from when the services are performed.

Contract costs include all direct materials, labor and subcontract costs and indirect costs related to contract performance, such as indirect labor, supplies, tools, repairs and depreciation costs. The majority of the materials associated with Quanta's work are owner-furnished, and therefore not included in contract revenues and costs. Additionally, Quanta may incur incremental costs to obtain certain contracts, such as selling and marketing costs, bid and proposal costs, sales commissions, and legal fees or initial set-up or mobilization costs, certain of which can be capitalized. Such costs were not material during the three months ended March 31, 2020 and 2019.

Contract Estimates

Actual revenues and project costs can vary, sometimes substantially, from previous estimates due to changes in a variety of factors, including unforeseen or changed circumstances not included in Quanta's cost estimates or covered by its contracts. The estimating process is based on the professional knowledge and experience of Quanta's project estimators, project managers and finance professionals. Some of the factors that may lead to changes in estimates include concealed or unknown site conditions; changes in the cost of equipment, commodities, materials or labor; unanticipated costs or claims due to delays caused by customers or third parties; customer failure to provide required materials or equipment; errors in engineering, specifications or designs; project modifications or contract termination; adverse weather conditions, natural disasters, and other emergencies (including the ongoing pandemic as a result of the novel coronavirus disease that began in 2019 (COVID-19); changes in estimates related to the length of time to complete a performance obligation; and performance and quality issues requiring rework or replacement. These factors, along with other risks inherent in performing services under fixed price contracts, are routinely evaluated by management. Any changes in estimates could result in changes to profitability or losses associated with the related performance obligations. For example, estimated costs for a performance obligation may increase from an original estimate and contractual provisions may not allow for adequate compensation or reimbursement for such additional costs. Changes in estimated revenues, costs and profit are recorded in the period they are determined to be probable and can be reasonably estimated. Contract losses are recognized in full when they are determined to be probable and can be reasonably estimated.

Changes in cost estimates on certain contracts may result in the issuance of change orders, which can be approved or unapproved by the customer, or the assertion of contract claims. Quanta determines the probability that costs associated with change orders and claims will be recovered based on, among other things, contractual entitlement, past practices with the customer, specific discussions or preliminary negotiations with the customer and verbal approvals by the customer. Quanta recognizes amounts associated with change orders and claims as revenue if it is probable that the contract price will be adjusted and the amount of any such adjustment can be reliably estimated. Most of Quanta's change orders are for services that are not distinct from an existing contract and are accounted for as part of an existing contract on a cumulative catch-up basis. Quanta accounts for a change order as a separate contract if the additional goods or services are distinct from and increase the scope of the contract, and the price of the contract increases by an amount commensurate to Quanta's standalone selling price for the additional goods or services.

As of March 31, 2020 and December 31, 2019, Quanta had recognized revenues of $141.6 million and $170.0 million related to change orders and claims included as contract price adjustments and that were in the process of being negotiated in the normal course of business. These aggregate amounts, which are included in "Contract assets" in the accompanying condensed consolidated balance sheets, represent management's estimates of additional contract revenues that have been earned and are probable of collection. However, Quanta's estimates could change, and the amount ultimately realized could be significantly higher or lower than the estimated amount.

Variable consideration amounts, including performance incentives, early pay discounts and penalties, may also cause changes in contract estimates. The amount of variable consideration is estimated based on the most likely amount that is deemed probable of realization. Contract consideration is adjusted for variable consideration when it is probable that a significant reversal in the amount of cumulative revenue recognized will not occur once the uncertainty related to the variable consideration is resolved.

Changes in contract estimates are recognized on a cumulative catch-up basis in the period in which the revisions to the estimates are made. Such changes in estimates can result in the recognition of revenue in a current period for performance obligations that were satisfied or partially satisfied in prior periods or the reversal of previously recognized revenue if the current estimate differs from the previous estimate. The impact of a change in estimate is measured as the difference between the revenue or gross profit recognized in the prior period as compared to the revenue or gross profit which would have been recognized had the revised estimate been used as the basis of recognition in the prior period.

Operating results for the three months ended March 31, 2020 were favorably impacted by $24.1 million, or 7.3% of gross profit, as a result of aggregate changes in contract estimates related to projects that were in progress at December 31, 2019. The overall favorable impact resulted from net positive changes in estimates across a large number of projects primarily as a result of favorable performance and successful mitigation of risks and contingencies as the projects progressed to completion. Partially offsetting the net favorable impact to gross profit for the three months ended March 31, 2020 was a negative change in estimate of $11.6 million related to project delays associated with subcontractor performance and severe weather impacts on a larger pipeline transmission project in Canada which had a contract value of $95.1 million and was approximately 93% complete as of March 31, 2020.

Operating results for the three months ended March 31, 2019 were impacted by less than 5% as a result of aggregate changes in contract estimates related to projects that were in progress at December 31, 2018. However, during the three months ended March 31, 2019, Quanta completed construction of a larger electrical transmission project in Canada ahead of schedule, resulting in lower costs than previously estimated. This change positively impacted gross profit related to work performed in prior periods by $25.5 million. The favorable impact was partially offset by an aggregate negative change in estimates on other ongoing projects.

Revenues by Category

The following tables present Quanta's revenue disaggregated by geographic location, as determined by the job location, and contract type (in thousands):

	Three Months Ended March 31,			
	2020		2019	
By primary geographic location:				
United States	$ 2,268,086	82.1%	$ 2,200,615	78.4%
Canada	384,225	13.9%	485,430	17.3%
Australia	51,050	1.8%	41,324	1.5%
Latin America and Other	60,734	2.2%	79,890	2.8%
Total revenues	$ 2,764,095	100.0%	$ 2,807,259	100.0%

	Three Months Ended March 31,			
	2020		2019	
By contract type:				
Unit-price contracts	$ 974,651	35.3%	$ 895,044	31.9%
Cost-plus contracts	688,084	24.9%	958,355	34.1%
Fixed price contracts	1,101,360	39.8%	953,860	34.0%
Total revenues	$ 2,764,095	100.0%	$ 2,807,259	100.0%

As described above, under unit-price contracts with more than an insignificant amount of partially completed units and fixed price contracts, revenue is recognized as performance obligations are satisfied over time, with the percentage completion generally measured as the percentage of costs incurred to total estimated costs for such performance obligation. Approximately 48.1% and 51.7% of Quanta's revenues recognized during the three months ended March 31, 2020 and 2019 were associated with this revenue recognition method.

Contract Assets and Liabilities

With respect to Quanta's contracts, interim payments are typically received as work progresses in accordance with agreed-upon contractual terms, either at periodic intervals or upon achievement of contractual milestones. As a result, under fixed price contracts, the timing of revenue recognition and contract billings results in contract assets and contract liabilities. Contract assets represent revenues recognized in excess of amounts billed for fixed price contracts and are current assets that are transferred to accounts receivable when billed or the billing rights become unconditional. Contract assets are not considered a significant financing component as they are intended to protect the customer in the event Quanta does not perform on its obligations under the contract.

Conversely, contract liabilities represent billings in excess of revenues recognized for fixed price contracts. These arise under certain contracts that allow for upfront payments from the customer or contain contractual billing milestones, which result in billings that exceed the amount of revenues recognized for certain periods. Contract liabilities are current liabilities and are not considered a significant financing component, as they are used to meet working capital requirements that are generally higher in the early stages of a contract and are intended to protect Quanta from the other party failing to meet its obligations under the contract. Contract assets and liabilities are recorded on a performance obligation basis at the end of each reporting period.

Contract assets and liabilities consisted of the following (in thousands):

	March 31, 2020	December 31, 2019
Contract assets	$ 569,180	$ 601,268
Contract liabilities	$ 591,087	$ 606,146

As referenced previously, contract assets and liabilities fluctuate period to period based on various factors, including, among others, changes in the number and size of projects in progress at period end and variability in billing and payment terms, such as up-front or advance billings, interim or milestone billings, or deferred billings. The decrease in contract assets from December 31, 2019 to March 31, 2020 was partially due to a $28.4 million decrease in change orders and claims as described above.

Revenues were positively impacted by $36.0 million during the three months ended March 31, 2020 as a result of changes in estimates associated with performance obligations on fixed price contracts partially satisfied prior to December 31, 2019. During the three months ended March 31, 2020, Quanta recognized revenue of approximately $268.7 million related to contract liabilities outstanding at December 31, 2019.

Current and Long-Term Accounts Receivable, Notes Receivable and Allowance for Credit Losses

As described in Note 3, Quanta adopted the new accounting standard for measuring credit losses effective January 1, 2020 utilizing the transition method that allows recognition of a cumulative-effect adjustment to the opening balance of retained earnings in the period of adoption. Quanta's financial results for reporting periods beginning on or after January 1, 2020 are presented under the new standard, while financial results for prior periods continue to be reported in accordance with the prior standard and Quanta's historical accounting policy. The net cumulative effect due to the adoption of the new standard was a $3.8 million reduction to retained earnings as of January 1, 2020, which represented a $5.1 million increase to allowance for credit losses, net of $1.2 million in deferred income taxes. The adjustment was based on an estimate of expected lifetime credit losses for financial instruments, primarily accounts receivable and contract assets. Although the adoption of the new standard did not have a material impact on Quanta's condensed consolidated financial statements at the date of adoption, expected credit losses could change as a result of changes in credit loss experience, changes to specific risk characteristics of Quanta's portfolio of financial assets or changes to management's expectations of future economic conditions that affect the collectability of Quanta's financial assets. At the end of each quarter, management will assess these factors, including any potential effects from the ongoing COVID-19 pandemic.

The assessment of the allowance for credit losses involves certain judgments and estimates. Management estimates the allowance balance using relevant available information from internal and external sources relating to past events, current conditions and reasonable and supportable forecasts. Expected credit losses are estimated by evaluating trends in historical write-off experience and applying historical loss ratios to pools of financial assets with similar risk characteristics. Quanta has determined that it has one pool for the purpose of calculating its historical credit loss experience.

Quanta's historical loss ratio and its determination of risk pools may be adjusted for changes in customer credit concentrations within its portfolio of financial assets, its customers' ability to pay, and other considerations such as changes to the market, regulatory or technological environments affecting its customers and the consistency of the current and forecasted economic conditions relative to the historical period used to derive historical loss ratios.

Additional allowance for credit losses is established for financial asset balances with specific customers where collectability has been determined to be improbable based on customer specific facts and circumstances. Quanta considers accounts receivable delinquent after 30 days but does not generally consider such amounts delinquent in its credit loss analysis unless the accounts receivable have been outstanding for at least 90 days. In addition to monitoring delinquent accounts, management monitors the credit quality of its receivables by, among other things, obtaining credit ratings of significant customers, assessing economic and market conditions and evaluating material changes to a customer's business, cash flows and financial condition. Should anticipated recoveries relating to receivables fail to materialize, including anticipated recoveries relating to bankruptcies or other workout situations, Quanta could experience reduced cash flows and losses in excess of current allowances provided.

Activity in Quanta's allowance for credit losses consisted of the following (in thousands):

	Three Months Ended March 31, 2020	Three Months Ended March 31, 2019
Balance at beginning of period	$ 9,398	$ 5,839
Adoption of new credit loss standard	5,067	—
Charges to bad debt expense	273	2,823
Direct write-offs charged against the allowance	(292)	(186)
Balance at end of period	$ 14,446	$ 8,476

Long-term accounts receivable are included within "Other assets, net" in the accompanying condensed consolidated balance sheets. As of March 31, 2020 and December 31, 2019, long-term accounts receivable were $12.1 million and $12.6 million.

Certain contracts allow customers to withhold a small percentage of billings pursuant to retainage provisions, and such amounts are generally due upon completion of the contract and acceptance of the project by the customer. Based on Quanta's experience in recent years, the majority of these retainage balances are expected to be collected within approximately twelve months. Current retainage balances as of March 31, 2020 and December 31, 2019 were $313.2 million and $299.6 million, which are included in "Accounts receivable." Retainage balances with expected settlement dates beyond the next twelve months are included in "Other assets, net," and as of March 31, 2020 and December 31, 2019 were $57.4 million and $54.2 million.

Quanta recognizes unbilled receivables for non-fixed price contracts within "Accounts receivable" in certain circumstances, such as when revenues have been earned and recorded but the amount cannot be billed under the terms of the contract until a later date or amounts arise from routine lags in billing (for example, work completed one month but not billed until the next month). These balances do not include revenues recognized for work performed under fixed-price contracts, as these amounts are recorded as "Contract assets." At March 31, 2020 and December 31, 2019, unbilled receivables included in "Accounts receivable" were $563.3 million and $524.3 million. Quanta also recognizes unearned revenues for non-fixed price contracts when cash is received prior to recognizing revenues for the related performance obligation. Unearned revenues, which are included in "Accounts payable and accrued expenses," were $22.6 million and $33.2 million at March 31, 2020 and December 31, 2019.

Cash and Cash Equivalents

Amounts related to Quanta's cash and cash equivalents based on geographic location of the bank accounts were as follows (in thousands):

	March 31, 2020	December 31, 2019
Cash and cash equivalents held in domestic bank accounts	$ 350,393	$ 130,771
Cash and cash equivalents held in foreign bank accounts	26,812	34,027
Total cash and cash equivalents	$ 377,205	$ 164,798

Cash consisting of interest-bearing demand deposits is carried at cost, which approximates fair value. Quanta considers all highly liquid investments with an original maturity of three months or less at the time of purchase to be cash equivalents, which are carried at fair value. At March 31, 2020 and December 31, 2019, cash equivalents were $179.9 million and $37.8 million and consisted primarily of money market investments and money market mutual funds and are discussed further in *Fair Value Measurements* below.

Cash and cash equivalents held by joint ventures, which are either consolidated or proportionately consolidated, are available to support joint venture operations, but Quanta cannot utilize those assets to support its other operations. Quanta generally has no right to cash and cash equivalents held by a joint venture other than participating in distributions and in the event of dissolution. Amounts related to cash and cash equivalents held by joint ventures, which are included in Quanta's total cash and cash equivalents balances, were as follows (in thousands):

	March 31, 2020	December 31, 2019
Cash and cash equivalents held by domestic joint ventures	$ 9,097	$ 6,518
Cash and cash equivalents held by foreign joint ventures	104	16
Total cash and cash equivalents held by joint ventures	9,201	6,534
Cash and cash equivalents not held by joint ventures	368,004	158,264
Total cash and cash equivalents	$ 377,205	$ 164,798

Goodwill

Goodwill, net of accumulated impairment losses, represents the excess of cost over the fair market value of net tangible and identifiable intangible assets of acquired businesses and is stated at cost. Quanta has recorded goodwill in connection with its historical acquisitions of businesses. Upon acquisition, these businesses were either combined into one of Quanta's existing operating units or managed on a stand-alone basis as an individual operating unit. Quanta's operating units are organized into two divisions: the Electric Power Infrastructure Services Division and the Pipeline and Industrial Infrastructure Services Division. As most of the companies acquired by Quanta provide multiple types of services for multiple types of customers, these divisional designations are based on the predominant type of work performed by an operating unit at the point in time the divisional designation is made. Goodwill is required to be measured for impairment at the reporting unit level, which represents the operating segment level or one level below the operating segment level for which discrete financial information is available. Quanta has determined that its individual operating units represent its reporting units for the purpose of assessing goodwill impairment.

Goodwill is not amortized but is tested for impairment annually in the fourth quarter of the fiscal year, or more frequently if events or circumstances arise which indicate that goodwill may be impaired. The assessment can be performed by first completing a qualitative assessment on none, some or all of Quanta's reporting units. Quanta can also bypass the qualitative assessment for any reporting unit in any period and proceed directly to a quantitative impairment test, and then resume the qualitative assessment in any subsequent period. Qualitative indicators that may trigger the need for annual or interim quantitative impairment testing include, among other things, deterioration in macroeconomic conditions, declining financial performance, deterioration in the operational environment, or an expectation of selling or disposing of a portion of a reporting unit. Additionally, an interim impairment test of a reporting unit may be triggered by a significant change in market, management, business strategy or business climate; a loss of a significant customer; increased competition; a sustained decrease in share price; or a decrease in Quanta's market capitalization below book value.

If Quanta believes that, as a result of its qualitative assessment, it is more likely than not that the fair value of a reporting unit is less than its carrying amount, the quantitative impairment test is required. The quantitative test involves comparing the fair value of each of Quanta's reporting units with its carrying amount, including goodwill. If the carrying amount of a reporting unit exceeds its fair value, an impairment loss is recorded as a reduction to goodwill with a corresponding charge to "Asset impairment charges" in the condensed consolidated statements of operations. The income tax effect associated with an impairment of tax-deductible goodwill is also considered in the measurement of the goodwill impairment. A goodwill impairment for any reporting unit is limited to the total amount of goodwill allocated to such reporting unit.

Quanta determines the fair value of its reporting units using a weighted combination of the income approach (discounted cash flow method) and market multiples valuation techniques (market guideline transaction method and market guideline public company method), with greater weight placed on the discounted cash flow method because management believes this method results in the most appropriate calculation of fair value and reflects an expectation of market value as determined by a "held and used" model.

Under the discounted cash flow method, Quanta determines fair value based on the estimated future cash flows for each reporting unit, discounted to present value using a risk-adjusted industry weighted average cost of capital, which reflects the overall level of inherent risk for each reporting unit and the rate of return an outside investor would expect to earn. Cash flow projections are derived from budgeted amounts (typically a one-year model) and subsequent period cash flows are developed for each reporting unit using growth rates that management believes are reasonably likely to occur. A terminal value is derived from a multiple of the reporting unit's earnings before interest, taxes, depreciation and amortization (EBITDA). The EBITDA multiples for each reporting unit are based on observed purchase transactions for similar businesses adjusted for size, volatility and risk.

Under the market guideline transaction and market guideline public company methods, Quanta determines the estimated fair value for each of its reporting units by applying transaction multiples and public company multiples, respectively, to each reporting unit's projected EBITDA and then averaging that estimate with similar historical calculations using either a one-, two- or three-year average. The transaction multiples are based on observed purchase transactions for similar businesses adjusted for size, volatility and risk. The public company multiples are based on peer group multiples adjusted for size, volatility and risk. For the market guideline public company method, Quanta adds a reasonable control premium, which is estimated as the premium that would be appropriate to convert the reporting unit value to a controlling interest basis.

For Quanta's annual goodwill impairment assessment performed during the fourth quarter of 2019, Quanta assessed qualitative factors to determine whether it was necessary to perform a quantitative fair value impairment analysis and identified one reporting unit for which a quantitative goodwill impairment assessment was deemed appropriate based on financial performance indicators. The subsequent quantitative analysis indicated that the fair value of the reporting unit was in excess of its carrying amount. Accordingly, Quanta did not record any impairment charges related to goodwill during the fourth quarter of 2019.

The determination of a reporting unit's fair value requires judgment and the use of significant estimates and assumptions. Quanta believes the estimates and assumptions used in its impairment assessments are reasonable and based on available market information obtained from relevant industry sources; however, variations in any of the assumptions could result in materially different calculations of fair value and impairment determinations. Accordingly, management considered the sensitivity of its fair value estimates to changes in certain valuation assumptions. After taking into account a 10% decrease in the fair value of the reporting unit for which a quantitative impairment test was performed in the fourth quarter of 2019, the reporting unit's fair value exceeded its carrying amount.

If an operating unit experiences prolonged periods of declining revenues, operating margins or both, it may be at risk of failing the quantitative goodwill impairment test. The reporting unit referenced above, for which a quantitative goodwill impairment assessment was performed in the fourth quarter of 2019, experienced declines over the short-term primarily due to losses attributable to a project which are not expected to recur.

Due to the cyclical nature of Quanta's business, and the other factors described above, the profitability of its individual reporting units may suffer from decreases in customer demand and other factors. These factors may have a disproportionate impact on individual reporting units as compared to Quanta as a whole and might adversely affect the fair value of individual reporting units. If material adverse conditions occur, Quanta's future estimates of fair value may not support the carrying amount of one or more of its reporting units, and the related goodwill would need to be written down to an amount considered recoverable.

As a result of the currently challenged energy market and recent oil price volatility, as well as the exacerbating effect of the COVID-19 pandemic, Quanta assessed the expected negative impacts related to its reporting units, particularly reporting units within its Pipeline and Industrial Infrastructure Services Division, and concluded that at this time the impacts are not likely to result in goodwill impairment for any reporting unit. As a result, no goodwill impairment was recognized during the three months ended March 31, 2020. However, the potential impacts of the volatile energy market and of the COVID-19 pandemic are uncertain and may change based on numerous factors that could increase the negative impacts on certain of Quanta's reporting units. Quanta will continue to monitor the impacts and should any of its reporting units suffer additional significant declines in actual or forecast financial results beyond current expectations, the risk of goodwill impairment would increase. At this time, based on information currently available, Quanta cannot determine if any future impairment will result, or whether such impairment charge would be material.

Other Intangible Assets

Quanta's intangible assets include customer relationships, backlog, trade names, non-compete agreements, patented rights and developed technology and curriculum, all of which are subject to amortization, as well as an engineering license, which is not subject to amortization. The fair value of customer relationships is estimated as of the date a business is acquired based on the value-in-use concept utilizing the income approach, specifically the multi-period excess earnings method. This method discounts to present value the projected cash flows attributable to the customer relationships, with consideration given to customer contract renewals and estimated customer attrition rates. The significant estimates used by management in determining the fair values of customer relationship intangible assets include future revenues, discount rates and customer attrition rates. The following table presents the range and weighted average based on acquisition date fair value for discount and attrition rates used in the valuation of customer relationship intangible assets during the three months ended March 31, 2020 and year ended December 31, 2019:

	2020		2019	
	Range	Weighted Average	Range	Weighted Average
Discount rates	20% to 23%	22%	19% to 24%	24%
Customer attrition rates	23% to 41%	29%	5% to 37%	6%

Quanta values backlog for acquired businesses as of the acquisition date based upon the contractual nature of the backlog within each service line, discounted to present value. The values of trade names and curriculum are estimated using the relief-from-royalty method of the income approach, which is based on the assumption that in lieu of ownership, a company would be willing to pay a royalty for use of the trade name or curriculum. The value of a non-compete agreement is estimated based on the difference between the present value of the prospective cash flows with the agreement in place and the present value of the prospective cash flows without the agreement in place. The value of the engineering license is based on cash paid to acquire the asset.

Quanta amortizes the intangible assets that are subject to amortization based upon the estimated consumption of their economic benefits, or on a straight-line basis if the pattern of economic benefit cannot otherwise be reliably estimated. Intangible assets are reviewed for impairment and tested for recoverability whenever events or changes in circumstances indicate that the carrying amount may not be recoverable. For instance, a significant change in business climate or a loss of a significant customer, among other things, may trigger the need for interim impairment testing of intangible assets. An impairment loss is recognized if the carrying amount of an intangible asset is not recoverable and its carrying amount exceeds its fair value. As a result of the currently challenged energy market and recent oil price volatility, as well as the exacerbating effect of the COVID-19 pandemic, Quanta assessed the expected negative impacts related to its intangible assets, particularly intangible assets associated with reporting units within the Pipeline and Industrial Infrastructure Services Division, and concluded that at this time the impacts are not likely to result in intangible asset impairments. However, the potential impacts of the volatile energy market and of the COVID-19 pandemic are uncertain and may change based on numerous factors that could increase the negative impacts on certain of Quanta's reporting units and related intangible assets. Quanta will continue to monitor the impacts and should any of the reporting units suffer additional significant declines in actual or forecast financial results beyond current expectations, the risk of intangible asset impairment would increase. At this time, based on the information currently available, Quanta cannot determine if any future impairment will result, or whether such impairment charge would be material.

Leases

Lease liabilities are recognized as the present value of the future minimum lease payments over the lease term as of the commencement date. Lease assets are recognized as the present value of future minimum lease payments over the lease term as of the commencement date, plus any initial direct costs incurred and lease payments made, less any lease incentives received.

Quanta determines if an arrangement contains a lease at inception. If an arrangement is considered a lease, Quanta determines at the commencement date whether the lease is an operating or finance lease. Finance leases are leases that meet any of the following criteria: the lease transfers ownership of the underlying asset at the end of the lease term; the lessee is reasonably certain to exercise an option to purchase the underlying asset; the lease term is for the major part of the remaining economic life of the underlying asset (except when the commencement date falls at or near the end of such economic life); the present value of the sum of the lease payments and any additional residual value guarantee by the lessee equals or exceeds substantially all of the fair value of the underlying asset; or the underlying asset is of such a specialized nature that it is expected to have no alternative use to the lessor at the end of the lease term. A lease that does not meet any of these criteria is considered an operating lease. After the commencement date, lease cost for an operating lease is recognized over the remaining lease term on a straight-line basis, while lease cost for a finance lease is based on the depreciation of the lease asset and interest on the lease liability.

The terms of Quanta's lease arrangements vary, and certain leases include one or more of the following: renewal option(s), a cancellation option, a residual value guarantee, a purchase option or an escalation clause. An option to extend or terminate a lease is accounted for when assessing a lease term when it is reasonably certain that Quanta will exercise such option. Quanta has made a policy election to classify leases with an initial lease term of 12 months or less as short-term leases, and these leases are not recorded in the accompanying condensed consolidated balance sheets unless the lease contains a purchase option that is reasonably certain to be exercised. Lease cost related to short-term leases is recognized on a straight-line basis over the lease term.

Determinations with respect to lease term (including any extension thereof), discount rate, variable lease cost and future minimum lease payments require the use of judgment based on the facts and circumstances related to each lease. Quanta considers various factors, including economic incentives and penalties and business need, to determine the likelihood that a renewal option will be exercised. Unless a renewal option is reasonably certain to be exercised, which is typically at Quanta's sole discretion, the initial non-cancelable lease term is used. Quanta generally uses its incremental borrowing rates to determine the present value of future minimum lease payments.

Investments in Affiliates and Other Entities

In the normal course of business, Quanta enters into various types of investment arrangements, each having unique terms and conditions. These investments may include equity interests held by Quanta in business entities, including general or limited partnerships, contractual joint ventures, or other forms of equity or profit participation. These investments may also include Quanta's participation in different financing structures, such as the extension of loans to project-specific entities, the acquisition of convertible notes issued by project specific entities, or other strategic financing arrangements. Quanta also enters into strategic partnerships with customers and infrastructure investors to provide fully integrated infrastructure services on certain projects, including planning and feasibility analyses, engineering, design, procurement, construction and project operation and maintenance. These projects include public-private partnerships and concessions, along with private infrastructure projects such as build, own, operate (and in some cases transfer) and build-to-suit arrangements.

Quanta determines whether investments involve a variable interest entity (VIE) based on the characteristics of the subject entity. If the entity is determined to be a VIE, then management determines if Quanta is the primary beneficiary of the entity and whether or not consolidation of the VIE is required. The primary beneficiary consolidating the VIE must normally have both (i) the power to direct the activities that most significantly affect the VIE's economic performance and (ii) the obligation to absorb significant losses of, or the right to receive significant benefits from, the VIE. When Quanta is deemed to be the primary beneficiary, the VIE is consolidated and the other party's equity interest in the VIE is accounted for as a non-controlling interest. In cases where Quanta determines that it has an undivided interest in the assets, liabilities, revenues and profits of an unincorporated VIE (e.g., a general partnership interest), such amounts are consolidated on a basis proportional to Quanta's ownership interest in the unincorporated entity.

Investments in entities of which Quanta is not the primary beneficiary, but over which Quanta has the ability to exercise significant influence, are accounted for using the equity method of accounting. Quanta's share of net income or losses from unconsolidated equity investments is reported as equity in earnings (losses) of unconsolidated affiliates, which is included in "Other income (expense), net" in the accompanying condensed consolidated statements of operations. Equity investments are reviewed for impairment by assessing whether there has been a decline in the fair value of the investment below the carrying amount and the decline is other-than-temporary. In making this determination, factors such as the ability to recover the carrying amount of the investment and the inability of the investee to sustain its earnings capacity are evaluated in determining whether a loss in value should be recognized. Any impairment losses related to investments would be recognized in equity in earnings (losses) of unconsolidated affiliates. Equity method investments are carried at original cost adjusted for Quanta's proportionate share of the investees' income, losses and distributions and are included in "Other assets, net" in the accompanying condensed consolidated balance sheets.

Investments in entities which Quanta is not the primary beneficiary, and over which Quanta does not have the ability to exercise significant influence, are accounted for using the cost method of accounting. These investments are required to be measured at fair value, with changes in fair value recognized in net income, unless the investments do not have readily determinable fair values, in which case the investments are measured at cost minus impairment, if any, plus or minus observable price changes in orderly transactions for an identical or similar investment in the same company.

Quanta owns a 30% equity interest in a water and gas pipeline infrastructure contractor located in Australia, which had an investment balance of $18.4 million as of March 31, 2020. During a designated post-investment period, which concludes in October 2020, Quanta has the option to acquire the remaining equity of the company and has certain additional earnings and distribution participation rights, as well as preferential liquidation rights. Quanta's equity interest has been recorded at cost and will be adjusted for impairment, if any, based on observable changes in the value of the investee's equity. Earnings on this investment are recognized as dividends are received and are reported in "Other income (expense), net" in the accompanying condensed consolidated statements of operations.

As part of Quanta's investment strategy, Quanta formed a partnership with select investors to invest in certain specified infrastructure projects, and wholly-owned subsidiaries of Quanta serve as the general partner of this partnership and as a separately operated registered investment adviser that manages the invested capital. As of March 31, 2020, Quanta's investment balance related to this partnership was $21.1 million. However, in October 2019, due to certain management changes at the registered investment adviser, the partnership entered into a 180-day period during which the investors and Quanta evaluated the partnership, and at the end of such period in April 2020, the investment period for any future investments ended.

Quanta owns a 49% equity interest in an electric power infrastructure services company, together with certain related customer relationship and other intangible assets, which were acquired for $12.3 million. During the three months ended March 31, 2020, Quanta and the majority owner made additional contributions to the company to fund the purchase of certain assets. There were no changes to Quanta's ownership interest as a result of the $2.4 million capital contribution.

Quanta owns a 16% equity investment in an upstream oil and gas investment fund, in which it had an investment balance of $10.2 million as of March 31, 2020. Quanta recognizes equity earnings/losses on a quarter lag basis; therefore, the investment balance is based on the fund's valuation of its portfolio as of December 31, 2019. During the three months ended March 31, 2020, Quanta recognized a loss of $3.1 million on the investment as a result of a decrease in the fair value of the fund.

Quanta held a minority ownership interest in a limited partnership that was selected during 2014 to build, own and operate a new 500 kilometer electric transmission line and two 500 kV substations in Alberta, Canada and has accounted for this interest as an equity-method investment. The limited partnership contracted with a Quanta subsidiary to perform the engineering, procurement and construction (EPC) services for the project, and the Quanta subsidiary recognized revenue and related cost of services as performance progressed on the project. However, due to Quanta's ownership interest, a proportional amount of the EPC profit was deferred until the electric transmission line and related substations were constructed and ownership of the assets was deemed to be transferred to the third-party customer, which occurred in the three months ended March 31, 2019. The deferral of earnings and recognition of such earnings deferral were recorded as components of equity in earnings (losses) of unconsolidated affiliates, which is included in "Other income (expense), net" in the accompanying condensed consolidated statements of operations. During the three months ended March 31, 2019, deferred earnings of $60.3 million were recognized, the majority of which was attributable to profit earned and deferred in the years ended December 31, 2018 and 2017. During the three months ended December 31, 2019, Quanta sold its minority ownership interest in the limited partnership and recognized a gain of $13.0 million related to the sale.

As a result of the currently challenged energy market and recent oil price volatility, as well as the exacerbating effect of the COVID-19 pandemic, Quanta assessed the expected negative impacts related to certain of its investments, particularly investments dependent on the energy market, and concluded that at this time the investments are not impaired, except for the upstream oil and gas investment fund discussed above. However, the potential impacts of the volatile energy market and of the COVID-19 pandemic are uncertain and may change based on numerous factors that could increase the negative impacts on certain of Quanta's investments. Quanta will continue to monitor the impacts and should any of the investments suffer additional significant declines in actual or forecast financial results beyond current expectations, the risk of impairment would increase. At this time, based on the information currently available, Quanta cannot determine if any future impairment will result, or whether such impairment charge would be material. See Notes 9 and 11 for additional information related to investments.

Income Taxes

Quanta follows the liability method of accounting for income taxes. Under this method, deferred tax assets and liabilities are recorded based on future tax consequences of temporary differences between the financial reporting and tax bases of assets and liabilities and are measured using the enacted tax rates and laws that are expected to be in effect when the underlying assets or liabilities are recovered or settled.

Quanta regularly evaluates valuation allowances established for deferred tax assets for which future realization is uncertain, including in connection with changes in tax laws. The estimation of required valuation allowances includes estimates of future taxable income. The ultimate realization of deferred tax assets is dependent upon the generation of future taxable income during the periods in which those temporary differences become deductible. Quanta considers projected future taxable income and tax planning strategies in making this assessment. If actual future taxable income differs from these estimates, Quanta may not realize deferred tax assets to the extent estimated.

Quanta records reserves for income taxes related to certain tax positions when management considers it more likely than not that additional taxes may be due in excess of amounts reflected on income tax returns filed. When recording these reserves, Quanta assumes that taxing authorities have full knowledge of the position and all relevant facts. Quanta continually reviews exposure to additional tax obligations, and as further information is known or events occur, changes in tax reserves may be recorded. To the extent interest and penalties may be assessed by taxing authorities on any underpayment of income tax, such amounts have been accrued and included in the provision for income taxes.

As of March 31, 2020, the total amount of unrecognized tax benefits relating to uncertain tax positions was$40.3 million, a $0.6 million decrease from December 31, 2019. This decrease resulted primarily from a favorable settlement of$1.7 million related to certain non-U.S. income tax audits, partially offset by a$1.1 million increase in reserves for uncertain tax positions expected to be taken in 2020. Quanta and certain subsidiaries remain under examination by various U.S. state and foreign tax authorities for multiple periods. Quanta believes it is reasonably possible that within the next 12 months unrecognized tax benefits may decrease by up to $6.8 million as a result of settlement of these examinations or as a result of the expiration of certain statute of limitations periods.

U.S. federal and state and foreign income tax laws and regulations are voluminous and often ambiguous. As such, Quanta is required to make many subjective assumptions and judgments regarding its tax positions that could materially affect amounts recognized in future consolidated balance sheets, statements of operations and statements of comprehensive income. For example, the Tax Cuts and Jobs Act of 2017 significantly revised the U.S. corporate tax regime which, among other things, resulted in a reduction of Quanta's current and estimated future effective tax rate and a remeasurement of its deferred tax assets and liabilities.

Earnings Per Share

Basic and diluted earnings per share attributable to common stock are computed using the weighted average number of shares of common stock outstanding during the applicable period. Exchangeable shares that were issued pursuant to certain of Quanta's historical acquisitions (as further discussed in Note 9), which were exchangeable on a one-for-one basis with shares of Quanta common stock, have been included in the calculation of weighted average shares outstanding for basic and diluted earnings per share attributable to common stock for the portion of the periods that they were outstanding. Additionally, unvested stock-based awards that contain non-forfeitable rights to dividends or dividend equivalents (participating securities) have been included in the calculation of basic and diluted earnings per share attributable to common stock for the portion of the periods that the awards were outstanding. Diluted earnings per share attributable to common stock is computed using the weighted average number of shares of common stock outstanding during the period adjusted for all potentially dilutive common stock equivalents, except in cases where the effect of the common stock equivalents would be antidilutive.

Insurance

Quanta is insured for employer's liability, workers' compensation, auto liability and general liability claims. Under these insurance programs, as of March 31, 2020, the deductible for employer's liability was $1.0 million per occurrence; the deductible for workers' compensation was $5.0 million per occurrence; and the deductibles for auto liability and general liability were $10.0 million per occurrence. Effective May 1, 2020, the deductible for employer's liability increased to$5.0 million per occurrence and the deductibles for auto liability and general liability were increased to $15.0 million per occurrence. Quanta manages and maintains a portion of its casualty risk through its wholly-owned captive insurance company, which insures all claims up to the amount of the applicable deductible of its third-party insurance programs. In connection with Quanta's casualty insurance programs, Quanta is required to issue letters of credit to secure its obligations. Quanta also has employee health care benefit plans for most employees not subject to collective bargaining agreements, of which the primary plan is subject to a deductible of $0.8 million per claimant per year.

Losses under all of these insurance programs are accrued based upon Quanta's estimate of the ultimate liability for claims reported and an estimate of claims incurred but not reported, with assistance from third-party actuaries. These insurance liabilities are difficult to assess and estimate due to unknown factors, including the severity of an injury, the extent of damage, the determination of Quanta's liability in proportion to other parties and the number of incidents not reported. The accruals are based upon known facts and historical trends, and management believes such accruals are adequate.

Collective Bargaining Agreements

Certain of Quanta's operating units are parties to collective bargaining agreements with unions that represent certain of their employees. The collective bargaining agreements expire at various times and have typically been renegotiated and renewed on terms similar to those in the expiring agreements. The agreements require the operating units to pay specified wages, provide certain benefits to union employees and contribute certain amounts to multiemployer pension plans and employee benefit trusts pursuant to specified rates. Quanta's multiemployer pension plan contribution rates generally are made to the plans on a "pay-as-you-go" basis based on its union employee payrolls. The location and number of union employees that Quanta employs at any given time and the plans in which they may participate vary depending on Quanta's need for union resources in connection with its ongoing projects. Therefore, Quanta is unable to accurately predict its union employee payroll and the resulting multiemployer pension plan contribution obligations for future periods.

Stock-Based Compensation

Quanta recognizes compensation expense for restricted stock units (RSUs) and performance stock units (PSUs) to be settled in common stock based on the fair value of the awards, net of estimated forfeitures. The fair value of RSU awards is determined based on the number of units granted and the closing price of Quanta's common stock on the date of grant. The grant date fair value of the PSUs is determined as follows: (i) for the portion of the awards based on company performance metrics, by multiplying the number of units granted by the closing price of Quanta's common stock on the date of grant and (ii) for the portion of the awards based on total shareholder return, by utilizing a Monte Carlo simulation valuation methodology. An estimate of future forfeitures, based on historical data, is also utilized to determine compensation expense for the period, and these forfeiture estimates are subject to change and may impact the value that will ultimately be recognized as compensation expense. The resulting compensation expense for PSU and time-based RSU awards is recognized on a straight-line basis over the requisite service period, which is generally the vesting period, and the resulting compensation expense for performance-based RSU awards is recognized using the graded vesting method over the requisite service period. The compensation expense related to outstanding PSUs can also vary from period to period based on changes in forecasted achievement of established performance goals and the total number of shares of common stock that Quanta anticipates will be issued upon vesting of such PSUs. Payments made by Quanta to satisfy employee tax withholding obligations associated with awards settled in common stock are classified as financing cash flows.

Compensation expense associated with liability-based awards, such as RSUs that are expected to or may settle in cash, is recognized based on a remeasurement of the fair value of the award at the end of each reporting period. Upon settlement, the holders receive for each RSU an amount in cash equal to the fair market value of one share of Quanta common stock on the settlement date, as specified in the applicable award agreement. For additional information on Quanta's RSU and PSU awards, see Note 10.

Functional Currency and Translation of Financial Statements

The U.S. dollar is the functional currency for the majority of Quanta's operations, which are primarily located within the United States. The functional currency for Quanta's foreign operations, which are primarily located in Canada and Australia, is typically the currency of the country where the foreign operating unit is located and transacts the majority of its activities, including billings, financing, payroll and other expenditures. When preparing its consolidated financial statements, Quanta translates the financial statements of its foreign operating units from their functional currency into U.S. dollars. Statements of operations, comprehensive income and cash flows are translated at average monthly rates, while balance sheets are translated at month-end exchange rates. The translation of the balance sheet results in translation gains or losses, which are included as a separate component of equity under "Accumulated other comprehensive income (loss)." Gains and losses arising from transactions not denominated in functional currencies are included within "Other income (expense), net" in the accompanying condensed consolidated statements of operations.

Comprehensive Income

Components of comprehensive income include all changes in equity during a period except those resulting from changes in Quanta's capital-related accounts. Quanta records other comprehensive income (loss) for foreign currency translation adjustments related to its foreign operations and for other revenues, expenses, gains and losses that are included in comprehensive income but excluded from net income.

Litigation Costs and Reserves

Quanta records reserves when the likelihood of incurring a loss is probable and the amount of loss can be reasonably estimated. Costs incurred for litigation are expensed as incurred. See Note 11 for additional information related to legal proceedings and other contingencies.

Fair Value Measurements

For disclosure purposes, qualifying assets and liabilities are categorized into three broad levels based on the priority of the inputs used to determine their fair values. The fair value hierarchy gives the highest priority to quoted prices (unadjusted) in active markets for identical assets or liabilities (Level 1) and the lowest priority to unobservable inputs (Level 3). Certain assumptions and other information as they relate to these qualifying assets and liabilities are described below.

Contingent Consideration Liabilities. As of March 31, 2020 and December 31, 2019, financial instruments required to be measured at fair value on a recurring basis consisted primarily of Quanta's liabilities related to contingent consideration associated with certain acquisitions, the payment of which is contingent upon the achievement of certain performance objectives by the acquired businesses during designated post-acquisition periods and, if earned, would be payable to the former owners of the acquired businesses. The liabilities recorded represent the estimated fair values of future amounts payable to the former owners of the acquired businesses and are estimated by management based on entity-specific assumptions that are evaluated on an ongoing basis. Quanta expects a significant portion of these liabilities to be settled by late 2020 or early 2021.

Aggregate fair values of these outstanding and unearned contingent consideration liabilities and their classification in the accompanying condensed consolidated balance sheets were as follows (in thousands):

	March 31, 2020	December 31, 2019
Accounts payable and accrued expenses	$ 80,947	$ 77,618
Insurance and other non-current liabilities	7,060	6,542
Total contingent consideration liabilities	$ 88,007	$ 84,160

The fair values of these liabilities were primarily determined using a Monte Carlo simulation valuation methodology based on probability-weighted performance projections and other inputs, including a discount rate and an expected volatility factor for each acquisition. The expected volatility factors ranged from 20.4% to 30.0% and had a weighted average of 22.6% based on historical asset volatility of selected guideline public companies. Depending on contingent consideration payment terms, the present values of the estimated payments are discounted based on a risk-free rate and/or Quanta's cost of debt and ranged from 1.6% to 3.9% and had a weighted average of 2.3% based on fair value at acquisition. The fair value determinations incorporate significant inputs not observable in the market. Accordingly, the level of inputs used for these fair value measurements is the lowest level (Level 3). Significant changes in any of these assumptions could result in a significantly higher or lower potential liability.

The majority of Quanta's contingent consideration liabilities are subject to a maximum outstanding payment amount, which aggregated to $162.5 million as of March 31, 2020. One contingent consideration liability is not subject to a maximum payment amount, and such liability had a fair value of $1.0 million as of March 31, 2020.

Quanta's aggregate contingent consideration liabilities can change due to additional business acquisitions, settlement of outstanding liabilities, changes in the fair value of amounts owed based on performance in post-acquisition periods and accretion in present value. During the three months ended March 31, 2020, Quanta recognized a net increase in the fair value of its aggregate contingent consideration liabilities of $2.8 million, while during the three months ended March 31, 2019, Quanta recognized a net decrease of $0.1 million. These changes are reflected in "Change in fair value of contingent consideration liabilities" in the accompanying condensed consolidated statements of operations. Additionally, Quanta settled certain contingent consideration liabilities during the three months ended March 31, 2020 with a cash payment of $1.0 million and 4,277 shares of Quanta common stock.

Goodwill and Other Intangible Assets. As discussed in the *Goodwill* and *Other Intangible Assets* sections within this Note 2 above, Quanta has recorded goodwill and identifiable intangible assets in connection with certain of its historical business acquisitions. Quanta utilizes the fair value premise as the primary basis for its impairment valuation procedures. The *Goodwill* and *Other Intangible Assets* sections provide information regarding valuation methods, including the income approach, market approach and cost approach, and assumptions used to determine the fair value of these assets based on the appropriateness of each method in relation to the type of asset being valued. Quanta believes that these valuation methods appropriately represent the methods that would be used by other market participants in determining fair value, and periodically engages the services of an independent valuation firm when a new business is acquired to assist management with the valuation process, including assistance with the selection of appropriate valuation methodologies and the development of market-based valuation assumptions. The level of inputs used for these fair value measurements is the lowest level (Level 3).

Investments and Financial Instruments. Quanta also uses fair value measurements in connection with the valuation of its investments in private company equity interests and financial instruments. These valuations require significant management judgment due to the absence of quoted market prices, the inherent lack of liquidity and their long-term nature. Typically, the initial costs of these investments are considered to represent fair market value, as such amounts are negotiated between willing market participants. On a quarterly basis, Quanta performs an evaluation of its investments to determine if an other-than-temporary decline in the value of each investment has occurred and whether the recorded amount of each investment will be recoverable. If an other-than-temporary decline in the value of an investment occurs, a fair value analysis is performed to determine the degree to which the investment is impaired and a corresponding charge to earnings is recorded during the period. These types of fair market value assessments are similar to other nonrecurring fair value measures used by Quanta, which include the use of significant judgments and available relevant market data. Such market data may include observations of the valuation of comparable companies, risk-adjusted discount rates and an evaluation of the expected performance of the underlying portfolio asset, including historical and projected levels of profitability or cash flows. In addition, a variety of additional factors may be reviewed by management, including, but not limited to, contemporaneous financing and sales transactions with third parties, changes in market outlook and the third-party financing environment. The level of inputs used for these fair value measurements is the lowest level (Level 3).

Other. The carrying amounts of cash equivalents, accounts receivable and accounts payable and accrued expenses approximate fair value due to the short-term nature of these instruments. All of Quanta's cash equivalents were categorized as Level 1 assets at March 31, 2020 and December 31, 2019, as all values were based on unadjusted quoted prices for identical assets in an active market that Quanta has the ability to access. The carrying amount of variable rate debt also approximates fair value.

3. NEW ACCOUNTING PRONOUNCEMENTS:

Adoption of New Accounting Pronouncements

In June 2016, the FASB issued an update for measuring credit losses on most financial assets and certain other instruments that are not measured at fair value through net income. The update amended the impairment model to utilize an expected credit loss methodology in place of the incurred loss methodology for financial instruments, including accounts receivable and contract assets, and off-balance sheet credit exposures. The amendment requires entities to consider a broader range of information to estimate expected credit losses, which often results in earlier recognition of losses. The update also requires disclosure of information regarding how a company developed its allowance, including changes in the factors that influenced management's estimate of expected credit losses and the reasons for those changes.

Quanta adopted the new accounting standard for measuring credit losses effective January 1, 2020 utilizing the transition method that allows recognition of a cumulative-effect adjustment to the opening balance of retained earnings in the period of adoption. Quanta's financial results for reporting periods beginning on or after January 1, 2020 are presented under the new standard, while financial results for prior periods continue to be reported in accordance with the prior standard and Quanta's historical accounting policy. The net cumulative effect due to the adoption of the new standard was a $3.8 million reduction to retained earnings as of January 1, 2020, which represented a $5.1 million increase to allowance for credit losses, net of $1.2 million in deferred income taxes. The adjustment was based on an estimate of expected lifetime credit losses for financial instruments, primarily accounts receivable and contract assets. Although the adoption of the new standard did not have a material impact on Quanta's condensed consolidated financial statements at the date of adoption, expected credit losses could change as a result of changes to credit loss experience, specific risk characteristics of Quanta's portfolio of financial assets or management's expectations of future economic conditions that affect the collectability of Quanta's financial assets. Management continues to periodically assess these factors, including any potential effects from the COVID-19 pandemic, and incorporate any changes in its estimate of credit losses.

In August 2018, the FASB issued an update that amends the disclosure requirements related to fair value measurements. Pursuant to this update, certain disclosure requirements will be removed, such as the valuation processes for Level 3 fair value measurements, and other disclosure requirements will be modified or added, including a new requirement to disclose the range and weighted average (or a more reasonable and rational method to reflect the distribution) of significant unobservable inputs used to develop Level 3 fair value measurements. Quanta adopted this guidance effective January 1, 2020, and it did not have a material impact on its condensed consolidated financial statements or disclosures.

Accounting Standards Not Yet Adopted

In December 2019, the FASB issued an update that, among other things, amends the guidance related to accounting for tax law changes when an entity has a year-to-date loss in an interim period and provides guidance on how to evaluate whether a step-up in tax basis of goodwill relates to a business combination or a separate transaction. This update is effective for interim and annual periods beginning after December 15, 2020, and certain amendments should be applied prospectively, while other amendments should be applied on a modified retrospective basis. Quanta is evaluating the potential impact of this guidance on its consolidated financial statements and will adopt the guidance effective January 1, 2021.

In January 2020, the FASB issued an update that clarified the interactions between accounting guidance to account for certain equity securities relating to increasing or decreasing ownership or degree of influence and forward contracts and purchased options. This update is effective for interim and annual periods beginning after December 15, 2020, and it will be applied prospectively. Quanta is evaluating the potential impact of this guidance on its consolidated financial statements and will adopt the guidance effective January 1, 2021.

4. ACQUISITIONS:

During the three months ended March 31, 2020, Quanta acquired an industrial services business located in Canada that performs catalyst handling services, including changeover and shutdown maintenance, to customers in the refining and chemical industries and an electric power infrastructure business located in the United States that primarily provides underground conduit services. The aggregate consideration for these acquisitions was $19.4 million paid or payable in cash, subject to certain adjustments, and 116,812 shares of Quanta common stock, which had a fair value of $4.2 million as of the respective acquisition dates. Beginning on the respective acquisition dates, the results of the acquired businesses have been included in Quanta's consolidated financial statements, with the results of the industrial services business generally included in the Pipeline and Industrial Infrastructure Services segment and the results of the electric power infrastructure business generally included in the Electric Power Infrastructure Services segment.

On August 30, 2019, Quanta acquired Hallen, a pipeline and industrial services business located in the United States that specializes in gas distribution and transmission services, and to a lesser extent, underground electric distribution and transmission services. During the year ended December 31, 2019, Quanta also acquired two specialty utility foundation and pole-setting contractors serving the southeast United States; an electric power specialty contracting business located in the United States that provides aerial power line and construction support services; a business located in the United States that provides technical training materials to electric utility workers; an electric power company specializing in project management and, to a lesser extent, water and wastewater projects located in the United States; and an electrical infrastructure services business located in Canada. The aggregate consideration for these acquisitions was $399.3 million paid or payable in cash, subject to certain adjustments, and 60,860 shares of Quanta common stock, which had a fair value of $1.8 million as of the respective acquisition date. A portion of the cash consideration in connection with the Hallen acquisition was placed in an escrow account, which, subject to certain conditions, could be utilized to reimburse Quanta for obligations associated with certain contingent liabilities assumed by Quanta in the transaction. See *Legal Proceedings — Hallen Acquisition Assumed Liability* in Note 11 for additional information related to these liabilities. Beginning on the respective acquisition dates, the results of the acquired businesses have been included in Quanta's consolidated financial statements, with the results of Hallen generally included in the Pipeline and Industrial Infrastructure Services segment and the results of the other acquired businesses generally included in the Electric Power Infrastructure Services segment.

The following table summarizes the aggregate consideration paid or payable as of March 31, 2020 for the acquisitions completed in 2020 and 2019 and presents the allocation of these amounts to net tangible and identifiable intangible assets based on their estimated fair values as of the respective acquisition dates, inclusive of any purchase price adjustments. These allocations require significant use of estimates and are based on information that was available to management at the time these consolidated financial statements were prepared. Quanta uses a variety of information to estimate fair values, including quoted market prices, carrying amounts and valuation techniques such as discounted cash flows. When deemed appropriate, third-party appraisal firms are engaged to assist in fair value determination of fixed assets, intangible assets and certain other assets and liabilities.

Quanta is finalizing its fair value assessments for the acquired assets and assumed liabilities related to businesses acquired subsequent to March 31, 2019, and further adjustments to the purchase price allocations may occur. As of March 31, 2020, the estimated fair values of the net assets acquired were preliminary, with possible updates primarily related to pre-acquisition contingent liabilities, as further described in *Legal Proceedings — Hallen Acquisition Assumed Liability* in Note 11, and tax estimates. Consideration amounts are also subject to the finalization of closing working capital adjustments. The aggregate consideration paid or payable for businesses acquired between March 31, 2019 and March 31, 2020 was allocated to acquired assets and assumed liabilities, which resulted in an allocation of $87.6 million to net tangible assets, $190.0 million to identifiable intangible assets and $100.7 million to goodwill and $3.1 million to bargain purchase gain (in thousands).

	2020	2019
Consideration:		
Cash paid or payable	$ 19,377	$ 399,279
Value of Quanta common stock issued	4,158	1,791
Contingent consideration	2,250	—
Fair value of total consideration transferred or estimated to be transferred	$ 25,785	$ 401,070
Accounts receivable	$ 4,888	$ 112,142
Contract assets	—	11,869
Other current assets	1,691	14,290
Property and equipment	6,233	60,133
Other assets	—	149
Identifiable intangible assets	4,561	192,786
Contract liabilities	—	(11,856)
Other current liabilities	(1,174)	(73,698)
Deferred tax liabilities, net	(483)	(6,398)
Other long-term liabilities	—	(5,345)
Total identifiable net assets	15,716	294,072
Goodwill	10,069	110,137
Fair value of net assets acquired	25,785	404,209
Bargain purchase gain	—	(3,139)
Fair value of total consideration transferred or estimated to be transferred	$ 25,785	$ 401,070

Goodwill represents the amount by which the purchase price for an acquired business exceeds the net fair value of the assets acquired and liabilities assumed, and a bargain purchase gain results when the amount of the net fair value of the assets acquired and liabilities assumed exceeds the purchase price for an acquired business. The acquisition of the electrical infrastructure services business in Canada that occurred during the year ended December 31, 2019 included the recognition of a bargain purchase gain of $3.1 million which was recorded in “Other income (expense), net” in the accompanying condensed consolidated statements of operations.

The acquisitions completed in 2020 and 2019 strategically expanded Quanta’s domestic and international pipeline and industrial and domestic and international electric power service offerings, which Quanta believes contributes to the recognition of the goodwill. Approximately $3.8 million of goodwill is expected to be deductible for income tax purposes related to acquisitions completed in 2020, and $90.6 million is expected to be deductible for income tax purposes related to acquisitions completed in 2019.

The following table summarizes the estimated fair values of identifiable intangible assets for the acquisitions completed in 2020 as of the acquisition dates and the related weighted average amortization periods by type (in thousands, except for weighted average amortization periods, which are in years).

	Estimated Fair Value	Weighted Average Amortization Period in Years
Customer relationships	$ 3,180	4.4
Backlog	205	1.0
Trade names	349	15.0
Non-compete agreements	827	5.0
Total intangible assets subject to amortization related to acquisitions completed in 2020	$ 4,561	5.2

The following unaudited supplemental pro forma results of operations for Quanta, which incorporates the acquisitions completed in 2020 and 2019, have been provided for illustrative purposes only and do not purport to be indicative of the actual results that would have been achieved by the combined companies for the periods presented or that may be achieved by the combined companies in the future. Future results may vary significantly from the results reflected in the following pro forma financial information because of future events and transactions, as well as other factors (in thousands, except per share amounts):

	Three Months Ended March 31,	
	2020	2019
Revenues	$ 2,766,950	$ 2,968,237
Gross profit	333,402	397,098
Selling, general and administrative expenses	231,102	243,857
Amortization of intangible assets	18,067	22,212
Net income	42,004	127,083
Net income attributable to common stock	39,187	126,536
Earnings per share:		
Basic	$ 0.27	$ 0.87
Diluted	$ 0.27	$ 0.86

The pro forma combined results of operations for the three months ended March 31, 2020 and 2019 were prepared by adjusting the historical results of Quanta to include the historical results of the acquisitions completed in 2020 as if they occurred January 1, 2019. The pro forma combined results of operations for the three months ended March 31, 2019 were prepared by also adjusting the historical results of Quanta to include the historical results of the acquisitions completed in 2019 as if they occurred January 1, 2018. These pro forma combined historical results were adjusted for the following: a reduction of interest expense as a result of the repayment of outstanding indebtedness of the acquired businesses; an increase in interest expense as a result of the cash consideration paid; an increase in amortization expense due to the incremental intangible assets recorded; changes in depreciation expense to adjust acquired property and equipment to the acquisition date fair value and to conform with Quanta’s accounting policies; an increase in the number of outstanding shares of Quanta common stock; and reclassifications to conform the acquired businesses’ presentation to Quanta’s accounting policies. The pro forma combined results of operations do not include any adjustments to eliminate the impact of acquisition-related costs or any cost savings or other synergies that resulted or may result from the acquisitions. As noted above, the pro forma results of operations do not purport to be indicative of the actual results that would have been achieved by the combined company for the periods presented or that may be achieved by the combined company in the future.

Revenues of approximately $1.9 million and a loss before income taxes of approximately $0.9 million, which included $0.8 million of acquisition-related costs, are included in Quanta’s consolidated results of operations for the three months ended March 31, 2020 related to the acquisitions completed in 2020. Revenues of approximately $7.4 million and a loss before income taxes of approximately $1.0 million, which included $2.4 million of acquisition-related costs, are included in Quanta’s consolidated results of operations for the three months ended March 31, 2019 related to the acquisitions completed in 2019.

5. GOODWILL AND OTHER INTANGIBLE ASSETS:

As described in Note 2, Quanta's operating units are organized into one of Quanta's two internal divisions, and accordingly the goodwill associated with the operating units has been aggregated on a divisional basis in the table below. These divisions are closely aligned with Quanta's reportable segments, and operating units are assigned to a division based on the predominant type of work performed. From time to time, an operating unit may be reorganized between divisions if warranted due to changes in its predominant business.

A summary of changes in Quanta's goodwill is as follows (in thousands):

	Electric Power Infrastructure Services Division	Pipeline and Industrial Infrastructure Services Division	Total
Balance at December 31, 2018:			
Goodwill	$ 1,313,078	$ 683,284	$ 1,996,362
Accumulated impairment	—	(96,483)	(96,483)
	1,313,078	586,801	1,899,879
Goodwill related to acquisitions completed in 2019	43,183	67,200	110,383
Purchase price allocation adjustments	1,503	—	1,503
Foreign currency translation adjustments	7,399	3,511	10,910
Balance at December 31, 2019:			
Goodwill	1,365,163	753,938	2,119,101
Accumulated impairment	—	(96,426)	(96,426)
	1,365,163	657,512	2,022,675
Goodwill related to acquisitions completed in 2020	3,768	6,301	10,069
Purchase price allocation adjustments	(246)	—	(246)
Foreign currency translation adjustments	(16,143)	(9,890)	(26,033)
Balance at March 31, 2020:			
Goodwill	1,352,542	748,771	2,101,313
Accumulated impairment	—	(94,848)	(94,848)
	$ 1,352,542	$ 653,923	$ 2,006,465

Quanta's intangible assets and the remaining weighted average amortization periods related to its intangible assets subject to amortization were as follows (in thousands except for weighted average amortization periods, which are in years):

	As of March 31, 2020				As of December 31, 2019		
	Remaining Weighted Average Amortization Period in Years	Intangible Assets	Accumulated Amortization	Intangible Assets, Net	Intangible Assets	Accumulated Amortization	Intangible Assets, Net
Customer relationships	6.2	$ 527,298	$ (223,606)	$ 303,692	$ 532,808	$ (213,915)	$ 318,893
Backlog	2.5	142,144	(139,330)	2,814	144,704	(141,580)	3,124
Trade names	14.5	92,182	(27,400)	64,782	93,396	(26,145)	67,251
Non-compete agreements	3.1	43,459	(33,234)	10,225	43,281	(32,868)	10,413
Patented rights and developed technology	2.1	22,416	(20,789)	1,627	22,719	(20,682)	2,037
Curriculum	8.1	11,712	(2,214)	9,498	11,712	(2,696)	9,016
Total intangible assets subject to amortization	7.5	839,211	(446,573)	392,638	848,620	(437,886)	410,734
Engineering license		3,000	—	3,000	3,000	—	3,000
Total intangible assets		$ 842,211	$ (446,573)	$ 395,638	$ 851,620	$ (437,886)	$ 413,734

Amortization expense for intangible assets was $17.9 million and $12.7 million for the three months ended March 31, 2020 and 2019.

The estimated future aggregate amortization expense of intangible assets subject to amortization as of March 31, 2020 is set forth below (in thousands):

Year Ending December 31:	
Remainder of 2020	$ 53,001
2021	68,083
2022	63,069
2023	53,825
2024	41,438
Thereafter	113,222
Total	$ 392,638

6. PER SHARE INFORMATION:

The amounts used to compute basic and diluted earnings per share attributable to common stock for the three months ended March 31, 2020 and 2019 consisted of the following (in thousands):

	Three Months Ended March 31, 2020	Three Months Ended March 31, 2019
Amounts attributable to common stock:		
Net income attributable to common stock	$ 38,686	$ 120,488
Weighted average shares:		
Weighted average shares outstanding for basic earnings per share attributable to common stock	144,454	145,110
Effect of dilutive unvested non-participating stock-based awards	2,333	1,348
Weighted average shares outstanding for diluted earnings per share attributable to common stock	146,787	146,458

Basic and diluted earnings per share attributable to common stock are computed using the weighted average number of shares of common stock outstanding during the applicable period. Exchangeable shares that were issued pursuant to certain of Quanta's historical acquisitions (as further discussed in Note 9), which are exchangeable on a one-for-one basis with shares of Quanta common stock, have been included in the calculation of weighted average shares outstanding for basic and diluted earnings per share attributable to common stock for the portion of the periods that they were outstanding. Additionally, unvested stock-based awards that contain non-forfeitable rights to dividends or dividend equivalents (participating securities) have been included in the calculation of basic and diluted earnings per share attributable to common stock for the portion of the periods that the awards were outstanding. Weighted average shares outstanding for basic and diluted earnings per share attributable to common stock for the three months ended March 31, 2020 and 2019 included 2.3 million and 2.8 million weighted average participating securities.

For purposes of calculating diluted earnings per share attributable to common stock, there were no adjustments required to derive Quanta's net income attributable to common stock. Diluted earnings per share attributable to common stock is computed using the weighted average number of shares of common stock outstanding during the period adjusted for all potentially dilutive common stock equivalents, except in cases where the effect of the common stock equivalents would be antidilutive.

7. DEBT OBLIGATIONS:

Quanta's long-term debt obligations consisted of the following (in thousands):

	March 31, 2020	December 31, 2019
Borrowings under senior secured credit facility	$ 1,635,366	$ 1,346,290
Other long-term debt	22,507	13,275
Finance leases	1,493	957
Total long-term debt obligations	1,659,366	1,360,522
Less — Current maturities of long-term debt	70,048	68,327
Total long-term debt obligations, net of current maturities	$ 1,589,318	$ 1,292,195

Quanta's current maturities of long-term debt and short-term debt consisted of the following (in thousands):

	March 31, 2020	December 31, 2019
Short-term debt	$ 3,378	$ 6,542
Current maturities of long-term debt	70,048	68,327
Current maturities of long-term debt and short-term debt	$ 73,426	$ 74,869

Senior Secured Credit Facility

Quanta has a credit agreement with various lenders that provides for (i) a $2.14 billion revolving credit facility and (ii) a term loan facility with term loans in the aggregate initial principal amount of $1.29 billion. In addition, subject to the conditions specified in the credit agreement, Quanta has the option to increase the capacity of the credit facility, in the form of an increase in the revolving credit facility, incremental term loans or a combination thereof, from time to time, upon receipt of additional commitments from new or existing lenders by up to an additional (i) $400.0 million plus (ii) additional amounts so long as the Incremental Leverage Ratio Requirement (as defined in the credit agreement) is satisfied at the time of such increase. The Incremental Leverage Ratio Requirement requires, among other things, after giving pro forma effect to such increase and the use of proceeds therefrom, compliance with the credit agreement's financial covenants as of the most recent fiscal quarter end for which financial statements were required to be delivered and that Quanta's Consolidated Leverage Ratio (as defined below) does not exceed 2.5 to 1.0, subject to the conditions specified in the credit agreement.

Borrowings under the credit agreement are to be used to refinance existing indebtedness and for working capital, capital expenditures and other general corporate purposes. The maturity date for both the revolving credit facility and the term loan facility is October 31, 2022, and Quanta is required to make quarterly principal payments on the term loan facility as described below.

With respect to the revolving credit facility, subject to compliance with the financial covenants described below, the entire amount available may be used by Quanta for revolving loans and letters of credit in U.S. dollars and certain alternative currencies. Up to $600.0 million may be used by certain subsidiaries of Quanta for revolving loans and letters of credit, including in certain alternative currencies, up to $100.0 million may be used for swing line loans in U.S. dollars, up to $50.0 million may be used for swing line loans in Canadian dollars and up to $50.0 million may be used for swing line loans in Australian dollars.

Quanta borrowed $600.0 million under the term loan facility in October 2018 and $687.5 million under the term loan facility in September 2019 and used the majority of such proceeds to repay outstanding revolving loans under the credit agreement. As of March 31, 2020, Quanta had $1.64 billion of borrowings outstanding under the credit agreement, which included $1.23 billion borrowed under term loans and $410.1 million of outstanding revolving loans. Of the total outstanding borrowings, $1.48 billion were denominated in U.S. dollars, $128.7 million were denominated in Canadian dollars and $30.7 million were denominated in Australian dollars. Quanta also had $373.9 million of letters of credit issued under the revolving credit facility, of which $252.3 million were denominated in U.S. dollars and $121.6 million were denominated in currencies other than the U.S. dollar, primarily Canadian and Australian dollars as of such date. As of March 31, 2020, the remaining $1.35 billion of available commitments under the revolving credit facility was available for loans or issuing new letters of credit.

Borrowings under the credit facility and the applicable interest rates were as follows (dollars in thousands):

	Three Months Ended March 31, 2020	Three Months Ended March 31, 2019
Maximum amount outstanding under the credit facility during the period	$ 2,024,473	$ 1,453,150
Average daily amount outstanding under the credit facility	$ 1,458,311	$ 1,264,498
Weighted-average interest rate	3.11%	3.92%

Revolving loans borrowed in U.S. dollars bear interest, at Quanta's option, at a rate equal to either (i) the Eurocurrency Rate (as defined in the credit agreement) plus 1.125% to 2.000%, as determined based on Quanta's Consolidated Leverage Ratio, or (ii) the Base Rate (as described below) plus 0.125% to 1.000%, as determined based on Quanta's Consolidated Leverage Ratio. Revolving loans borrowed in any currency other than U.S. dollars bear interest at a rate equal to the Eurocurrency Rate plus 1.125% to 2.000%, as determined based on Quanta's Consolidated Leverage Ratio. Additionally, standby or commercial letters of credit issued under the credit agreement are subject to a letter of credit fee of 1.125% to 2.000%, based on Quanta's Consolidated Leverage Ratio, and Performance Letters of Credit (as defined in the credit agreement) issued under the credit agreement in support of certain contractual obligations are subject to a letter of credit fee of 0.675% to 1.150%, based on Quanta's Consolidated Leverage Ratio.

Term loans bear interest at rates generally consistent with the revolving loans borrowed in U.S. dollars, except that the additional amount over the Eurocurrency Rate is 1.125% to 1.875%, as determined based on Quanta's Consolidated Leverage Ratio. Quanta made quarterly principal payments of $7.5 million on the term loan through September 2019, and is currently required to make quarterly principal payments of $16.1 million on the term loans on the last business day of each March, June, September and December. The aggregate outstanding principal amount of all outstanding term loans must be paid on the maturity date; however, Quanta may voluntarily prepay that amount from time to time, in whole or in part, without premium or penalty.

Quanta is also subject to a commitment fee of 0.20% to 0.40%, based on its Consolidated Leverage Ratio, on any unused availability under the revolving credit facility.

Consolidated Leverage Ratio is the ratio of Quanta's Consolidated Funded Indebtedness to Consolidated EBITDA (as those terms are defined in the credit agreement). For purposes of calculating Quanta's Consolidated Leverage Ratio, Consolidated Funded Indebtedness is reduced by available cash and Cash Equivalents (as defined in the credit agreement) in excess of $25.0 million. The Base Rate equals the highest of (i) the Federal Funds Rate (as defined in the credit agreement) plus 0.5%, (ii) the prime rate publicly announced by Bank of America, N.A. and (iii) the Eurocurrency Rate plus 1.00%. Consolidated Interest Coverage Ratio is the ratio of (i) Consolidated EBIT (as defined in the credit agreement) for the four fiscal quarters most recently ended to (ii) Consolidated Interest Expense (as defined in the credit agreement) for such period (excluding all interest expense attributable to capitalized loan costs and the amount of fees paid in connection with the issuance of letters of credit on behalf of Quanta during such period).

The credit agreement contains certain covenants, including (i) a maximum Consolidated Leverage Ratio of 3.0 to 1.0 (except that in connection with certain permitted acquisitions in excess of $200.0 million, such ratio is 3.5 to 1.0 for the fiscal quarter in which the acquisition is completed and the two subsequent fiscal quarters) and (ii) a minimum Consolidated Interest Coverage Ratio of 3.0 to 1.0. As of March 31, 2020, Quanta was in compliance with all of the financial covenants under the credit agreement.

Subject to certain exceptions, (i) all borrowings under the credit agreement are secured by substantially all the assets of Quanta and Quanta's wholly owned U.S. subsidiaries and by a pledge of all of the capital stock of Quanta's wholly owned U.S. subsidiaries and 65% of the capital stock of direct foreign subsidiaries of Quanta's wholly owned U.S. subsidiaries and (ii) Quanta's wholly owned U.S. subsidiaries guarantee the repayment of all amounts due under the credit agreement. Subject to certain conditions, all collateral will automatically be released from the liens securing the obligations under the credit agreement at any time Quanta maintains an Investment Grade Rating (defined in the credit agreement as two of the following three conditions being met: (i) a corporate credit rating that is BBB- or higher by Standard & Poor's Rating Services, (ii) a corporate family rating that is Baa3 or higher by Moody's Investors Services, Inc. or (iii) a corporate credit rating that is BBB- or higher by Fitch Ratings, Inc.).

The credit agreement also limits certain acquisitions, mergers and consolidations, indebtedness, asset sales and prepayments of indebtedness and, subject to certain exceptions, prohibits liens on Quanta's assets. The credit agreement allows cash payments for dividends and stock repurchases subject to compliance with the following requirements (including after giving effect to the dividend or stock repurchase): (i) no default or event of default under the credit agreement; (ii) continued compliance with the financial covenants in the credit agreement; and (iii) at least $100.0 million of availability under the revolving credit facility and/or cash and cash equivalents on hand.

The credit agreement provides for customary events of default and contains cross-default provisions with Quanta's underwriting, continuing indemnity and security agreement with its sureties and certain other debt instruments exceeding $150.0 million in borrowings or availability. If an Event of Default (as defined in the credit agreement) occurs and is continuing, on the terms and subject to the conditions set forth in the credit agreement, the lenders may declare all amounts outstanding and accrued and unpaid interest immediately due and payable, require that Quanta provide cash collateral for all outstanding letter of credit obligations, terminate the commitments under the credit agreement, and foreclose on the collateral.

8. LEASES:

Quanta primarily leases land, buildings, vehicles, construction equipment and office equipment. As of March 31, 2020, the majority of Quanta's leases had remaining lease terms not exceeding ten years. Certain leases include options to extend their terms in increments of up to five years and/or options to terminate. The components of lease costs in the accompanying condensed consolidated statements of operations are as follows (in thousands):

		Three Months Ended March 31,	
Lease cost	**Classification**	**2020**	**2019**
Finance lease cost:			
Amortization of lease assets	Depreciation [1]	$ 202	$ 373
Interest on lease liabilities	Interest expense	17	21
Operating lease cost	Cost of services and Selling, general and administrative expenses	29,737	30,358
Short-term and variable lease cost [2]	Cost of services and Selling, general and administrative expenses	170,365	200,298
Total lease cost		$ 200,321	$ 231,050

(1) Depreciation is included within "Cost of services" and "Selling, general and administrative expenses" in the accompanying condensed consolidated statements of operations.

(2) Short-term lease cost includes both leases and rentals with initial terms of one year or less. Variable lease cost is insignificant and primarily relates to real estate leases and consists of common area maintenance charges, real estate taxes, insurance and other variable costs.

Quanta has entered into lease arrangements for real property and facilities with certain related parties, typically an employee of Quanta who is the former owner of a business acquired by Quanta that continues to utilize the leased premises. Quanta utilizes third party market valuations to evaluate rental rates for these properties and facilities, and the lease agreements generally have remaining lease terms of up to nine years, subject to renewal options. Related party lease expense was $4.4 million and $4.1 million for the three months ended March 31, 2020 and 2019.

The components of leases in the accompanying condensed consolidated balance sheet were as follows (in thousands):

Lease type	Classification	March 31, 2020	December 31, 2019
Assets:			
Operating lease right-of-use assets	Operating lease right-of-use assets	$ 287,157	$ 284,369
Finance lease assets	Property and equipment, net of accumulated depreciation	1,295	1,043
Total lease assets		$ 288,452	$ 285,412
Liabilities:			
Current:			
Operating	Current portion of operating lease liabilities	$ 91,389	$ 92,475
Finance	Current maturities of long-term debt and short-term debt	505	440
Non-current:			
Operating	Operating lease liabilities, net of current portion	200,817	196,521
Finance	Long-term debt, net of current maturities	988	517
Total lease liabilities		$ 293,699	$ 289,953

Certain of Quanta's equipment rental agreements contain purchase options pursuant to which the purchase price is offset by a portion of the rental payments. When rental purchase options are exercised and a substantive benefit is deemed to be transferred to a third-party lessor, the transaction is deemed to be a financing transaction for accounting purposes. This results in the recognition of an asset equal to the purchase price being recorded in "Property, plant and equipment, net of accumulated depreciation," and the recognition of a corresponding liability in "Current maturities of long-term debt and short-term debt" and "Long-term debt, net of current maturities." As of March 31, 2020 and December 31, 2019, the assets recorded, net of accumulated depreciation, totaled$21.2 million and $11.8 million.

Future minimum lease payments for operating and finance leases were as follows (in thousands):

	As of March 31, 2020		
	Operating Leases	Finance Leases	Total
Remainder of 2020	$ 78,839	$ 432	$ 79,271
2021	82,423	495	82,918
2022	57,924	307	58,231
2023	39,031	240	39,271
2024	22,252	120	22,372
Thereafter	40,469	8	40,477
Total future minimum operating and finance lease payments	$ 320,938	$ 1,602	$ 322,540
Less imputed interest	(28,732)	(109)	(28,841)
Total lease liabilities	$ 292,206	$ 1,493	$ 293,699

Future minimum lease payments for short-term leases, which are not recorded in the consolidated balance sheets due to our accounting policy election, were $27.6 million as of March 31, 2020. Month-to-month rental expense associated primarily with certain equipment rentals is excluded from these amounts because Quanta is unable to accurately predict future rental amounts.

The weighted average remaining lease terms and discount rates were as follows:

	As of March 31, 2020
Weighted average remaining lease term (in years):	
Operating leases	4.44
Finance leases	3.44
Weighted average discount rate:	
Operating leases	4.2%
Finance leases	4.2%

Quanta has also guaranteed the residual value on certain of its equipment operating leases, agreeing to pay any difference between this residual value and the fair market value of the underlying asset at the date of lease termination. At March 31, 2020, the maximum guaranteed residual value of this equipment was $796.4 million. While Quanta believes that no significant payments will be made as a result of these residual value guarantees, there can be no assurance that significant payments will not be required in the future.

As of March 31, 2020, Quanta had additional operating lease obligations that had not yet commenced of $5.2 million. These operating leases will commence in 2020 with lease terms of one to seven years.

9. EQUITY:

Exchangeable Shares

In connection with certain prior acquisitions of Canadian businesses, the former owners of the acquired businesses received exchangeable shares of certain Canadian subsidiaries of Quanta, which could be exchanged at the option of the holders for Quanta common stock on a one-for-one basis. All holders of exchangeable shares had rights equivalent to Quanta common stockholders with respect to dividends and other economic rights. During the three months ended March 31, 2020 and 2019, a nominal amount and 0.4 million exchangeable shares were exchanged for Quanta common stock, and as of March 31, 2020, no exchangeable shares remained outstanding.

Treasury Stock

General

Treasury stock is recorded at cost. Under Delaware law, treasury stock is not counted for quorum purposes or entitled to vote.

Shares withheld for tax withholding obligations

The tax withholding obligations of employees upon vesting of RSUs and PSUs settled in common stock are typically satisfied by Quanta making tax payments and withholding the number of vested shares having a value on the date of vesting equal to the tax withholding obligation. For the settlement of these liabilities, Quanta withheld 0.6 million and 0.4 million of Quanta common stock during the three months ended March 31, 2020 and 2019, which had a market value of $23.2 million and $15.3 million. These shares and the related costs to acquire them were accounted for as adjustments to the balance of treasury stock.

Notional amounts recorded related to deferred compensation plans

For RSUs and PSUs that vest but the settlement of which is deferred under a deferred compensation plan, Quanta records a notional amount to “Treasury stock” and an offsetting amount to “Additional paid-in capital” (APIC). At vesting, only shares withheld for tax liabilities other than income taxes are added to outstanding treasury shares, as the shares of Quanta common stock associated with deferred stock-based awards are not issued until settlement of the award. Upon settlement of the deferred stock-based awards and issuance of the associated Quanta common stock, the original accounting entry is reversed. The net amounts recorded to treasury stock related to the deferred compensation plans were $3.5 million and $3.8 million during the three months ended March 31, 2020 and 2019.

Stock repurchases

During the third quarter of 2018, Quanta's Board of Directors approved a stock repurchase program that authorizes Quanta to purchase, from time to time through June 30, 2021, up to $500.0 million of its outstanding common stock (the 2018 Repurchase Program).

Quanta repurchased the following shares of common stock in the open market under the stock repurchase programs (in thousands):

Quarter ended:	Shares	Amount
March 31, 2020	5,960	$ 200,000
December 31, 2019	—	$ —
September 30, 2019	—	$ —
June 30, 2019	—	$ —
March 31, 2019	376	$ 11,954

Quanta's policy is to record a stock repurchase as of the trade date; however, the payment of cash related to the repurchase is made on the settlement date of the trade. During the three months ended March 31, 2020 and 2019, cash payments related to stock repurchases were$200.0 million and $19.9 million.

As of March 31, 2020, $86.8 million remained under the 2018 Repurchase Program. Repurchases under the 2018 Repurchase Program may be implemented through open market repurchases or privately negotiated transactions, at management's discretion, based on market and business conditions, applicable contractual and legal requirements, including restrictions under Quanta's senior secured credit facility, and other factors. Quanta is not obligated to acquire any specific amount of common stock, and the 2018 Repurchase Program may be modified or terminated by Quanta's Board of Directors at any time at its sole discretion and without notice.

Non-controlling Interests

Quanta holds interests in various entities through both joint venture entities that provide infrastructure services under specific customer contracts, either directly or through subcontracting relationships, and other equity investments in partially owned entities that own and operate certain infrastructure assets, including investments entered into through the partnership structure Quanta formed with certain infrastructure investors. Quanta has determined that certain of these joint ventures where Quanta provides the majority of the infrastructure services, which management believes most significantly influences the economic performance of such joint ventures, are VIEs. Management has concluded that Quanta is the primary beneficiary of these joint ventures and has accounted for each on a consolidated basis. The other parties' equity interests in these joint ventures have been accounted for as "Non-controlling interests" in Quanta's condensed consolidated balance sheets. Net income attributable to the other participants in the amounts of $2.8 million and $0.5 million for the three months ended March 31, 2020 and 2019 has been accounted for as a reduction of net income in deriving "Net income attributable to common stock" in Quanta's condensed consolidated statements of operations.

The carrying amount of the investments in VIEs held by Quanta was$13.1 million and $9.6 million at March 31, 2020 and December 31, 2019. The carrying amount of investments held by the non-controlling interests in these VIEs at March 31, 2020 and December 31, 2019 was $4.7 million and $3.5 million. During the three months ended March 31, 2020 and 2019, net distributions to non-controlling interests were$2.0 million and $0.5 million. There were no other changes in equity as a result of transfers to/from the non-controlling interests during the three months ended March 31, 2020 or 2019. See Note 11 for further disclosures related to Quanta's joint venture arrangements.

Dividends

Quanta declared the following cash dividends and cash dividend equivalents during 2019 and the first three months of 2020 (in thousands, except per share amounts):

Declaration Date	Record Date	Payment Date	Dividend Per Share	Dividends Declared
March 26, 2020	April 6, 2020	April 15, 2020	$ 0.05	$ 7,184
December 11, 2019	January 2, 2020	January 16, 2020	$ 0.05	$ 7,371
August 28, 2019	October 1, 2019	October 15, 2019	$ 0.04	$ 5,564
May 24, 2019	July 1, 2019	July 15, 2019	$ 0.04	$ 6,233
March 21, 2019	April 5, 2019	April 19, 2019	$ 0.04	$ 5,896

A significant majority of the dividends declared were paid on the corresponding payment dates. Holders of RSUs awarded under the Quanta Services, Inc. 2011 Omnibus Equity Incentive Plan (the 2011 Plan) generally received cash dividend equivalent payments equal to the cash dividend payable on account of the underlying Quanta common stock. Holders of exchangeable shares of certain Canadian subsidiaries of Quanta received a cash dividend per exchangeable share equal to the cash dividend per share paid to Quanta common stockholders. Holders of RSUs awarded under the Quanta Services, Inc. 2019 Omnibus Equity Incentive Plan (the 2019 Plan) and holders of unearned and unvested PSUs awarded under the 2011 Plan and the 2019 Plan receive cash dividend equivalent payments only to the extent such RSUs and PSUs become earned and/or vest. Additionally, cash dividend equivalent payments related to certain stock-based awards that have been deferred pursuant to the terms of a deferred compensation plan maintained by Quanta are recorded as liabilities in such plans until the deferred awards are settled.

The declaration, payment and amount of future cash dividends will be at the discretion of Quanta's Board of Directors after taking into account various factors, including Quanta's financial condition, results of operations, cash flows from operations; current and anticipated capital requirements and expansion plans; the current and potential impact of the COVID-19 pandemic and other market, industry, economic and political conditions; income tax laws then in effect; and the requirements of Delaware law. In addition, as discussed in Note 7, Quanta's credit agreement restricts the payment of cash dividends unless certain conditions are met.

10. STOCK-BASED COMPENSATION:

Stock Incentive Plans

On May 23, 2019, Quanta's stockholders approved the 2019 Plan. The 2019 Plan provides for the award of non-qualified stock options, incentive (qualified) stock options, stock appreciation rights, restricted stock awards, RSUs, stock bonus awards, performance compensation awards (including cash bonus awards) or any combination of the foregoing. Current and prospective employees, directors, officers, advisors or consultants of Quanta or its affiliates are eligible to participate in the 2019 Plan. Subject to certain adjustments, the maximum number of shares available for issuance under the 2019 Plan is 7,466,592 shares, plus any shares underlying share-settling awards previously awarded pursuant to the 2011 Plan that are ultimately forfeited, canceled, expired or settled in cash after May 23, 2019. All awards subsequent to stockholder approval of the 2019 Plan have been and will be made pursuant to the 2019 Plan and applicable award agreements. Awards made under the 2011 Plan prior to approval of the 2019 Plan remain subject to the terms of the 2011 Plan and applicable award agreements.

RSUs to be Settled in Common Stock

During the three months ended March 31, 2020 and 2019, Quanta granted 1.9 million and 1.5 million shares of RSUs to be settled in common stock under the 2011 Plan and the 2019 Plan, with weighted average grant date fair values of $39.07 and $35.85. The grant date fair value for RSUs to be settled in common stock is based on the market value of Quanta common stock on the date of grant. RSU awards to be settled in common stock are subject to forfeiture, restrictions on transfer and certain other conditions until vesting, which generally occurs in three equal annual installments following the date of grant. Holders of RSUs to be settled in common stock awarded under the 2011 Plan generally are entitled to receive a cash dividend equivalent payment equal to any cash dividend payable on account of the underlying Quanta common stock on the payment date of any such dividend. Holders of RSUs to be settled in common stock awarded under the 2019 Plan are also entitled to cash dividend equivalent payments in an amount equal to any cash dividend payable on account of the underlying Quanta common stock; however, payment of such amounts is not made until the RSUs vest, such that the dividend equivalent payments are subject to forfeiture.

During the three months ended March 31, 2020 and 2019, vesting activity consisted of 1.1 million and 1.2 million RSUs settled in common stock with an approximate fair value at the time of vesting of $43.7 million and $41.5 million.

During the three months ended March 31, 2020 and 2019, Quanta recognized $12.0 million and $11.3 million of non-cash stock compensation expense related to RSUs to be settled in common stock. Such expense is recorded in “Selling, general and administrative expenses.” As of March 31, 2020, there was $113.8 million of total unrecognized compensation expense related to unvested RSUs to be settled in common stock granted to both employees and non-employees. This cost is expected to be recognized over a weighted average period of 2.77 years.

PSUs to be Settled in Common Stock

PSUs provide for the issuance of shares of common stock upon vesting, which occurs at the end of a three-year performance period based on achievement of certain company performance metrics established by the Compensation Committee of Quanta’s Board of Directors, including financial and operational goals and Quanta’s total shareholder return as compared to a predetermined group of peer companies. The final number of shares of common stock issuable upon vesting of PSUs can range from 0% to 200% of the number of PSUs initially granted, depending on the level of achievement, as determined by the Compensation Committee of Quanta’s Board of Directors. Holders of PSUs are entitled to cash dividend equivalent payments in an amount equal to any cash dividend payable on account of the underlying Quanta common stock; however, payment of such amounts is not made until the PSUs vest, such that the dividend equivalent payments are subject to forfeiture.

During the three months ended March 31, 2020 and 2019, Quanta granted 0.4 million and 0.3 million of PSUs to be settled in common stock under the 2011 Plan and the 2019 Plan with a weighted average grant date fair value of $34.56 and $40.15 per unit. The grant date fair value of the PSUs was determined as follows: (i) for the portion of the awards based on company financial and operational performance metrics, by multiplying the number of units granted by the closing price of Quanta’s common stock on the date of grant and (ii) for the portion of the awards based on total shareholder return, by utilizing a Monte Carlo simulation valuation methodology. The Monte Carlo simulation valuation methodology applied the following key inputs:

	2020	2019
Valuation date price based on March 26, 2020 and March 8, 2019 closing stock prices of Quanta common stock	$31.49	$35.19
Expected volatility	34%	25%
Risk-free interest rate	0.35%	2.43%
Term in years	2.76	2.81

Quanta recognizes expense, net of estimated forfeitures, for PSUs based on the forecasted achievement of the company financial and operational performance metrics and forecasted performance with respect to relative total shareholder return, multiplied by the completed portion of the three-year period and the fair value of the total number of shares of common stock that Quanta anticipates will be issued based on such achievement. During the three months ended March 31, 2020 and 2019, Quanta recognized $2.9 million and $1.7 million in compensation expense associated with PSUs. Such expense is recorded in “Selling, general and administrative expenses.” During the three months ended March 31, 2020, 0.2 million PSUs vested, and 0.5 million shares of common stock were issued in connection with PSUs. During the three months ended March 31, 2019, 0.2 million PSUs vested, and 0.4 million shares of common stock were earned and either issued or deferred for future issuance in connection with PSUs.

RSUs to be Settled in Cash

Certain RSUs granted by Quanta are settled solely in cash. These cash-settled RSUs are intended to provide plan participants with cash performance incentives that are substantially equivalent to the risks and rewards of stock ownership in Quanta, typically vest in three equal annual installments following the date of grant, and are subject to forfeiture under certain conditions, primarily termination of service. Additionally, subject to certain restrictions, Quanta’s non-employee directors may elect to settle a portion of their RSU awards in cash. For RSUs settled in cash, the holders receive for each vested RSU an amount in cash equal to the fair market value of one share of Quanta common stock on the settlement date, as specified in the applicable award agreement.

Compensation expense related to RSUs to be settled in cash was $1.1 million and $2.6 million for the three months ended March 31, 2020 and 2019. Such expense is recorded in “Selling, general and administrative expenses.” RSUs that are anticipated to be settled in cash are not included in the calculation of weighted average shares outstanding for earnings per share, and the estimated earned value of such RSUs is classified as a liability. Quanta paid $3.3 million and $2.9 million to settle liabilities related to cash-settled RSUs in the three months ended March 31, 2020 and 2019. Accrued liabilities for the estimated earned value of outstanding RSUs to be settled in cash were $2.4 million and $4.3 million at March 31, 2020 and December 31, 2019.

11. COMMITMENTS AND CONTINGENCIES:

Investments in Affiliates and Other Entities

As described in Notes 2 and 9, Quanta holds investments in various entities, including joint venture entities that provide infrastructure services under specific customer contracts and partially owned entities that own and operate certain infrastructure assets constructed by Quanta. Losses incurred by these entities are generally shared ratably based on the percentage ownership of the participants in these structures. However, in Quanta's joint venture structures that provide infrastructure services, each participant is typically jointly and severally liable for all of the obligations of the joint venture entity pursuant to the contract with the customer, as a general partner or through a parent guarantee and, therefore, can be liable for full performance of the contract with the customer. In circumstances where Quanta's participation in a joint venture qualifies as a general partnership, the joint venture partners are jointly and severally liable for all obligations of the joint venture, including obligations owed to the customer or any other person or entity. Quanta is not aware of circumstances that would lead to future claims against it for material amounts in connection with these joint and several liabilities. Additionally, typically each joint venture participant agrees to indemnify the other participant for any liabilities incurred in excess of what the other participant is obligated to bear under the respective joint venture agreement or in accordance with the scope of work subcontracted to each participant. It is possible, however, that Quanta could be required to pay or perform obligations in excess of its share if another participant is unable or refuses to pay or perform its share of the obligations. Quanta is not aware of circumstances that would lead to future claims against it for material amounts that would not be indemnified. However, to the extent any such claims arise, they could be material and could adversely affect Quanta's consolidated business, financial condition, results of operations or cash flows.

As described in Note 2, Quanta formed a partnership with select investors to invest in certain specified infrastructure projects, and wholly owned subsidiaries of Quanta serve as the general partner of this partnership and as a separately operated registered investment adviser that manages the invested capital. Quanta's investment balance related to this partnership was $21.1 million as of March 31, 2020. However, in October 2019, due to certain management changes at the registered investment adviser, the partnership entered into a 180-day period during which the investors and Quanta evaluated the partnership, and at the end of such period in April 2020, the investment period for any future investments ended.

Contingent Consideration Liabilities

As discussed in further detail in Note 2, Quanta is obligated to pay contingent consideration amounts to the former owners of certain acquired businesses in the event that such acquired businesses achieve specified performance objectives. As of March 31, 2020 and December 31, 2019, the estimated fair value of Quanta's contingent consideration liabilities totaled $88.0 million and $84.2 million.

Committed Expenditures

Quanta has capital commitments for the expansion of its equipment fleet in order to accommodate manufacturer lead times on certain types of vehicles. As of March 31, 2020, Quanta had $42.3 million of production orders with expected delivery dates in 2020. Although Quanta has committed to purchase these vehicles at the time of their delivery, Quanta anticipates that the majority of these orders will be assigned to third party leasing companies and made available under certain master equipment lease agreements, thereby releasing Quanta from its capital commitments.

Legal Proceedings

Quanta is from time to time party to various lawsuits, claims and other legal proceedings that arise in the ordinary course of business. These actions typically seek, among other things, compensation for alleged personal injury, breach of contract, negligence or gross negligence and/or property damages, wage and hour and other employment-related damages, punitive damages, civil penalties or other losses, or injunctive or declaratory relief. With respect to all such lawsuits, claims and proceedings, Quanta records a reserve when it is probable that a liability has been incurred and the amount of loss can be reasonably estimated. In addition, Quanta discloses matters for which management believes a material loss is at least reasonably possible. Except as otherwise stated below, none of these proceedings are expected to have a material adverse effect on Quanta's consolidated financial position, results of operations or cash flows. In all instances, management has assessed the matter based on current information and made a judgment concerning its potential outcome, giving due consideration to the nature of the claim, the amount and nature of damages sought and the probability of success. Management's judgment may prove materially inaccurate, and such judgment is made subject to the known uncertainties of litigation.

Peru Project Dispute. In 2015, Redes Andinas de Comunicaciones S.R.L. (Redes), a majority-owned subsidiary of Quanta, entered into two separate contracts with an agency of the Peruvian Ministry of Transportation and Communications (MTC), currently Programa Nacional de Telecomunicaciones (PRONATEL), as successor to Fondo de Inversion en Telecomunicaciones (FITEL), pursuant to which Redes would design, construct and operate certain telecommunication networks in rural regions of Peru. The aggregate consideration provided for in the contracts was approximately $248 million, consisting of approximately $151 million to be paid during the construction period and approximately $97 million to be paid during a 10-year post-construction operation and maintenance period. At the beginning of the project, FITEL made advance payments totaling approximately $87 million to Redes, which were secured by two on-demand advance payment bonds posted by Redes to guarantee proper use of the payments in the execution of the project. Redes also provided two on-demand performance bonds in the aggregate amount of $25 million to secure performance of its obligations under the contracts.

During the construction phase, the project experienced numerous challenges and delays, primarily related to issues which Quanta believes were outside of the control of and not attributable to Redes, including, among others, weather-related issues, local opposition to the project, permitting delays, the inability to acquire clear title to certain required parcels of land and other delays which Quanta believes were attributable to FITEL/PRONATEL. In response to various of these challenges and delays, Redes requested and received multiple extensions to certain contractual deadlines and relief from related liquidated damages. However, in April 2019, PRONATEL provided notice to Redes claiming that Redes was in default under the contracts due to the delays and that PRONATEL would terminate the contracts if the alleged defaults were not cured. Redes responded by claiming that it was not in default, as the delays were due to events not attributable to Redes, and therefore PRONATEL was not entitled to terminate the contracts. PRONATEL subsequently terminated the contracts for alleged cause prior to completion of Redes' scope of work, exercised the on-demand performance bonds and advance payment bonds against Redes, and indicated its intention to claim damages, including a verbal allegation of approximately $45 million of liquidated damages under the contracts, although it has not formally submitted the amount of its claim to Redes.

In May 2019, Redes filed for arbitration before the Court of International Arbitration of the International Chamber of Commerce against PRONATEL and the MTC. In the arbitration, Redes claims that PRONATEL: (i) wrongfully terminated the contracts; (ii) wrongfully executed the advance payment bonds and the performance bonds; and (iii) is not entitled to the alleged amount of liquidated damages. In addition, Redes is seeking compensation for all damages arising from PRONATEL's actions, including but not limited to (i) repayment of the amounts collected by PRONATEL under the advance payment bonds and the performance bonds; (ii) payment of amounts owed for work completed by Redes under the contracts; (iii) lost income in connection with Redes' future operation and maintenance of the networks; and (iv) other related costs and damages to Redes as a result of the improper termination of the contracts.

As of the date of the contract terminations, Redes had incurred costs of approximately $155 million in construction of the project and had received approximately $100 million of payments (inclusive of the approximately $87 million advance payments). Furthermore, upon completion of the physical transfer of the networks (as completed at the time of the contract terminations) to PRONATEL, which is required upon termination of the contracts and the process for which is underway, PRONATEL and the MTC will possess the networks, for which PRONATEL has paid approximately $100 million while collecting approximately $112 million of bond proceeds. Quanta believes that PRONATEL's actions represent an abuse of power and unfair and inequitable treatment and that PRONATEL and the MTC have been unjustly enriched. Specifically, under the terms of the contracts, the advance payment bonds were to be exercised only if it is determined that Redes did not use the advance payments for their intended purpose, in which case Redes would be obligated to return the portion of the advance payments not properly used. Redes was not afforded the opportunity to provide evidence of its proper use of the advance payments for project expenditures prior to PRONATEL exercising the bonds in their full amount. As stated above, Redes has incurred substantially more than the advance payment amounts in the execution of the project, and Quanta believes Redes has used the advance payment amounts for their intended purpose.

Quanta also reserves the right to seek full compensation for the loss of its investment under other applicable legal regimes, including investment treaties and customary international law, as well as to seek resolution through direct discussions with PRONATEL or the MTC.

Quanta believes Redes is entitled to all amounts described in the claims above and intends to vigorously pursue those claims in the pending arbitration proceeding and/or additional arbitration proceedings. However, as a result of the contract terminations and the inherent uncertainty involved in arbitration proceedings and recovery of amounts owed, there can be no assurance that Redes will prevail on those claims or in defense of liquidated damages claims or any other claims that may be asserted by PRONATEL. As a result, during the three months ended June 30, 2019, Quanta recorded a charge to earnings of $79.2 million, which included a reduction of previously recognized earnings on the project, a reserve against a portion of the project costs incurred through the project termination date, an accrual for a portion of the alleged liquidated damages, and the estimated costs to complete the project turnover and close out the project.

As of March 31, 2020, after taking into account the above charge, Quanta had a net receivable position related to the project of approximately $120 million, which includes the approximately $87 million PRONATEL collected through exercise of the advance payment bonds. The net receivable from PRONATEL is included in “Other assets, net” in the accompanying consolidated balance sheet as of March 31, 2020.

If Quanta is not successful in the pending or future arbitration proceedings, this matter could result in an additional significant loss that could have a material adverse effect on Quanta’s consolidated results of operations and cash flows. However, based on the information currently available and the preliminary status of the pending arbitration proceeding, Quanta is not able to determine a range of reasonably possible additional loss, if any, with respect to this matter.

Maurepas Project Dispute. During the third quarter of 2017, Maurepas Pipeline, LLC (Maurepas) notified QPS Engineering, LLC (QPS), a subsidiary of Quanta, of its claim for liquidated damages allegedly arising from delay in mechanical completion of a project in Louisiana. Quanta disputes the claim and believes that QPS is not responsible for liquidated damages under the contract terms, and in June 2019 QPS filed suit against SemGroup Corporation, (now Energy Transfer LP), the parent company of Maurepas, under the parent guarantee issued to secure payment from Maurepas on the project. QPS is seeking to recover $22 million that it believes has been wrongfully withheld, which represents the maximum liability for liquidated damages pursuant to the contract terms. In July and August 2018, QPS also received notice from Maurepas claiming certain warranty defects on the project. In July 2019, Maurepas filed suit against QPS and Quanta, pursuant to a parent guarantee, for damages related to the warranty defects and for a declaratory judgment related to the liquidated damages claim, subsequently claiming approximately $59 million in damages related to a portion of the alleged warranty defects. Quanta is continuing to evaluate the claimed warranty defects and, if they exist, the appropriate remedy. At this time, Quanta disputes the extent of the alleged defects or has not been able to substantiate them.

As of March 31, 2020, Quanta had recorded an accrual with respect to this matter based on the current estimated amount of probable loss. However, based on the information currently available, Quanta cannot estimate the range of additional reasonably possible loss in connection with this matter. If, upon final resolution of this matter, Quanta is unsuccessful, any liquidated damages or warranty defect damages in excess of Quanta’s current loss accrual would be recorded as additional costs on the project.

Lorenzo Benton v. Telecom Network Specialists, Inc., et al. In June 2006, plaintiff Lorenzo Benton filed a class action complaint in the Superior Court of California, County of Los Angeles, alleging various wage and hour violations against Telecom Network Specialists (TNS), a former subsidiary of Quanta. Quanta retained liability associated with this matter pursuant to the terms of Quanta’s sale of TNS in December 2012. Benton represents a class of workers that includes all persons who worked on certain TNS projects, including individuals that TNS retained through numerous staffing agencies. The plaintiff class in this matter is seeking damages for unpaid wages, penalties associated with the failure to provide meal and rest periods and overtime wages, interest and attorneys’ fees. In January 2017, the trial court granted a summary judgment motion filed by the plaintiff class and found that TNS was a joint employer of the class members and that it failed to provide adequate meal and rest breaks and failed to pay overtime wages. In February 2019, the court granted, in part, the plaintiff class’s final motion for summary judgment on damages awarding the class approximately $7.5 million for its meal/rest break and overtime claims and denied the motion as to penalties. Quanta believes the court’s decisions on liability and damages are not supported by controlling law and continues to contest its liability and the damage calculation asserted by the plaintiff class in this matter. In July 2019, TNS prevailed, in part, on its own motion for summary judgment on the remaining wage statement and penalty claims, with the court dismissing the claims for penalties based on alleged meal and rest break violations.

Additionally, in November 2007, TNS filed cross complaints for indemnity and breach of contract against the staffing agencies, which employed many of the individuals in question. In December 2012, the trial court heard cross-motions for summary judgment filed by TNS and the staffing agencies pertaining to TNS’s demand for indemnity. The court denied TNS’s motion and granted the motions filed by the staffing agencies; however, the California Appellate Court reversed the trial court’s decision in part and instructed the trial court to reconsider its ruling. In February 2017, the court denied a new motion for summary judgment filed by the staffing companies and has since stated that the staffing companies would be liable to TNS for any damages owed to the class members that the staffing companies employed.

The final amount of liability, if any, payable in connection with this matter remains the subject of pending litigation and will ultimately depend on various factors, including the outcome of Quanta’s appeal of the trial court’s rulings on liability and damages, the final determination with respect to any additional damages owed by Quanta, and the solvency of the staffing agencies. Based on review and analysis of the trial court’s rulings on liability, Quanta does not believe, at this time, that it is probable this matter will result in a material loss. However, if Quanta is unsuccessful in this litigation and the staffing agencies are unable to fund damages owed to class members, Quanta believes the range of reasonably possible loss to Quanta upon final resolution of this matter could be up to approximately $9.1 million, plus attorneys’ fees and expenses of the plaintiff class.

Hallen Acquisition Assumed Liability. In August 2019, in connection with the acquisition of Hallen, Quanta assumed certain contingent liabilities associated with a March 2014 natural gas-fed explosion and fire in the Manhattan borough of New York City, New York. The incident resulted in, among other things, loss of life, personal injury and the destruction of two buildings and other property damage. After investigation, the National Transportation Safety Board determined that the probable cause of the incident was the failure of certain natural gas infrastructure installed by Consolidated Edison, Inc. (Con Ed) and the failure of certain sewer infrastructure maintained by the City of New York. Pursuant to a contract with Con Ed, Hallen had performed certain work related to such natural gas infrastructure and agreed to indemnify Con Ed for certain claims, liabilities and costs associated with its work. Numerous lawsuits are pending in New York state courts related to the incident, which generally name Con Ed, the City of New York and Hallen as defendants. These lawsuits are at various preliminary stages and generally seek unspecified damages and, in some cases, punitive damages, for wrongful death, personal injury, property damage and business interruption.

Hallen's liabilities associated with this matter are expected to be covered under applicable insurance policies or contractual remedies negotiated by Quanta with the former owners of Hallen. As of March 31, 2020, Quanta had not recorded an accrual for any probable and estimable loss related to this matter. However, the ultimate amount of liability in connection with this matter remains subject to uncertainties associated with pending litigation, including, among other things, the apportionment of liability among the defendants and the likelihood and amount of potential damages claims. As a result, this matter could result in a loss that is in excess of, or not covered by, such insurance or contractual remedies, which could have a material adverse effect on Quanta's consolidated results of operations and cash flows.

Concentrations of Credit Risk

Quanta is subject to concentrations of credit risk related primarily to its cash and cash equivalents and its net receivable position with customers, which includes amounts related to billed and unbilled accounts receivable and contract assets net of advanced billings with the same customer. Substantially all of Quanta's cash and cash equivalents are managed by what it believes to be high credit quality financial institutions. In accordance with Quanta's investment policies, these institutions are authorized to invest cash and cash equivalents in a diversified portfolio of what Quanta believes to be high quality cash and cash equivalent investments, which consist primarily of interest-bearing demand deposits, money market investments and money market mutual funds. Although Quanta does not currently believe the principal amount of these cash and cash equivalents is subject to any material risk of loss, changes in economic conditions could impact the interest income Quanta receives from these investments. In addition, Quanta grants credit under normal payment terms, generally without collateral, to its customers, which include electric power and energy companies, governmental entities, general contractors, and builders, owners and managers of commercial and industrial properties located primarily in the United States, Canada and Australia. While Quanta generally has certain statutory lien rights with respect to services provided, Quanta is subject to potential credit risk related to business, economic and financial market conditions that affect these customers and locations, which has been heightened as a result of the unfavorable and uncertain economic and financial market conditions resulting from the ongoing COVID-19 pandemic and the significant decline in commodity prices and volatility in commodity production volumes. Some of Quanta's customers have experienced significant financial difficulties (including bankruptcy), and customers may experience financial difficulties in the future. These difficulties expose Quanta to increased risk related to collectability of billed and unbilled receivables and contract assets for services Quanta has performed.

For example, on January 29, 2019, PG&E, one of Quanta's largest customers, filed for bankruptcy protection under Chapter 11 of the U.S. Bankruptcy Code, as amended. Quanta is monitoring the bankruptcy proceeding and evaluating the treatment of, and potential claims related to, its pre-petition receivables. As of the bankruptcy filing date, Quanta had $165 million of billed and unbilled receivables. Subsequent to the bankruptcy filing, the bankruptcy court approved the assumption by PG&E of certain contracts with subsidiaries of Quanta, pursuant to which PG&E paid $124 million of Quanta's pre-petition receivables as of March 31, 2020. Quanta also sold $36 million of its pre-petition receivables to a third party during the three months ended December 31, 2019 in exchange for cash consideration of $34 million, subject to certain claim disallowance provisions, the occurrence of which could result in Quanta's obligation to repurchase some or all of the pre-petition receivables sold. Quanta expects the remaining $5 million of pre-petition receivables to be sold or ultimately collected in the bankruptcy proceeding. However, the ultimate outcome of the bankruptcy proceeding is uncertain, and Quanta's belief regarding any future sale or collection of the remaining receivables is based on a number of assumptions that are potentially subject to change as the proceeding progresses. Should any of these assumptions change, the amount collected could be less than the amount of the remaining receivables. Additionally, Quanta is continuing to perform services for PG&E while the bankruptcy case is ongoing and believes that amounts billed for post-petition services will continue to be collected in the ordinary course of business.

At March 31, 2020 and December 31, 2019, no customer represented 10% or more of Quanta's consolidated net receivable position. No customer represented 10% or more of Quanta's consolidated revenues for the three months ended March 31, 2020 and 2019.

Insurance

As discussed in Note 2, Quanta is insured for employer's liability, workers' compensation, auto liability, general liability and group health claims. As of March 31, 2020 and December 31, 2019, the gross amount accrued for insurance claims totaled $294.8 million and $287.6 million, with $217.7 million and $212.9 million considered to be long-term and included in "Insurance and other non-current liabilities." Related insurance recoveries/receivables as of March 31, 2020 and December 31, 2019 were $31.7 million and $35.1 million, of which $0.3 million and $0.3 million are included in "Prepaid expenses and other current assets" and $31.4 million and $34.8 million are included in "Other assets, net."

Letters of Credit

Certain of Quanta's vendors require letters of credit to ensure reimbursement for amounts they are disbursing on Quanta's behalf, such as to beneficiaries under its insurance programs. In addition, from time to time, certain customers require Quanta to post letters of credit to ensure payment of subcontractors and vendors and guarantee performance under contracts. Such letters of credit are generally issued by a bank or similar financial institution, typically pursuant to Quanta's senior secured credit facility. Each letter of credit commits the issuer to pay specified amounts to the holder of the letter of credit if the holder claims that Quanta has failed to perform specified actions. If this were to occur, Quanta would be required to reimburse the issuer of the letter of credit. Depending on the circumstances of such a reimbursement, Quanta may also be required to record a charge to earnings for the reimbursement.

As of March 31, 2020, Quanta had $373.9 million in outstanding letters of credit under its senior secured credit facility securing its casualty insurance program and various contractual commitments. These are irrevocable stand-by letters of credit with maturities generally expiring at various times throughout 2020 and 2021. Quanta expects to renew the majority of the letters of credit related to the casualty insurance program for subsequent one-year periods upon maturity. Quanta is not aware of any claims currently asserted or threatened under any of these letters of credit that are material, individually or in the aggregate. However, to the extent payment is required for any such claims, the amount paid could be material and could adversely affect Quanta's consolidated business, financial condition, results of operations or cash flows.

Performance Bonds and Parent Guarantees

Many customers, particularly in connection with new construction, require Quanta to post performance and payment bonds. These bonds provide a guarantee that Quanta will perform under the terms of a contract and pay its subcontractors and vendors. If Quanta fails to perform, the customer may demand that the surety make payments or provide services under the bond, and Quanta must reimburse the surety for any expenses or outlays it incurs. Under Quanta's underwriting, continuing indemnity and security agreement with its sureties, Quanta has granted security interests in certain of its assets as collateral for its obligations to the sureties. Subject to certain conditions and consistent with terms of the credit agreement for Quanta's senior secured credit facility, these security interests will be automatically released if Quanta maintains a credit rating that meets two of the following three conditions: (i) a corporate credit rating that is BBB- or higher by Standard & Poor's Rating Services, (ii) a corporate family rating that is Baa3 or higher by Moody's Investors Services, Inc. or (iii) a corporate credit rating that is BBB- or higher by Fitch Ratings, Inc. Quanta may be required to post letters of credit or other collateral in favor of the sureties or Quanta's customers in the future, which would reduce the borrowing availability under its senior secured credit facility. Quanta has not been required to make any material reimbursements to its sureties for bond-related costs except related to the exercise of certain advance payment and performance bonds in connection with the terminated telecommunications project located in Peru, as set forth in *Legal Proceedings* above. However, to the extent further reimbursements are required, the amounts could be material and could adversely affect Quanta's consolidated business, financial condition, results of operations or cash flows.

Performance bonds expire at various times ranging from mechanical completion of a project to a period extending beyond contract completion in certain circumstances, and as such a determination of maximum potential amounts outstanding requires the use of certain estimates and assumptions. Such amounts can also fluctuate from period to period based upon the mix and level of Quanta's bonded operating activity. As of March 31, 2020, the total amount of the outstanding performance bonds was estimated to be approximately $2.8 billion. Quanta's estimated maximum exposure as it relates to the value of the performance bonds outstanding is lowered on each bonded project as the cost to complete is reduced, and each commitment under a performance bond generally extinguishes concurrently with the expiration of its related contractual obligation. The estimated cost to complete these bonded projects was approximately $1.0 billion as of March 31, 2020.

Additionally, from time to time, Quanta guarantees certain obligations and liabilities of its subsidiaries that may arise in connection with, among other things, contracts with customers, equipment lease obligations, joint venture arrangements and contractor licenses. These guarantees may cover all of the subsidiary's unperformed, undischarged and unreleased obligations and liabilities under or in connection with the relevant agreement. For example, with respect to customer contracts, a guarantee may cover a variety of obligations and liabilities arising during the ordinary course of the subsidiary's business or operations, including, among other things, warranty and breach of contract claims, third party and environmental liabilities arising from the subsidiary's work and for which it is responsible, liquidated damages, or indemnity claims. Quanta is not aware of any claims under any of these guarantees that are material, except as set forth in *Legal Proceedings* above. To the extent a subsidiary incurs a material obligation or liability and Quanta has guaranteed the performance or payment of such liability, the recovery by a customer or other counterparty or a third party will not be limited to the assets of the subsidiary. As a result, responsibility under the guarantee could exceed the amount recoverable from the subsidiary alone and could materially and adversely affect Quanta's consolidated business, financial condition, results of operations and cash flows.

Employment Agreements

Quanta has various employment agreements with certain executives and other employees, which provide for compensation, other benefits and, under certain circumstances, severance payments and post-termination stock-based compensation benefits. Certain employment agreements also contain clauses that require the payment of certain amounts to such employees upon the occurrence of a defined change in control event.

Collective Bargaining Agreements

Certain of Quanta's operating units are parties to collective bargaining agreements with unions that represent certain of their employees. The collective bargaining agreements expire at various times and have typically been renegotiated and renewed on terms similar to those in the expiring agreements. From time to time, Quanta is a party to grievance and arbitration actions based on claims arising out of the collective bargaining agreements. The agreements require the operating units to pay specified wages, provide certain benefits to union employees and contribute certain amounts to multiemployer pension plans and employee benefit trusts. Quanta's multiemployer pension plan contribution rates generally are made to the plans on a "pay-as-you-go" basis based on its union employee payrolls. The location and number of union employees that Quanta employs at any given time and the plans in which they may participate vary depending on Quanta's need for union resources in connection with its ongoing projects. Therefore, Quanta is unable to accurately predict its union employee payroll and the resulting multiemployer pension plan contribution obligations for future periods.

The Pension Protection Act of 2006 also added special funding and operational rules generally applicable to plan years beginning after 2007 for multiemployer plans that are classified as "endangered," "seriously endangered" or "critical" status based on multiple factors (including, for example, the plan's funded percentage, the plan's cash flow position and whether the plan is projected to experience a minimum funding deficiency). Plans in these classifications must adopt measures to improve their funded status through a funding improvement or rehabilitation plan, as applicable, which may require additional contributions from employers (e.g., a surcharge on benefit contributions) and/or modifications to retiree benefits. Certain plans to which Quanta contributes or may contribute in the future are in "endangered," "seriously endangered" or "critical" status. The amount, if any, that Quanta may be obligated to contribute to these plans cannot be reasonably estimated due to uncertainty regarding the amount of future work involving covered union employees, future contribution levels and possible surcharges on plan contributions.

Quanta may be subject to additional liabilities imposed by law as a result of its participation in multiemployer defined benefit pension plans. For example, the Employee Retirement Income Security Act of 1974, as amended by the Multiemployer Pension Plan Amendments Act of 1980, imposes certain liabilities upon an employer who is a contributor to a multiemployer pension plan if the employer withdraws or is deemed to have withdrawn from the plan or the plan is terminated or experiences a mass withdrawal. These liabilities include an allocable share of the unfunded vested benefits in the plan for all plan participants, not merely the benefits payable to a contributing employer's own retirees. As a result, participating employers may bear a higher proportion of liability for unfunded vested benefits if other participating employers cease to contribute or withdraw, with the reallocation of liability being more acute in cases when a withdrawn employer is insolvent or otherwise fails to pay its withdrawal liability. Quanta is not aware of any material withdrawal liabilities that have been incurred or asserted and that remain outstanding as a result of a withdrawal by Quanta from a multiemployer defined benefit pension plan. However, Quanta's future contribution obligations and potential withdrawal liability exposure could vary based on the investment and actuarial performance of the multiemployer pension plans to which it contributes and other factors, which could be negatively impacted as a result of the unfavorable and uncertain economic and financial market conditions resulting from the ongoing COVID-19 pandemic and related issues. Quanta has been subject to significant withdrawal liabilities in the past, including in connection with its withdrawal from the Central States, Southeast and Southwest Areas Pension Plan. To the extent Quanta is subject to material withdrawal liabilities in the future, such liability could adversely affect its business, financial condition, results of operations or cash flows.

Indemnities

Quanta generally indemnifies its customers for the services it provides under its contracts and other specified liabilities, which may subject Quanta to indemnity claims and liabilities and related litigation. Additionally, in connection with certain acquisitions and dispositions, Quanta has indemnified various parties against specified liabilities that those parties might incur in the future. The indemnities under acquisition or disposition agreements are usually contingent upon the other party incurring liabilities that reach specified thresholds. Quanta is not aware of any indemnity claims in connection with its indemnity obligations that are material. However, to the extent indemnification is required, the amount could adversely affect Quanta's consolidated business, financial condition, results of operations or cash flows.

In the normal course of Quanta's acquisition transactions, Quanta obtains rights to indemnification from the sellers or former owners of acquired businesses for certain risks, liabilities and obligations arising from their prior operations, such as performance, operational, safety, workforce or tax issues, some of which Quanta may not have discovered during due diligence. However, the indemnities may not cover all of Quanta's exposure for such pre-acquisition matters, or the indemnitors may be unwilling or unable to pay amounts owed to Quanta. Accordingly, Quanta may incur expenses for which it is not reimbursed, and such amounts could be material and could have a material adverse effect on Quanta's business or consolidated financial condition, results of operations and cash flows. Quanta is currently in the process of pursuing indemnity for certain pre-acquisition obligations associated with non-U.S. payroll taxes of a business acquired by Quanta in 2013. As of March 31, 2020, the indemnification asset amounted to $4.7 million.

Additionally, Quanta has obtained certain indemnification rights from the former owners of Hallen with respect to contingent liabilities that were assumed in connection with the acquisition, as set forth in *Legal Proceedings — Hallen Acquisition Assumed Liability* above.

12. SEGMENT INFORMATION:

Quanta presents its operations under two reportable segments: (1) Electric Power Infrastructure Services and (2) Pipeline and Industrial Infrastructure Services. This structure is generally based on the broad end-user markets for Quanta's services. See Note 1 for additional information regarding Quanta's reportable segments.

Quanta's segment results are derived from the types of services provided across its operating units in each of its end user markets. Quanta's entrepreneurial business model allows multiple operating units to serve the same or similar customers and to provide a range of services across end user markets. Quanta's operating units are organized into one of two internal divisions: the Electric Power Infrastructure Services Division and the Pipeline and Industrial Infrastructure Services Division. These internal divisions are closely aligned with the reportable segments, and operating units are assigned to divisions based on the predominant type of work performed.

Reportable segment information, including revenues and operating income by type of work, is gathered from each operating unit for the purpose of evaluating segment performance in support of Quanta's market strategies. Classification of operating unit revenues by type of work for segment reporting purposes can require judgment on the part of management. Quanta's operating units may perform joint projects for customers in multiple industries, deliver multiple types of services under a single customer contract or provide service offerings to various industries. For example, Quanta performs joint trenching projects to install distribution lines for electric power and natural gas customers.

In addition, Quanta's integrated operations and common administrative support for its operating units require that certain allocations be made to determine segment profitability, including allocations of shared and indirect costs (e.g., facility costs), indirect operating expenses (e.g., depreciation), and general and administrative costs. Certain corporate costs are not allocated and include payroll and benefits, employee travel expenses, facility costs, professional fees, acquisition costs and amortization related to intangible assets.

Summarized financial information for Quanta's reportable segments is presented in the following table (in thousands):

	Three Months Ended March 31,	
	2020	2019
Revenues:		
Electric Power Infrastructure Services	$ 1,767,027	$ 1,664,023
Pipeline and Industrial Infrastructure Services	997,068	1,143,236
Consolidated revenues	$ 2,764,095	$ 2,807,259
Operating income (loss):		
Electric Power Infrastructure Services	$ 128,758	$ 161,617
Pipeline and Industrial Infrastructure Services	31,277	40,699
Corporate and non-allocated costs	(79,298)	(82,829)
Consolidated operating income	$ 80,737	$ 119,487
Depreciation:		
Electric Power Infrastructure Services	$ 28,713	$ 25,251
Pipeline and Industrial Infrastructure Services	21,535	22,555
Corporate and non-allocated costs	4,162	4,410
Consolidated depreciation	$ 54,410	$ 52,216

Quanta has concluded to pursue an orderly exit of its operations in Latin America. Electric Power Infrastructure Services revenues for the three months ended March 31, 2020 and 2019 included $4.7 million and $27.8 million related to Latin American operations. Electric Power Infrastructure Services operating income for the three months ended March 31, 2020 and 2019 included $16.3 million and $0.6 million of operating loss related to Latin American operations.

Separate measures of Quanta's assets and cash flows by reportable segment, including capital expenditures, are not produced or utilized by management to evaluate segment performance. Quanta's fixed assets, which are held at the operating unit level, include operating machinery, equipment and vehicles, office equipment, buildings and leasehold improvements, and are used on an interchangeable basis across its reportable segments. As such, for reporting purposes, total depreciation expense is allocated each quarter among Quanta's reportable segments based on the ratio of each reportable segment's revenue contribution to consolidated revenues.

Foreign Operations

During the three months ended March 31, 2020 and 2019, Quanta derived $496.0 million and $606.6 million of its revenues from foreign operations. Of Quanta's foreign revenues, 77% and 80% were earned in Canada during the three months ended March 31, 2020 and 2019. In addition, Quanta held property and equipment of $291.4 million and $314.1 million in foreign countries, primarily Canada, as of March 31, 2020 and December 31, 2019.

13. SUPPLEMENTAL CASH FLOW INFORMATION:

The net effects of changes in operating assets and liabilities, net of non-cash transactions, on cash flows from operating activities are as follows (in thousands):

	Three Months Ended March 31, 2020	Three Months Ended March 31, 2019
Accounts and notes receivable	$ 122,330	$ (159,469)
Contract assets	16,372	5,267
Inventories	(4,368)	28,996
Prepaid expenses and other current assets	84,078	(29,339)
Accounts payable and accrued expenses and other non-current liabilities	(110,394)	(66,678)
Contract liabilities	(12,886)	(23,380)
Other, net	(5,662)	(5,553)
Net change in operating assets and liabilities, net of non-cash transactions	$ 89,470	$ (250,156)

A reconciliation of cash, cash equivalents, and restricted cash reported within the condensed consolidated balance sheets that sum to the total of such amounts shown in the statements of cash flows is as follows (in thousands):

	March 31, 2020	March 31, 2019
Cash and cash equivalents	$ 377,205	$ 85,423
Restricted cash included in “Prepaid expenses and other current assets”	3,514	3,038
Restricted cash included in “Other assets, net”	919	1,031
Total cash, cash equivalents, and restricted cash reported in the statements of cash flows	$ 381,638	$ 89,492

	December 31, 2019	December 31, 2018
Cash and cash equivalents	$ 164,798	$ 78,687
Restricted cash included in “Prepaid expenses and other current assets”	4,026	3,286
Restricted cash included in “Other assets, net”	921	1,283
Total cash, cash equivalents, and restricted cash reported in the statements of cash flows	$ 169,745	$ 83,256

Restricted cash includes any cash that is legally restricted as to withdrawal or usage.

Supplemental cash flow information related to leases is as follows (in thousands):

	Three Months Ended March 31, 2020	Three Months Ended March 31, 2019
Cash paid for amounts included in the measurement of lease liabilities:		
Operating cash flows from operating leases	$ (29,482)	$ (29,447)
Operating cash flows from finance leases	$ (17)	$ (21)
Financing cash flows from finance leases	$ (201)	$ (630)
Lease assets obtained in exchange for lease liabilities:		
Operating leases	$ 29,693	$ 15,939
Finance leases	$ 866	$ 401

Additional supplemental cash flow information is as follows (in thousands):

	Three Months Ended March 31,	
	2020	2019
Cash (paid) received during the period for —		
Interest paid	$ (13,272)	$ (13,432)
Income taxes paid	$ (54,221)	$ (8,193)
Income tax refunds	$ 2,339	$ 1,278

During the three months ended March 31, 2020, in connection with the disposition of a small business, Quanta recorded a note receivable in exchange for the transfer of $8.5 million of inventory.

Item 2. ***Management's Discussion and Analysis of Financial Condition and Results of Operations.***

The following discussion and analysis of our financial condition and results of operations should be read in conjunction with our condensed consolidated financial statements and related notes included elsewhere in this Quarterly Report on Form 10-Q (Quarterly Report) and with our Annual Report on Form 10-K for the year ended December 31, 2019 (2019 Annual Report), which was filed with the Securities and Exchange Commission (SEC) on February 28, 2020 and is available on the SEC's website at www.sec.gov and on our website, which is www.quantaservices.com. The discussion below contains forward-looking statements that are based upon our current expectations and are subject to uncertainty and changes in circumstances. Actual results may differ materially from these expectations due to inaccurate assumptions and known or unknown risks and uncertainties, including those identified in *Uncertainty of Forward-Looking Statements and Information* below, Item 1A. *Risk Factors* of Part II of this Quarterly Report and Item 1A. *Risk Factors* of Part I of our 2019 Annual Report.

Overview

We are a leading provider of specialty contracting services, delivering comprehensive infrastructure solutions for the electric power, energy and communications industries in the United States, Canada, Australia and select other international markets. The performance of our business generally depends on our ability to obtain contracts with customers and to effectively deliver the services provided under those contracts. The services we provide include the design, installation, upgrade, repair and maintenance of infrastructure within each of the industries we serve, such as electric power transmission and distribution networks; substation facilities; pipeline transmission and distribution systems and facilities; refinery, petrochemical and industrial facilities; and telecommunications and cable multi-system operator networks. Our customers include many of the leading companies in the industries we serve, and we endeavor to develop and maintain strategic alliances and preferred service provider status with our customers. Our services are typically provided pursuant to master service agreements, repair and maintenance contracts and fixed price and non-fixed price installation contracts.

We report our results under two reportable segments: (1) Electric Power Infrastructure Services and (2) Pipeline and Industrial Infrastructure Services. This structure is generally focused on broad end-user markets for our services. Included within the Electric Power Infrastructure Services segment are the results related to our telecommunications infrastructure services.

Current Quarter Financial Results and Significant Operational Trends and Events

Key financial results for the three months ended March 31, 2020 included:

- Consolidated revenues decreased 1.5% to $2.76 billion as compared to $2.81 billion for the three months ended March 31, 2019, of which 63.9% was attributable to the Electric Power Infrastructure Services segment and 36.1% was attributable to the Pipeline and Industrial Infrastructure Services segment;
- Operating income decreased 32.4%, or $38.8 million, to $80.7 million as compared to $119.5 million for the three months ended March 31, 2019, primarily attributable to higher earnings related to successful execution and completion of a larger electric transmission project in Canada during the three months ended March 31, 2019;
- Net income attributable to common stock decreased 67.9%, or $81.8 million, to $38.7 million as compared to $120.5 million for the three months ended March 31, 2019, primarily attributable to the project earnings referenced above as well as the recognition of $60.3 million of previously deferred earnings associated with an investment in the larger electric transmission project in Canada during the three months ended March 31, 2019;
- Diluted earnings per share decreased 68.1%, or $0.56, to $0.26 as compared to $0.82 for the three months ended March 31, 2019, primarily attributable to the project earnings and recognition of $60.3 million (or $0.30 per diluted share) of previously deferred earnings during the three months ended March 31, 2019 referenced above;
- Net cash provided by operating activities increased by $310.3 million, to $227.5 million as compared to $82.8 million of net cash used in operating activities for the three months ended March 31, 2019;
- Remaining performance obligations increased 1.3%, or $69.7 million, to $5.37 billion as of March 31, 2020 as compared to $5.30 billion as of December 31, 2019; and
- Total backlog (a non-GAAP measure) decreased 1.8%, or $272.5 million, to $14.73 billion as of March 31, 2020 as compared to $15.00 billion as of December 31, 2019. For a reconciliation of backlog to remaining performance obligations, its most comparable GAAP measure, see *Remaining Performance Obligations and Backlog* below.

During the three months ended March 31, 2020, our Electric Power Infrastructure Services segment was impacted by the following significant operational trends and events:

- Increased customer spending on smaller electric transmission and distribution services projects, which are services we generally consider to be base business operations;

- Decreased revenues on larger transmission projects primarily due to the completion of the larger transmission project in Canada in the first quarter of 2019 referenced above; and
- Delays on other larger transmission projects in Canada, which shifted expected revenues to later in 2020 and beyond.

During the three months ended March 31, 2020, our Pipeline and Industrial Infrastructure Services segment was impacted by the following significant operational trends and events:

- Decreased revenues from larger pipeline projects as compared to the three months ended March 31, 2019, the timing of which is highly variable due to potential permitting delays, worksite access limitations related to environmental regulations and seasonal weather patterns;
- Increased revenues from pipeline distribution services, which we generally consider to be base business operations;
- Increased revenues of approximately $100 million from acquired businesses;
- Negative impacts from adverse weather across our Canadian pipeline operations, including an $11.4 million loss associated with production issues as well as severe weather conditions on a larger gas transmission project in Canada; and
- Certain adverse impacts due to restrictions on our ability to perform services in certain locations as a result of the novel coronavirus disease 2019 (COVID-19) pandemic, as discussed further below in *COVID-19 Pandemic - Response and Impact*.

We also continue to selectively evaluate acquisitions as part of our overall business strategy and acquired two businesses in the three months ended March 31, 2020, including an industrial services business located in Canada that performs catalyst handling services, including changeover and shutdown maintenance, to customers in the refining and chemical industries and an electric power infrastructure business located in the United States that primarily provides underground conduit services. During the three months ended March 31, 2020, revenues were positively impacted by approximately $115 million from acquired businesses.

COVID-19 Pandemic - Response and Impact

During the first and second quarters of 2020, the World Health Organization characterized COVID-19 as a pandemic and all fifty states within the United States were placed under a major disaster declaration. The COVID-19 pandemic has significantly impacted global economies, resulting in workforce and travel restrictions, supply chain and production disruptions and reduced demand and spending across many sectors. During the latter part of the first quarter of 2020, these factors began having an adverse impact on our operations and financial performance, as well as on the operations and financial performance of many of the customers and suppliers in industries that we serve.

We continue to operate as an essential services provider in our industries and have taken proactive measures to protect the health and safety of our employees, such as the adoption of specialized training initiatives and the utilization of additional protective equipment for our employees operating in the field and additional sanitation measures for our offices, vehicles and equipment. We have also canceled non-essential business travel, applied work-from-home policies where appropriate and developed other human resource guidance to help employees. While we are collaborating with customers to minimize potential service disruptions and anticipate how the COVID-19 pandemic may impact our operations, the adverse effects are prevalent throughout locations where we, our customers, suppliers or third-party business partners operate.

During the three months ended March 31, 2020 and continuing into the second quarter of 2020, our results have been adversely impacted by the COVID-19 pandemic as a result of the shelter-in-place restrictions in some of our service areas creating disruptions to portions of our operations, particularly in major metropolitan markets that have been meaningfully impacted by the pandemic such as New York City, Detroit and Seattle. The COVID-19 pandemic has also compounded broader challenges in the energy market, resulting in a decline in commodity prices and volatility with respect to commodity production volumes that are affecting portions of our Pipeline and Industrial Infrastructure Services segment. We expect this dynamic to have a materially negative impact on our results of operations for the second quarter of 2020 and continue to impact certain portions of the segment for at least the remainder of 2020. In particular, demand for our industrial services operations has declined as customers are reducing and deferring regularly scheduled maintenance due to lack of demand for refined products. Additionally, smaller pipeline and industrial capital projects are expected to be negatively impacted for a prolonged period due to the low commodity price environment and resulting reductions in customer capital budgets. We are also experiencing some permitting and regulatory delays due to the pandemic, which have resulted in project delays. Furthermore, while we are not currently experiencing significant supply chain disruptions or workforce availability concerns, we are continuing to monitor these potential issues.

Additionally, we are focused on navigating the challenges presented by the COVID-19 pandemic and maintaining a strong balance sheet. As of March 31, 2020, we had $377.2 million of cash and cash equivalents and $1.35 billion of availability under our senior secured credit facility. We generated $227.5 million of cash flow from operations in the quarter ended March 31, 2020 and $526.6 million in cash flow from operations in the year ended December 31, 2019. We are managing our costs through, among other things, reductions in discretionary spending, reductions in workforce at operations experiencing challenges, hiring and compensation increase deferrals, and deferrals of non-essential capital expenditures. We will continue to maintain capital discipline and monitor rapidly changing market dynamics and adjust our costs accordingly.

As a result of the currently challenged energy market and recent oil price volatility, as well as the exacerbating effect of the COVID-19 pandemic, we assessed the expected negative impacts related to goodwill, intangible assets, long-lived assets, and investments as of March 31, 2020, and concluded that at this time the impacts are not likely to result in impairment of such assets. However, the potential impacts of the volatile energy market and of the COVID-19 pandemic are uncertain and may change based on numerous factors. We will continue to monitor the impacts and should a reporting unit or investment suffer additional significant declines in actual or forecast financial results beyond current expectations, the risk of impairment would increase. At this time, based on information currently available, Quanta cannot determine if any future impairment will result, or whether such impairment charge would be material.

On March 27, 2020, the U.S. federal government enacted the Coronavirus Aid, Relief, and Economic Security Act (the "CARES Act"). The CARES Act provides for various tax relief and tax incentive measures, which are not expected to have a material impact on our results of operations or liquidity.

The broader and longer-term implications of the COVID-19 pandemic on our results of operations and overall financial performance and position remain uncertain, and we cannot predict the full impact that the pandemic or the significant disruption and volatility currently being experienced in the markets will have on our business, cash flows, liquidity, financial condition and results of operations at this time, due to numerous uncertainties. The ultimate impact will depend on future developments, including, among others, the ongoing spread of the virus, the consequences of governmental and other measures designed to prevent the spread of the virus, the development of effective treatments, the duration and severity of the outbreak, actions taken by governmental authorities, customers, suppliers and other third parties, workforce availability, and the timing and extent to which normal economic and operating conditions resume. For additional discussion regarding risks associated with the COVID-19 pandemic, see Item 1A. *Risk Factors* of Part II of this Quarterly Report.

Business Environment

Despite the current challenging economic conditions, we believe there are long-term growth opportunities across our industries, and we continue to have a positive long-term outlook. Although not without risks and challenges, including those discussed in *Overview* and in *Uncertainty of Forward-Looking Statements and Information* and included in Item 1A. *Risk Factors*, we believe, with our full-service operations, broad geographic reach, financial position and technical expertise, we are well positioned to capitalize on opportunities and trends in our industries.

Electric Power Infrastructure Services Segment. Utilities are investing significant capital in their electric power delivery systems, particularly transmission, substation and distribution infrastructure, through multi-year, multi-billion dollar grid modernization and reliability programs, which have provided, and are expected to continue to provide, demand for our services. Utilities are accommodating a changing fuel generation mix that is moving toward more sustainable sources such as natural gas and renewables and replacing aging infrastructure to support long-term economic growth. In order to reliably and efficiently deliver power, and in response to federal reliability standards, utilities are also integrating smart grid technologies into distribution systems in order to improve grid management and create efficiencies, and in preparation for emerging technologies such as electric vehicles. A number of utilities are also implementing system upgrades or hardening programs in response to recurring severe weather events, such as hurricanes and wildfires. In particular, current system resiliency initiatives in California and other regions in the western U.S. are designed to prevent and manage the impact of wildfires. However, while these resiliency initiatives also provide opportunities for our services, they also increase our potential exposure to significant liabilities attributable to those events.

While the COVID-19 pandemic has resulted in an overall decline in electricity usage in the near term, primarily related to commercial and industrial users, we expect demand for electricity in North America to grow over the long term and believe that certain segments of the North American electric power grid are not adequate to efficiently serve the power needs of the future. As demand for power increases, we also expect an increase in new power generation facilities powered by certain traditional energy sources (e.g., natural gas) and renewable energy sources (e.g., solar and wind). To the extent this dynamic continues, we expect continued demand for new or expanded transmission and substation infrastructure to transport power and interconnect new generation facilities and the modification and reengineering of existing infrastructure as existing coal and nuclear generation facilities are retired or shut down.

With respect to our communications service offerings, consumer and commercial demand for communication and data-intensive, high-bandwidth wireline and wireless services and applications is driving significant investment in infrastructure and the deployment of new technologies. In particular, communications providers in North America are in the early stages of developing new fifth generation wireless services (5G), which are intended to facilitate bandwidth-intensive services at high speeds for consumers and a wide range of commercial applications. As a result of these industry trends, we believe there will be meaningful demand for our services in that market. While we continue to perform certain electric power and communications services in Latin America, we have completed a strategic review of those operations, and due to circumstances experienced in connection with the termination of the large telecommunications project in Peru during 2019 and political volatility in other areas of the region, have concluded to pursue an orderly exit of our Latin American operations. While we expect additional costs in the near-term related to exiting these operations, we anticipate this decision will result in improved profitability of our overall services offerings.

Pipeline and Industrial Infrastructure Services Segment. Though we are experiencing disruptions due to the impact of the COVID-19 pandemic, in recent years demand has increased for our gas utility distribution services as a result of lower natural gas prices and regulatory requirements and customer desire to upgrade and replace aging infrastructure. We believe there are also growth opportunities for our pipeline integrity, rehabilitation and replacement services, as regulatory measures have increased the frequency or stringency of pipeline integrity testing requirements.

We provide critical path solutions and related specialty services to refinery and chemical processing facilities, primarily along the Gulf Coast of the United States and in other select markets in North America. Trends and estimates for process facility utilization rates and overall refining capacity show North America as the largest downstream maintenance market in the world over the next several years, and we believe processing facilities located along the U.S. Gulf Coast region should have certain long-term strategic advantages due to their proximity to affordable hydrocarbon resources. As a result, we believe there are significant long-term opportunities for our services, including our high-pressure and critical-path turnaround services, as well as our capabilities with respect to instrumentation, high-voltage and other electrical services, piping, fabrication and storage, and other industrial services. However, these processing facilities can be negatively impacted for short-term periods due to severe weather events, such as hurricanes, tropical storms and floods. Additionally, due to the COVID-19 pandemic and challenging overall energy market conditions, we have recently experienced a decrease in demand for certain of these services. While demand for our critical path catalyst solutions has remained solid, subsequent to the end of the first quarter of 2020 customers have restricted onsite activity for our other services and have deferred maintenance and certain turnaround projects to later 2020 or possibly 2021.

Additionally, a number of larger pipeline projects from the North American shale formations and Canadian oil sands to power plants, refineries, liquefied natural gas (LNG) export facilities and other demand centers are in various stages of development. While there is risk the projects will not move forward or be delayed, we believe many of our customers remain committed to them given the cost and time required to move from conception to construction. The larger pipeline market is cyclical and the contribution of these projects to our revenues has declined over the last few years. We currently expect a further reduction in revenues from larger pipeline projects in 2020; however, we are pursuing various opportunities that, if successful, could cause our current expectations to increase. Due to its abundant supply and current low price, we also believe natural gas will remain a fuel of choice for both primary power generation and backup power generation for renewable-driven power plants in North America. The favorable characteristics of natural gas also position the United States as a leading competitor in the global LNG export market, which has the potential to continue to grow over the coming years as approved and proposed LNG export facilities are developed. In certain areas, the existing pipeline system infrastructure is insufficient to support these expected future developments, which could provide additional opportunities for our services.

Although much of our pipeline and industrial infrastructure services are influenced by hydrocarbon production volume rather than shorter-term changes in commodity prices, the broader oil and gas industry is highly cyclical and subject to price volatility, such as the current low commodity price environment, which can impact demand for our services. For example, certain of our end markets where the price of oil is influential, such as Australia, the Canadian Oil Sands and certain oil-driven U.S. shale formations, have been materially impacted by the current challenging energy market conditions.

Regulatory Challenges and Opportunities. The regulatory environment creates both challenges and opportunities for our business, and in recent years electric power and pipeline infrastructure services margins have been impacted by regulatory and permitting delays, particularly with respect to larger electric transmission and larger pipeline projects. Regulatory and environmental permitting processes continue to create uncertainty for projects and negatively impact customer spending, and delays have recently increased as the COVID-19 pandemic has impacted regulatory agency operations. Furthermore, the recent ruling by the federal district court for the district of Montana vacating the U.S. Army Corps of Engineers Clean Water Act Section 404 Nationwide Permit 12 for alleged failure to comply with consultation requirements under the federal Endangered Species Act may result in increased costs and project delays if we or our customers are forced to seek individual permits from the U.S. Army Corps of Engineers.

However, we believe that there are also several existing, pending or proposed legislative or regulatory actions that may alleviate certain regulatory and permitting issues and positively impact long-term demand, particularly in connection with electric power infrastructure and renewable energy spending. For example, regulatory changes affecting siting and right-of-way processes could potentially accelerate construction for transmission projects, and state and federal reliability standards are creating incentives for system investment and maintenance. We also consider renewable energy, including solar and wind generation facilities, to be an ongoing opportunity for our engineering, project management and installation services; however, the economic feasibility of some of these projects remains subject to the continued availability of tax incentive programs.

Labor Resource Availability. In addition to potential labor resource availability concerns that may arise in connection with the COVID-19 pandemic, we continue to address the longer-term need for additional labor resources in our markets. Our customers continue to seek additional specialized labor resources to address an aging utility workforce and longer-term labor availability issues, increasing pressure to reduce costs and improve reliability, and increasing duration and complexity of their capital programs. We believe these trends will continue, possibly to the point where demand for labor resources will outpace supply. Furthermore, the cyclical nature of the natural gas and oil industry can create shortages of qualified labor in those markets during periods of high demand. Our ability to capitalize on available opportunities is limited by our ability to employ, train and retain the necessary skilled personnel, and we are taking proactive steps to develop our workforce, including through strategic relationships with universities, the military and unions and the expansion and development of our training facility and postsecondary educational institution. Although we believe these initiatives will help address workforce needs, meeting our customers' demand for labor resources could remain challenging.

Acquisitions and Investments. We believe potential acquisition and investment opportunities exist in our industries and adjacent industries, primarily due to the highly fragmented and evolving nature of those industries and inability of many companies to expand and modernize due to capital or liquidity constraints. We continue to evaluate opportunities that are expected to, among other things, broaden our customer base, expand our geographic area of operations, and grow and diversify our portfolio of services.

Significant Factors Impacting Results

Our revenues, margins and other results of operations can be influenced by a variety of factors in any given period, including those described in *Uncertainty of Forward-Looking Statements and Information* below, Item 1A. *Risk Factors* of Part II of this Quarterly Report and Item 1A. *Risk Factors* of Part I of our 2019 Annual Report, and those factors have caused fluctuations in our results in the past and are expected to cause fluctuations in our results in the future. Additional information with respect to certain of those factors is provided below.

Seasonality. Typically, our revenues are lowest in the first quarter of the year because cold, snowy or wet conditions can create challenging working environments that are more costly for our customers or cause delays on projects. In addition, infrastructure projects often do not begin in a meaningful way until our customers finalize their capital budgets, which typically occurs during the first quarter. Second quarter revenues are typically higher than those in the first quarter, as some projects begin, but continued cold and wet weather can often impact productivity. Third quarter revenues are typically the highest of the year, as a greater number of projects are underway and operating conditions, including weather, are normally more accommodating. Generally, revenues during the fourth quarter are lower than the third quarter but higher than the second quarter, as many projects are completed and customers often seek to spend their capital budgets before year end. However, the holiday season and inclement weather can sometimes cause delays during the fourth quarter, reducing revenues and increasing costs. These seasonal impacts are typical for our U.S. operations, but seasonality for our international operations may differ. For example, revenues in Canada are typically higher in the first quarter because projects are often accelerated in order to complete work while the ground is frozen and prior to the break up, or seasonal thaw, as productivity is adversely affected by wet ground conditions during warmer months. As referenced above in *COVID 19 Pandemic - Response and Impact,* we expect our revenues, margins and operating results for the second quarter of 2020 to be negatively impacted due to the COVID-19 pandemic.

Weather, natural disasters and emergencies. The results of our business in a given period can be impacted by adverse weather conditions, severe weather events, natural disasters or other emergencies, which include, among other things, heavy or prolonged snowfall or rainfall, hurricanes, tropical storms, tornadoes, floods, blizzards, extreme temperatures, wildfires, pandemics (including the ongoing COVID-19 pandemic) and earthquakes. These conditions and events can negatively impact our financial results due to, among other things, the termination, deferral or delay of projects, reduced productivity and exposure to significant liabilities. See *COVID-19 Pandemic - Response and Impact* above for further discussion regarding the current and expected impact of the COVID-19 pandemic. However, in some cases, severe weather events can increase our emergency restoration services, which typically yield higher margins due in part to higher equipment utilization and absorption of fixed costs.

Cyclicality and demand for services. Our volume of business may be adversely affected by declines or delays in new projects due to cyclicality, which may vary by geographic region. Project schedules also fluctuate, particularly in connection with larger, more complex or longer-term projects, which can affect the amount of work performed in a given period. For example, the timing of obtaining permits and other approvals on a larger project may be delayed, and we may need to maintain a portion of our workforce and equipment in an underutilized capacity to ensure we are strategically positioned to deliver on the project when it moves forward. Examples of other items that may cause demand for our services to fluctuate materially from quarter to quarter include: the financial condition of our customers and their access to capital; economic and political conditions on a regional, national or global scale, including interest rates, governmental regulations affecting the sourcing of certain materials and equipment, and other changes in U.S. and global trade relationships; our customers' capital spending, including on larger pipeline and electrical infrastructure projects; commodity and material prices; and project deferrals and cancellations. As described above in *COVID 19 Pandemic -*

Response and Impact, we have experienced reductions in demand for certain of our services as a result of the decline in commodity prices and decreased commodity production levels, as well as delays in regulatory agency operations.

Revenue mix. The mix of revenues based on the types of services we provide in a given period will impact margins, as certain industries and services provide higher-margin opportunities. For example, installation work is often performed on a fixed price basis, while maintenance work is often performed under pre-established or negotiated prices or cost-plus pricing arrangements. Margins for installation work varies by project but can be higher than maintenance work due to higher risk. We have historically derived approximately 30% to 35% of our annual revenues from maintenance work, but a higher portion of maintenance work in any given period may affect our gross margins for that period. Additionally, the areas in which we operate during a given period can impact margins. Some areas offer the opportunity for higher margins due to their more difficult geographic characteristics, such as urban settings or mountainous and other difficult terrain. However, margins may also be negatively impacted by unexpected difficulties that can arise due to those same characteristics, as well as unexpected site conditions.

Size, scope and complexity of projects. Larger or more complex projects with higher voltage capacities; larger diameter throughput capacities; increased engineering, design or construction complexities; more difficult terrain requirements; or longer distance requirements typically yield opportunities for higher margins as we assume a greater degree of performance risk and there is greater utilization of our resources for longer construction timeframes. Furthermore, smaller or less complex projects typically have a greater number of companies competing for them, and competitors at times may more aggressively pursue available work. A greater percentage of smaller scale or less complex work also could negatively impact margins due to the inefficiency of transitioning between a larger number of smaller projects versus continuous production on fewer larger projects. Also, at times we may choose to maintain a portion of our workforce and equipment in an underutilized capacity to ensure we are strategically positioned to deliver on larger projects when they move forward.

Project variability and performance. Margins for a single project may fluctuate period to period due to changes in the volume or type of work performed, the pricing structure under the project contract or job productivity. Additionally, our productivity and performance on a project can vary period to period based on a number of factors, including unexpected project difficulties or site conditions; project location, including locations with challenging operating conditions; whether the work is on an open or encumbered right of way; inclement weather or severe weather events; environmental restrictions or regulatory delays; protests, other political activity or legal challenges related to a project; and the performance of third parties.

Subcontract work and provision of materials. Work that is subcontracted to other service providers generally yields lower margins, and therefore an increase in subcontract work in a given period can decrease margins. In recent years, we have subcontracted approximately 15% to 20% of our work to other service providers. Our customers are usually responsible for supplying the materials for their projects; however, under some contracts we agree to procure all or part of the required materials. Margins may be lower on projects where we furnish a significant amount of materials, including projects where we provide engineering, procurement and construction (EPC) services, as our markup on materials is generally lower than our markup on labor costs. Furthermore, fluctuations in the price or availability of materials we or our customers procure, including as a result of changes in U.S. or global trade relationships, governmental regulations affecting the sourcing of certain materials and equipment or other economic or political conditions, may impact our margins or cause delays. In a given period, an increase in the percentage of work with higher materials procurement requirements may decrease our overall margins.

Foreign currency risk. Our financial performance is reported on a U.S. dollar-denominated basis but is partially subject to fluctuations in foreign currency exchange rates. Fluctuations in exchange rates relative to the U.S. dollar, primarily Canadian and Australian dollars, can materially impact margins and comparisons of our results of operations between periods.

Results of Operations

The results of acquired businesses have been included in the following results of operations beginning on their respective acquisition dates. The following table sets forth selected statements of operations data, such data as a percentage of revenues for the periods indicated as well as the dollar and percentage change from the prior period (dollars in thousands):

Consolidated Results

	Three Months Ended March 31,				Change	
	2020		2019		$	%
Revenues	$ 2,764,095	100.0 %	$ 2,807,259	100.0 %	$ (43,164)	(1.5)%
Cost of services (including depreciation)	2,431,899	88.0	2,443,278	87.0	(11,379)	(0.5)%
Gross profit	332,196	12.0	363,981	13.0	(31,785)	(8.7)%
Selling, general and administrative expenses	230,793	8.3	231,908	8.3	(1,115)	(0.5)%
Amortization of intangible assets	17,908	0.7	12,670	0.4	5,238	41.3 %
Change in fair value of contingent consideration liabilities	2,758	0.1	(84)	—	2,842	*
Operating income	80,737	2.9	119,487	4.3	(38,750)	(32.4)%
Interest expense	(14,006)	(0.4)	(13,876)	(0.5)	(130)	0.9 %
Interest income	759	—	309	—	450	145.6 %
Other income (expense), net	(9,827)	(0.4)	58,959	2.1	(68,786)	*
Income before income taxes	57,663	2.1	164,879	5.9	(107,216)	(65.0)%
Provision for income taxes	16,160	0.6	43,844	1.6	(27,684)	(63.1)%
Net income	41,503	1.5	121,035	4.3	(79,532)	(65.7)%
Less: Net income attributable to non-controlling interests	2,817	0.1	547	—	2,270	415.0 %
Net income attributable to common stock	$ 38,686	1.4 %	$ 120,488	4.3 %	$ (81,802)	(67.9)%

* The percentage change is not meaningful.

Revenues. Contributing to the decrease were lower revenues of $146.2 million from pipeline and industrial infrastructure services, partially offset by incremental revenues of $103.0 million from electric power infrastructure services. See *Segment Results* below for additional information and discussion related to segment revenues.

Gross profit. The decrease in gross profit was primarily due to the overall decrease in revenues described above and the factors described in *Segment Results* below related to segment operating income (loss).

Selling, general and administrative expenses. The decrease was primarily attributable a $7.8 million decrease in market value of deferred compensation liabilities during the three months ended March 31, 2020, as compared to a $3.8 million increase in market value of deferred compensation liabilities during the three months ended March 31, 2019. The fair market value changes in deferred compensation liabilities are offset by changes in the fair value of assets associated with the deferred compensation plan which are included in *Other income (expense), net* below. Partially offsetting the decrease in selling, general and administrative expense associated with deferred compensation was an $8.0 million increase in expenses associated with acquired businesses, a $3.2 million increase in compensation expense primarily due to an increase in non-cash stock compensation expense and a $2.9 million increase related to information systems and rent expense.

Amortization of intangible assets. The increase was primarily due to increased amortization of intangible assets associated with recently acquired businesses, partially offset by reduced amortization expense from previously acquired intangible assets, as certain of those assets became fully amortized.

Change in fair value of contingent consideration liabilities. The overall change was primarily due to changes in performance in post-acquisition periods for certain acquired businesses and the effect of present value accretion on fair value calculations. Further changes in fair value are expected to be recorded periodically until contingent consideration liabilities are settled. See *Contractual Obligations - Contingent Consideration Liabilities* for more information.

Interest expense. Interest expense increased primarily due to increased borrowing activity, partially offset by the impact of a lower weighted average interest rate.

Other income (expense), net. The net expense recognized in the three months ended March 31, 2020 primarily relates to a decline in market value of assets associated with our deferred compensation plan, which offsets the decrease in selling, general, and administrative expenses discussed above. The net expense recognized in the three months ended March 31, 2019 was primarily related to the deferral and subsequent recognition of earnings on a large electric transmission project in Canada that was substantially completed and placed into commercial operation during the three months ended March 31, 2019. As a result of the project completion, we recognized $60.3 million of earnings that were previously deferred as a component of "Other income (expense), net" in prior periods. In addition, partially offsetting the other income during the three months ended March 31, 2019 was other expense of $4.0 million related to a reduction of an indemnification asset, which resulted from the favorable settlement of a pre-acquisition foreign tax-related obligation.

Provision for income taxes. The effective tax rates for the three months ended March 31, 2020 and March 31, 2019 were 28.0% and 26.6%. The increase in the effective tax rate was primarily due to the favorable impact of certain non-U.S. tax audit settlements. In March 2020, the U.S. federal government enacted the CARES Act. We do not expect any significant benefits to the income tax provision as a result of the CARES Act.

Other comprehensive income (loss). The loss in the three months ended March 31, 2020 resulted from the strengthening of the U.S. dollar against foreign currencies associated with our international operations, primarily the Canadian and Australian dollars, as of March 31, 2020 when compared to December 31, 2019. The gain in the three months ended March 31, 2019 was due to the strengthening of certain foreign currencies associated with our international operations, primarily the Canadian and Australian dollars, against the U.S. dollar as of March 31, 2019 when compared to December 31, 2018.

Segment Results

Reportable segment information, including revenues and operating income by type of work, is gathered from each operating unit for the purpose of evaluating segment performance. Classification of our operating unit revenues by type of work for segment reporting purposes can at times require judgment on the part of management. Our operating units may perform joint projects for customers in multiple industries, deliver multiple types of services under a single customer contract or provide service offerings to various industries. For example, we perform joint trenching projects to install distribution lines for electric power and natural gas customers. Our integrated operations and common administrative support for operating units require that certain allocations be made to determine segment profitability, including allocations of shared and indirect costs (e.g., facility costs), indirect operating expenses (e.g., depreciation), and general and administrative costs. Certain corporate costs are not allocated, including payroll and benefits, employee travel expenses, facility costs, professional fees, acquisition costs, non-cash stock-based compensation, amortization related to intangible assets, asset impairment related to goodwill and intangible assets and change in fair value of contingent consideration liabilities.

The following table sets forth segment revenues, segment operating income (loss) for the periods indicated, as well as the dollar and percentage change from the prior period (dollars in thousands):

	Three Months Ended March 31,				Change	
	2020		2019		$	%
Revenues:						
Electric Power Infrastructure Services excluding Latin America	$ 1,762,346	63.8 %	$ 1,636,188	58.3 %	$ 126,158	7.7 %
Latin America	4,681	0.2	27,835	1.0	(23,154)	(83.2)%
Electric Power Infrastructure Services	$ 1,767,027	63.9 %	$ 1,664,023	59.3 %	$ 103,004	6.2 %
Pipeline and Industrial Infrastructure Services	997,068	36.1	1,143,236	40.7	(146,168)	(12.8)%
Consolidated revenues from external customers	$ 2,764,095	100.0 %	$ 2,807,259	100.0 %	$ (43,164)	(1.5)%
Operating income (loss):						
Electric Power Infrastructure Services excluding Latin America	$ 145,073	8.2 %	$ 162,229	9.9 %	$ (17,156)	(10.6)%
Latin America	(16,315)	(348.5)%	(612)	(2.2)%	(15,703)	*
Electric Power Infrastructure Services	$ 128,758	7.3 %	$ 161,617	9.7 %	$ (32,859)	(20.3)%
Pipeline and Industrial Infrastructure Services	31,277	3.1 %	40,699	3.6 %	(9,422)	(23.2)%
Corporate and non-allocated costs	(79,298)	N/A	(82,829)	N/A	3,531	(4.3)%
Consolidated operating income	$ 80,737	2.9 %	$ 119,487	4.3 %	$ (38,750)	(32.4)%

* The percentage change is not meaningful.

Electric Power Infrastructure Services Segment Results

The increase in revenues was primarily due to increased customer spending on distribution services. Revenues also increased due to growth in our communications operations and $15 million was attributable to acquired businesses. These increases were partially offset by lower revenues on a larger transmission project in Canada that was substantially completed during the three months ended March 31, 2019; lower revenues in the western United States associated with grid modernization and accelerated fire hardening programs; and a $32 million decrease in emergency restoration revenues.

During the year ended December 31, 2019, a telecommunications project in Peru was terminated. As a result of the contract termination and other factors, we have concluded to pursue an orderly exit of our operations in Latin America. We believe that providing visibility into these results is beneficial to understanding the performance of our ongoing operations. The increased operating loss in the three months ended March 31, 2020 is primarily associated with early termination and close out costs of projects in the region, cost adjustments on certain remaining projects and disruptions caused by the COVID-19 pandemic. In 2020, our Latin American operations are expected to generate revenues of $20 million to $40 million and an operating loss of $25 million to $30 million. See *Legal Proceedings* in Note 11 of the Notes to Condensed Consolidated Financial Statements in Item 1. *Financial Statements* of Part I of this Quarterly Report for additional information involving the termination of the telecommunications project in Peru.

The decrease in segment operating income and operating income as a percentage of revenues excluding Latin America was primarily attributable to higher operating income for the three months ended March 31, 2019 related to successful execution of the larger transmission project in Canada described above; decreased revenues from emergency restorations services, which typically yield higher margins due in part to higher equipment utilization and absorption of fixed costs; as well as a reduction in fire hardening activities in the first quarter of 2020, which are expected to increase in the second half of 2020.

Pipeline and Industrial Infrastructure Services Segment Results

The decrease in revenues was primarily due to a decrease in services related to pipeline transmission projects, which resulted from decreased capital spending by our customers, and the timing of construction for larger projects, which is highly variable due to potential permitting delays, worksite access limitations related to environmental regulations and seasonal weather patterns. This decrease was partially offset by an increase in pipeline distribution services and approximately $100 million in revenues from acquired businesses. As a result of the variability in timing for larger pipeline transmission projects, we expect larger pipeline transmission revenues for 2020 to be approximately $500 million as compared to $1.2 billion during 2019.

The decrease in operating income and operating income as a percentage of revenues were primarily due to the reduction in larger pipeline transmission projects, which generally yield higher margins. The three months ended March 31, 2020 were also negatively impacted by adverse weather across our Canadian pipeline operations, including an $11.4 million loss associated with production issues as well as severe weather conditions on a larger gas transmission project in Canada. Additionally, segment results were adversely impacted by the COVID-19 pandemic and the challenged energy market as discussed above in *COVID-19 - Response and Impact.*

Corporate and Non-allocated Costs

The decrease in corporate and non-allocated costs was primarily due to a $7.9 million decrease in market value of deferred compensation liabilities during the three months ended March 31, 2020, as compared to a $3.6 million increase in market value of deferred compensation liabilities during the three months ended March 31, 2019, as well as a $2.8 million decrease in bad debt expense. Partially offsetting these decreases were a $5.2 million increase in intangible amortization expense due to an increase in intangible assets; a $2.8 million increase in the fair value of contingent consideration liabilities in the three months ended March 31, 2020 as compared to a $0.1 million decrease in the fair value of contingent consideration liabilities recognized during the three months ended March 31, 2019, based on performance of certain acquired businesses; and a $3.0 million increase in compensation expense primarily due to an increase in non-cash stock compensation expense.

Remaining Performance Obligations and Backlog

A performance obligation is a promise in a contract with a customer to transfer a distinct good or service. Our remaining performance obligations represent management’s estimate of consolidated revenues that are expected to be realized from the remaining portion of firm orders under fixed price contracts not yet completed or for which work has not yet begun, which includes estimated revenues attributable to consolidated joint ventures and variable interest entities (VIEs), revenues from funded and unfunded portions of government contracts to the extent they are reasonably expected to be realized, and revenues from change orders and claims to the extent management believes they will be earned and are probable of collection.

We have also historically disclosed our backlog, a measure commonly used in our industry but not recognized under generally accepted accounting principles in the United States (GAAP). We believe this measure enables management to more effectively forecast our future capital needs and results and better identify future operating trends that may not otherwise be apparent. We believe this measure is also useful for investors in forecasting our future results and comparing us to our competitors. Our remaining performance obligations are a component of backlog, which also includes estimated orders under master service agreements (MSAs), including estimated renewals, and non-fixed price contracts expected to be completed within one year. Our methodology for determining backlog may not be comparable to the methodologies used by other companies.

As of March 31, 2020 and December 31, 2019, MSAs accounted for 52% and 53% of our estimated 12-month backlog and 61% and 61% of total backlog. Generally, our customers are not contractually committed to specific volumes of services under our MSAs, and most of our contracts can be terminated on short notice even if we are not in default. We determine the estimated backlog for these MSAs using recurring historical trends, factoring in seasonal demand and projected customer needs based upon ongoing communications. In addition, many of our MSAs are subject to renewal, and these potential renewals are considered in determining estimated backlog. As a result, estimates for remaining performance obligations and backlog are subject to change based on, among other things, project accelerations; project cancellations or delays, including but not limited to those caused by commercial issues, regulatory requirements, natural disasters, emergencies (including the ongoing COVID-19 pandemic) and adverse weather conditions; and final acceptance of change orders by customers. These factors can cause revenues to be realized in periods and at levels that are different than originally projected.

The following table reconciles total remaining performance obligations to our backlog (a non-GAAP measure) by reportable segment along with estimates of amounts expected to be realized within 12 months (in thousands):

	March 31, 2020		December 31, 2019	
	12 Month	Total	12 Month	Total
Electric Power Infrastructure Services				
Remaining performance obligations	$ 2,696,812	$ 3,987,063	$ 2,483,109	$ 3,957,710
Estimated orders under MSAs and short-term, non-fixed price contracts	2,555,765	5,666,724	2,873,446	5,864,527
Backlog	5,252,577	9,653,787	5,356,555	9,822,237
Pipeline and Industrial Infrastructure Services				
Remaining performance obligations	719,497	1,385,102	670,707	1,344,741
Estimated orders under MSAs and short-term, non-fixed price contracts	1,622,418	3,693,494	1,919,791	3,837,923
Backlog	2,341,915	5,078,596	2,590,498	5,182,664
Total				
Remaining performance obligations	3,416,309	5,372,165	3,153,816	5,302,451
Estimated orders under MSAs and short-term, non-fixed price contracts	4,178,183	9,360,218	4,793,237	9,702,450
Backlog	$ 7,594,492	$ 14,732,383	$ 7,947,053	$ 15,004,901

Liquidity and Capital Resources

Management monitors financial markets and national and global economic conditions for factors that may affect our liquidity and capital resources. We consider our investment policies related to cash and cash equivalents to be conservative in that we maintain a diverse portfolio of what we believe to be high-quality cash and cash equivalent investments with short-term maturities.

The extent of the impact of the COVID-19 pandemic on our future operational and financial performance will depend on future developments, all of which are uncertain and cannot be predicted, However, based on our current business forecast for 2020, including revenue and earnings prospects and other cost management actions taken in response to market conditions, we anticipate that our cash and cash equivalents on hand, existing borrowing capacity under our senior secured credit facility, and future cash flows from operations will provide sufficient funds to enable us to meet our debt repayment obligations, fund ongoing operating needs, facilitate our ability to pay any future dividends we declare, fund acquisitions or strategic investments that facilitate the long-term growth and sustainability of our business, and fund essential capital expenditures during 2020. For additional information regarding the current impact and potential risks related to the COVID-19 pandemic, see *COVID-19 Pandemic Response and Impact* above and Item 1A. *Risk Factors* of Part II of this Quarterly Report.

Cash Requirements

Our available commitments and cash and cash equivalents at March 31, 2020 were as follows (in thousands):

		March 31, 2020
Total capacity available for revolving loans and letters of credit	$	2,135,000
Less:		
Borrowings of revolving loans under our senior secured credit facility		410,052
Letters of credit outstanding under our senior secured credit facility		373,900
Available commitments under senior secured credit facility for issuing revolving loans or new letters of credit		1,351,048
Plus:		
Cash and cash equivalents		377,205
Total available commitments under senior secured credit facility and cash and cash equivalents	$	1,728,253

We also had borrowings of term loans under our senior secured credit facility of $1.23 billion as of March 31, 2020, and we are required to make quarterly principal payments of $16.1 million on these loans.

Our industry is capital intensive, and we expect substantial capital expenditures and commitments under equipment lease and rental arrangements to be needed into the foreseeable future in order to meet anticipated demand for our services. We have adjusted our expected capital expenditures for the year ended December 31, 2020 down to approximately $250 million, a $50 million reduction from our prior expectations. We also continue to evaluate opportunities for stock repurchases under our authorized stock repurchase programs.

Refer to *Contractual Obligations* below for a summary of our future contractual obligations as of March 31, 2020 and *Off-Balance Sheet Transactions* and *Contingencies* below for a description of certain contingent obligations. Although some of these contingent obligations could require the use of cash in future periods, they are excluded from the Contractual Obligations table because we are unable to accurately predict the timing and amount of any such obligations as of March 31, 2020.

Sources and Uses of Cash

In summary, our cash flows for each period were as follows (in thousands):

	Three Months Ended March 31,			
		2020		2019
Net cash provided by (used in) operating activities	$	227,549	$	(82,750)
Net cash used in investing activities	$	(89,133)	$	(147,156)
Net cash provided by financing activities	$	73,926	$	236,260

Operating Activities

Cash flow from operating activities is primarily influenced by demand for our services and operating margins but is also influenced by working capital needs associated with the various types of services that we provide. Our working capital needs may increase when we commence large volumes of work under circumstances where project costs, primarily labor, equipment and subcontractors, are required to be paid before the associated receivables are billed and collected. Accordingly, changes within working capital in accounts receivable, contract assets and contract liabilities are normally related and are typically affected on a collective basis by changes in revenue due to the timing and volume of work performed and variability in the timing of customer billings and payments. Additionally, working capital needs are generally higher during the summer and fall months due to increased demand for our services when favorable weather conditions exist in many of our operating regions. Conversely, working capital assets are typically converted to cash during the winter months. These seasonal trends can be offset by changes in project timing due to delays or accelerations and other economic factors that may affect customer spending.

Net cash provided by operating activities during the three months ended March 31, 2020 was favorably impacted by a decrease in working capital requirements as compared to the three months ended March 31, 2019 and the receipt of $82.0 million of insurance proceeds associated with the settlement of two pipeline project claims in the fourth quarter of 2019. Days sales outstanding (DSO) represents the average number of days it takes revenues to be converted into cash, which management believes is an important metric for assessing liquidity. A decrease in DSO has a favorable impact on cash flow from operating activities, while an increase in DSO has a negative impact on cash flow from operating activities. DSO is calculated by using the sum of current accounts receivable, net of allowance (which includes retainage and unbilled balances), plus contract assets less contract liabilities, divided by average revenues per day during the quarter. DSO at March 31, 2020 was 85 days, as compared to 88 days at March 31, 2019. The decrease in DSO was primarily due to the collection of a large retainage balance outstanding at March 31, 2019 associated with a larger electric transmission project completed in the three months ended March 31, 2019.

Investing Activities

Net cash used in investing activities in the three months ended March 31, 2020 included $68.1 million of capital expenditures and $22.8 million used for acquisitions. These items were partially offset by $4.8 million of proceeds from the sale of property and equipment. Net cash used in investing activities in the three months ended March 31, 2019 included $68.6 million of capital expenditures, $51.6 million used for acquisitions and $37.8 million of cash paid for investments in unconsolidated affiliates and other entities. These items were partially offset by $10.8 million of proceeds from the sale of property and equipment.

Our industry is capital intensive, and we expect substantial capital expenditures and commitments under equipment lease and rental arrangements to be needed into the foreseeable future. We also have various contractual obligations related to investments in unconsolidated affiliates and other capital commitments that are detailed in *Contractual Obligations* below. In addition, we expect to continue to pursue strategic acquisitions and investments, although we cannot predict the timing or amount of the cash needed for these initiatives.

Financing Activities

Net cash provided by financing activities in the three months ended March 31, 2020 included $303.4 million of net borrowings under our senior secured credit facility, partially offset by $200.0 million of payments for common stock repurchases, $15.9 million of payments to satisfy tax withholding obligations associated with share-based compensation and $7.4 million of cash dividends and dividend equivalents. Due to the volatile capital market conditions during March 2020, as a precautionary measure we borrowed $250 million under our senior secured credit facility, which was included in our $377.2 million cash balance as of March 31, 2020. In April 2020, we repaid this amount and resumed routine funding of daily cash requirements. Net cash provided by financing activities in the three months ended March 31, 2019 included $299.6 million of net borrowings under our senior secured credit facility, partially offset by $23.2 million of net repayments of short-term debt borrowings, $19.9 million of payments for common stock repurchases and $13.7 million of payments to satisfy tax withholding obligations associated with share-based compensation.

Contingent Consideration Liabilities

Certain of our acquisitions include the potential payment of contingent consideration, payable in the event certain performance objectives are achieved by the acquired businesses during designated post-acquisition periods. The majority of these contingent consideration liabilities are subject to a maximum outstanding payment amount, which totaled $162.5 million as of March 31, 2020. This maximum amount primarily consists of $100.0 million related to the 2017 acquisition of Stronghold, Ltd. and Stronghold Specialty, Ltd., payable based on performance over a three-year post-acquisition period. The aggregate fair value of all of our contingent consideration liabilities was $88.0 million as of March 31, 2020, of which $80.9 million is included in "Accounts payable and accrued expenses" and $7.1 million is included in "Insurance and other non-current liabilities." The significant majority of these liabilities would be paid at least 70% to 85% in cash. Cash payments for these liabilities up to the amount recognized at the respective acquisition dates, including measurement-period adjustments, will be classified as financing activities in our consolidated statements of cash flows. Any cash payments in excess of the amount of contingent consideration liabilities recognized at the respective acquisition dates will be classified as operating activities in our consolidated statements of cash flows. Additionally, we settled certain contingent consideration liabilities during the three months ended March 31, 2020 with a cash payment of $1.0 million and the issuance of 4,277 shares of Quanta common stock. The cash payment was classified as a financing activity in our condensed consolidated statement of cash flows. We also made a $10.0 million interim cash payment in April 2020 to partially settle certain other contingent consideration liabilities, and such payment will be classified as a financing activity in our condensed consolidated statements of cash flows for the three and six months ended June 30, 2020.

Stock Repurchases

We repurchased the following shares of common stock in the open market under our stock repurchase programs (in thousands):

Quarter ended:	**Shares**		**Amount**
March 31, 2020	5,960	$	200,000
December 31, 2019	—	$	—
September 30, 2019	—	$	—
June 30, 2019	—	$	—
March 31, 2019	376	$	11,953

Our policy is to record a stock repurchase as of the trade date; however, the payment of cash related to a repurchase is made on the settlement date of the trade. During the three months ended March 31, 2020 and 2019, cash payments related to stock repurchases were$200.0 million and $19.9 million.

As of March 31, 2020, $86.8 million remained authorized under our existing repurchase program, which authorizes us to repurchase outstanding common stock from time to time through June 30, 2021 (the 2018 Repurchase Program). Repurchases under the 2018 Repurchase Program may be implemented through open market or privately negotiated transactions, at management's discretion, based on market and business conditions, applicable contractual and legal requirements, including restrictions under our senior secured credit facility, and other factors. We are not obligated to acquire any specific amount of common stock and the 2018 Repurchase Program may be modified or terminated by our Board of Directors at any time at its sole discretion and without notice. For additional detail about our stock repurchases, refer to Note 9 of the Notes to Condensed Consolidated Financial Statements in Item 1. *Financial Statements*.

Dividends

We declared the following cash dividends and cash dividend equivalents during 2019 and the first three months of 2020 (in thousands, except per share amounts):

Declaration Date	Record Date	Payment Date	Dividend Per Share	Dividends Declared
March 26, 2020	April 6, 2020	April 15, 2020	$ 0.05	$ 7,184
December 11, 2019	January 2, 2020	January 16, 2020	$ 0.05	$ 7,371
August 28, 2019	October 1, 2019	October 15, 2019	$ 0.04	$ 5,564
May 24, 2019	July 1, 2019	July 15, 2019	$ 0.04	$ 6,233
March 21, 2019	April 5, 2019	April 19, 2019	$ 0.04	$ 5,896

A significant majority of dividends declared were paid on the corresponding payment dates. Holders of restricted stock units (RSUs) awarded under the Quanta Services, Inc. 2011 Omnibus Equity Incentive Plan (the 2011 Plan) generally received cash dividend equivalent payments equal to the cash dividend payable on account of the underlying Quanta common stock. Holders of exchangeable shares of certain Canadian subsidiaries of Quanta received a cash dividend per exchangeable share equal to the cash dividend per share paid to Quanta common stockholders. Holders of RSUs awarded under the Quanta Services, Inc. 2019 Omnibus Equity Incentive Plan (the 2019 Plan) and holders of unearned and unvested performance stock units (PSUs) awarded under the 2011 Plan and the 2019 Plan receive cash dividend equivalent payments only to the extent such RSUs and PSUs become earned and/or vest. Additionally, cash dividend equivalent payments related to certain stock-based awards that have been deferred pursuant to the terms of a deferred compensation plan maintained by us are recorded as liabilities in such plans until the deferred awards are settled.

The declaration, payment and amount of future cash dividends will be at the discretion of Quanta's Board of Directors after taking into account various factors, including Quanta's financial condition, results of operations, cash flows from operations; current and anticipated capital requirements and expansion plans; the current and potential impact of the COVID-19 pandemic and other market, industry, economic and political conditions; income tax laws then in effect; and the requirements of Delaware law. In addition, as discussed below, Quanta's credit agreement restricts the payment of cash dividends unless certain conditions are met.

Debt Instruments

Senior Secured Credit Facility

We have a credit agreement with various lenders that provides for (i) a $2.14 billion revolving credit facility and (ii) a term loan facility with term loans in the aggregate initial principal amount of $1.29 billion. In addition, subject to the conditions specified in the credit agreement, we have the option to increase the capacity of the credit facility, in the form of an increase in the revolving credit facility, incremental term loans or a combination thereof, from time to time, upon receipt of additional commitments from new or existing lenders by up to an additional (i) $400.0 million plus (ii) additional amounts so long as the Incremental Leverage Ratio Requirement (as defined in the credit agreement) is satisfied at the time of such increase. The Incremental Leverage Ratio Requirement requires, among other things, after giving pro forma effect to such increase and the use of proceeds therefrom, compliance with the credit agreement's financial covenants as of the most recent fiscal quarter end for which financial statements were required to be delivered and that our Consolidated Leverage Ratio (as defined below) does not exceed 2.5 to 1.0, subject to the conditions specified in the credit agreement.

Borrowings under the credit agreement are to be used to refinance existing indebtedness and for working capital, capital expenditures, acquisitions and other general corporate purposes. The maturity date for both the revolving credit facility and the term loan facility is October 31, 2022; however, we may voluntarily prepay the term loans from time to time in whole or in part, without premium or penalty. We are required to make quarterly principal payments of $16.1 million on the term loan facility. During the three months ended March 31, 2020 and March 31, 2019, our weighted average interest rates associated with our senior secured credit facility were3.11% and 3.92%.

We borrowed $600.0 million under the term loan facility in October 2018 and borrowed an additional$687.5 million under the term loan facility in September 2019 and used the majority of such proceeds to repay outstanding revolving loans under the credit agreement. As of March 31, 2020, we had $1.64 billion of borrowings outstanding under the credit agreement, which included $1.23 billion borrowed under the term loan facility and $410.1 million of outstanding revolving loans. We also had $373.9 million of letters of credit issued under our revolving credit facility as of such date. As of March 31, 2020, the remaining $1.35 billion of available commitments under the revolving credit facility was available for additional revolving loans or letters of credit in U.S. dollars and certain alternative currencies.

The credit agreement contains certain covenants, including (i) a maximum Consolidated Leverage Ratio of 3.0 to 1.0 (except that in connection with certain permitted acquisitions in excess of $200.0 million, such ratio is 3.5 to 1.0 for the fiscal quarter in which the acquisition is completed and the two subsequent fiscal quarters) and (ii) a minimum Consolidated Interest Coverage Ratio of 3.0 to 1.0. As of March 31, 2020, we were in compliance with all of the financial covenants under the credit agreement. Consolidated Leverage Ratio is the ratio of our Consolidated Funded Indebtedness to Consolidated EBITDA (as those terms are defined in the credit agreement). For purposes of calculating our Consolidated Leverage Ratio, Consolidated Funded Indebtedness is reduced by available cash and Cash Equivalents (as defined in the credit agreement) in excess of $25.0 million. Consolidated Interest Coverage Ratio is the ratio of (i) Consolidated EBIT (as defined in the credit agreement) for the four fiscal quarters most recently ended to (ii) Consolidated Interest Expense (as defined in the credit agreement) for such period (excluding all interest expense attributable to capitalized loan costs and the amount of fees paid in connection with the issuance of letters of credit on our behalf during such period).

The credit agreement provides for customary events of default and generally contains cross-default provisions with other debt instruments exceeding$150.0 million in borrowings or availability. Additionally, subject to certain exceptions, (i) all borrowings are secured by substantially all the assets of Quanta and its wholly-owned U.S. subsidiaries and by a pledge of all of the capital stock of Quanta's wholly-owned U.S. subsidiaries and 65% of the capital stock of direct foreign subsidiaries of Quanta's wholly-owned U.S. subsidiaries and (ii) Quanta's wholly-owned U.S. subsidiaries guarantee the repayment of all amounts due under the credit agreement. The credit agreement also limits certain acquisitions, mergers and consolidations, indebtedness, asset sales and prepayments of indebtedness and, subject to certain exceptions, prohibits liens on our assets. The credit agreement allows cash payments for dividends and stock repurchases subject to compliance with the following requirements (including after giving effect to the dividend or stock repurchase): (i) no default or event of default under the credit agreement; (ii) continued compliance with the financial covenants in the credit agreement; and (iii) at least $100.0 million of availability under the revolving credit facility and/or cash and cash equivalents on hand.

To address the transition in financial markets away from the London Interest Bank Offered Rate (LIBOR) by the end of 2021, our senior secured credit facility agreement includes provisions related to the replacement of LIBOR with a LIBOR Successor Rate (as defined in the credit agreement for such facility). If no LIBOR Successor Rate has been determined at the time certain circumstances are present, the lenders' obligation to make or maintain loans based on a Eurocurrency rate could be suspended, and loans in U.S. dollars would default to the Base Rate (as described in *Senior Secured Credit Facility* within Note 7 of the Notes to Consolidated Financial Statements in Item 1. *Financial Statements*) rather than a rate using the Eurocurrency Rate. Changing to an alternative interest rate or to the Base Rate may lead to additional volatility in interest rates and could cause our debt service obligations to increase significantly.

Contractual Obligations and Contingencies

The following table summarizes our future contractual obligations as of March 31, 2020, excluding certain amounts discussed below (in thousands):

	Total	Remainder of 2020	2021	2022	2023	2024	Thereafter
Long-term debt - principal (1)	$ 1,657,873	$ 53,449	$ 68,317	$ 1,526,649	$ 3,941	$ 3,941	$ 1,576
Long-term debt - cash interest (2)	2,615	832	668	516	364	212	23
Short-term debt (3)	3,378	3,378	—	—	—	—	—
Operating lease obligations (4)	320,938	78,839	82,423	57,924	39,031	22,252	40,469
Operating lease obligations that have not yet commenced (5)	6,040	442	1,077	1,014	973	1,000	1,534
Finance lease obligations (6)	1,602	432	495	307	240	120	8
Short-term lease obligations (7)	27,563	26,177	1,386	—	—	—	—
Equipment purchase commitments (8)	42,347	42,347	—	—	—	—	—
Capital commitment related to investments in unconsolidated affiliates (9)	2,628	2,628	—	—	—	—	—
Total contractual obligations	$ 2,064,984	$ 208,524	$ 154,366	$ 1,586,410	$ 44,549	$ 27,525	$ 43,610

(1) We had $1.64 billion of outstanding borrowings under our senior secured credit facility, which included $1.23 billion borrowed under the term loan facility and $410.1 million of outstanding revolving loans, both of which bear interest at variable market rates. Assuming the principal amount outstanding at March 31, 2020 remained outstanding and the interest rate in effect at March 31, 2020 remained the same, the annual cash interest expense would be approximately $34.6 million, payable until October 31, 2022, the maturity date of the facility. Additionally, in connection with the term loan facility, we are required to make quarterly principal payments of $16.1 million and pay the remaining balance on the maturity date for the facility.

(2) Amount represents cash interest expense on our fixed-rate long-term debt, which excludes our senior secured credit facility.

(3) Amount represents short-term borrowings recorded on our March 31, 2020 condensed consolidated balance sheet.

(4) Amounts represent undiscounted operating lease obligations at March 31, 2020. The operating lease obligations recorded on our March 31, 2020 condensed consolidated balance sheet represent the present value of these amounts.

(5) Amounts represent undiscounted operating leases obligations that have not commenced as of March 31, 2020. The operating leases obligations will be recorded on our March 31, 2020 condensed consolidated balance sheet beginning on the commencement date of each lease.

(6) Amounts represent undiscounted finance lease obligations at March 31, 2020. The finance lease obligations recorded on our March 31, 2020 condensed consolidated balance sheet represent the present value of these amounts.

(7) Amounts represent short-term lease obligations that are not recorded on our March 31, 2020 condensed consolidated balance sheet due to our accounting policy election. Month-to-month rental expense associated primarily with certain equipment rentals is excluded from these amounts because we are unable to accurately predict future rental amounts.

(8) Amount represents capital committed for the expansion of our vehicle fleet. Although we have committed to the purchase of these vehicles at the time of their delivery, we expect that these orders will be assigned to third-party leasing companies and made available to us under certain of our master equipment lease agreements.

(9) Amount represents outstanding capital commitments associated with investments in unconsolidated affiliates. As of March 31, 2020, we had outstanding capital commitments associated with investments in unconsolidated affiliates.

As discussed below and in Notes 2 and 11 of the Notes to Condensed Consolidated Financial Statements in Item 1. *Financial Statements*, we have various contingencies and commitments that may require the use of cash in future periods. The Contractual Obligations table excludes the contingencies described below, as we are unable to accurately predict the timing and amount of any of the following contingent obligations.

Concentrations of Credit Risk

We are subject to concentrations of credit risk related primarily to our cash and cash equivalents and our net receivable position with customers, which includes amounts related to billed and unbilled accounts receivable and contract assets net of advanced billings with the same customer. Substantially all of our cash and cash equivalents are managed by what we believe to be high credit quality financial institutions. In accordance with our investment policies, these institutions are authorized to invest cash and cash equivalents in a diversified portfolio of what we believe to be high quality cash and cash equivalent investments, which consist primarily of interest-bearing demand deposits, money market investments and money market mutual funds. Although we do not currently believe the principal amount of these cash and cash equivalents is subject to any material risk of loss, changes in economic conditions could impact the interest income we receive from these investments. In addition, we grant credit under normal payment terms, generally without collateral, to our customers, which include electric power and energy companies, governmental entities, general contractors, and builders, owners and managers of commercial and industrial properties located primarily in the United States, Canada and Australia. While we generally have certain statutory lien rights with respect to services provided, we are subject to potential credit risk related to business, economic and financial market conditions that affect these customers and locations, which has been heightened as a result of the unfavorable and uncertain economic and financial market conditions resulting from the ongoing COVID-19 pandemic and the significant decline in commodity prices and volatility in commodity production volumes. Some of our customers have experienced significant financial difficulties (including bankruptcy), and customers may experience financial difficulties in the future. These difficulties expose us to increased risk related to collectability of billed and unbilled receivables and contract assets for services we have performed.

For example, on January 29, 2019, PG&E Corporation and its primary operating subsidiary, Pacific Gas and Electric Company (collectively PG&E), one of our largest customers, filed for bankruptcy protection under Chapter 11 of the U.S. Bankruptcy Code, as amended. We are monitoring the bankruptcy proceeding and evaluating the treatment of, and potential claims related to, our pre-petition receivables. As of the bankruptcy filing date, we had $165 million of billed and unbilled receivables. Subsequent to the bankruptcy filing, the bankruptcy court approved the assumption by PG&E of certain contracts with our subsidiaries, pursuant to which PG&E paid $124 million of our pre-petition receivables as of March 31, 2020. We also sold $36 million of our pre-petition receivables to a third party in 2019 in exchange for cash consideration of $34 million, subject to certain claim disallowance provisions, the occurrence of which could result in our obligation to repurchase some or all of the pre-petition receivables sold. We expect the remaining $5 million of pre-petition receivables to be sold or ultimately collected in the bankruptcy proceeding. However, the ultimate outcome of the bankruptcy proceeding is uncertain, and our belief regarding any future sale or collection of the remaining receivables is based on a number of assumptions that are potentially subject to change as the proceeding progresses. Should any of these assumptions change, the amount collected could be less than the amount of the remaining receivables. Additionally, we are continuing to perform services for PG&E while the bankruptcy case is ongoing and believe that amounts billed for post-petition services will continue to be collected in the ordinary course of business.

At March 31, 2020 and December 31, 2019, no customer represented 10% or more of our consolidated net receivable position. No customer represented 10% or more of our consolidated revenues for the three months ended March 31, 2020 and 2019.

Legal Proceedings

We are from time to time party to various lawsuits, claims and other legal proceedings that arise in the ordinary course of business. These actions typically seek, among other things, compensation for alleged personal injury, breach of contract, negligence or gross negligence and/or property damages, wage and hour claims and other employment-related damages, punitive and consequential damages, civil penalties or other losses, or injunctive or declaratory relief. With respect to all such lawsuits, claims and proceedings, we record a reserve when it is probable that a loss has been incurred and the amount of loss can be reasonably estimated. In addition, we disclose matters for which management believes a material loss is at least reasonably possible. See Note 11 of the Notes to Condensed Consolidated Financial Statements in Item 1. *Financial Statements* for additional information regarding litigation, claims and other legal proceedings.

Multiemployer Pension Plans

Certain of our operating units are parties to collective bargaining agreements with unions that represent certain of their employees, which require the operating units to pay specified wages, provide certain benefits to union employees and contribute certain amounts to multiemployer pension plans and employee benefit trusts. Our multiemployer pension plan contribution rates generally are made to the plans on a “pay-as-you-go” basis based on our union employee payrolls. The location and number of union employees that we employ at any given time and the plans in which they may participate vary depending on our need for union resources in connection with our ongoing projects. Therefore, we are unable to accurately predict our union employee payroll and the resulting multiemployer pension plan contribution obligations for future periods.

We may also be required to make additional contributions to our multiemployer pension plans if they become underfunded, and these additional contributions will be determined based on our union employee payrolls. Special funding and operational rules are generally applicable to certain of these multiemployer plans that are classified as “endangered,” “seriously endangered” or “critical” status based on multiple factors. The amount, if any, that we may be obligated to contribute to these plans cannot be reasonably estimated and is not included in the above table due to uncertainty regarding the amount of future work involving covered union employees, future contribution levels and possible surcharges on plan contributions.

Furthermore, we may be subject to additional liabilities imposed by law as a result of our participation in multiemployer defined benefit pension plans, including in connection with a withdrawal or deemed withdrawal from a plan or a plan being terminated or experiencing a mass withdrawal. These liabilities include an allocable share of the unfunded vested benefits in the plan for all plan participants, not merely the benefits payable to a contributing employer's own retirees. As a result, participating employers may bear a higher proportion of liability for unfunded vested benefits if other participating employers cease to contribute or withdraw, with the reallocation of liability being more acute in cases when a withdrawn employer is insolvent or otherwise fails to pay its withdrawal liability. We are not currently aware of any material withdrawal liabilities that have been incurred or asserted and that remain outstanding. However, our future contribution obligations and potential withdrawal liability exposure could vary based on the investment and actuarial performance of the multiemployer pension plans to which we contribute and other factors, which could be negatively impacted as a result of the unfavorable and uncertain economic and financial market conditions resulting from the ongoing COVID-19 pandemic and related issues. We have been subject to significant withdrawal liabilities in the past, including in connection with our withdrawal from the Central States, Southeast and Southwest Areas Pension Plan. To the extent we are subject to material withdrawal liabilities in the future, such liability could adversely affect our business, financial condition, results of operations or cash flows.

Performance Bonds and Parent Guarantees

Many customers, particularly in connection with new construction, require us to post performance and payment bonds. These bonds provide a guarantee that we will perform under the terms of a contract and pay our subcontractors and vendors. If we fail to perform, the customer may demand that the surety make payments or provide services under the bond, and we must reimburse the surety for any expenses or outlays it incurs. Under our underwriting, continuing indemnity and security agreement with our sureties, we have granted security interests in certain of our assets as collateral for our obligations to the sureties. We may be required to post letters of credit or other collateral in favor of the sureties or our customers in the future, which would reduce the borrowing availability under our senior secured credit facility. We have not been required to make any material reimbursements to our sureties for bond-related costs except in connection with the exercise of approximately $112.0 million of advance payment and performance bonds related to the terminated telecommunications project in Peru, which is described further in *Legal Proceedings - Peru Project Dispute* in Note 11 of the Notes to Condensed Consolidated Financial Statements in Item 1. *Financial Statements*. To the extent further reimbursements are required, the amounts could be material and could adversely affect our consolidated business, financial condition, results of operations or cash flows. As of March 31, 2020, we are not aware of any outstanding material obligations for payments related to bond obligations.

Performance bonds expire at various times ranging from mechanical completion of a project to a period extending beyond contract completion in certain circumstances, and as such a determination of maximum potential amounts outstanding requires the use of certain estimates and assumptions. Such amounts can also fluctuate from period to period based upon the mix and level of our bonded operating activity. As of March 31, 2020, the total amount of the outstanding performance bonds was estimated to be approximately $2.8 billion. Our estimated maximum exposure as it relates to the value of the performance bonds outstanding is lowered on each bonded project as the cost to complete is reduced, and each commitment under a performance bond generally extinguishes concurrently with the expiration of our related contractual obligation. The estimated cost to complete these bonded projects was approximately $1.0 billion as of March 31, 2020.

Additionally, from time to time, we guarantee certain obligations and liabilities of our subsidiaries that may arise in connection with, among other things, contracts with customers, equipment lease obligations, joint venture arrangements and contractor licenses. These guarantees may cover all of the subsidiary's unperformed, undischarged and unreleased obligations and liabilities under or in connection with the relevant agreement. For example, with respect to customer contracts, a guarantee may cover a variety of obligations and liabilities arising during the ordinary course of the subsidiary's business or operations, including, among other things, warranty and breach of contract claims, third-party and environmental liabilities arising from the subsidiary's work and for which it is responsible, liquidated damages, or indemnity claims. We are not aware of any claims under any of these guarantees that are material, except as set forth in *Legal Proceedings - Maurepas Project Dispute* within Note 11 of the Notes to Condensed Consolidated Financial Statements in Item 1. *Financial Statements*. To the extent a subsidiary incurs a material obligation or liability and we have guaranteed the performance or payment of such liability, the recovery by a customer or other counterparty or a third party will not be limited to the assets of the subsidiary. As a result, responsibility under a guarantee could adversely affect our consolidated business, financial condition, results of operations and cash flows.

Insurance

Insurance Coverage. Losses under our insurance programs are accrued based upon our estimate of the ultimate liability for claims reported and an estimate of claims incurred but not reported, with assistance from third-party actuaries. These insurance liabilities are difficult to assess and estimate due to unknown factors, including the severity of an injury, the extent of damage, the determination of our liability in proportion to other parties and the number of incidents not reported. The accruals are based upon known facts and historical trends, and management believes such accruals are adequate. As of March 31, 2020 and December 31, 2019, the gross amount accrued for insurance claims totaled $294.8 million and $287.6 million, with $217.7 million and $212.9 million considered to be long-term and included in "Insurance and other non-current liabilities." Related insurance recoveries/receivables as of March 31, 2020 and December 31, 2019 were $31.7 million and $35.1 million, of which $0.3 million and $0.3 million are included in "Prepaid expenses and other current assets" and $31.4 million and $34.8 million are included in "Other assets, net."

We renew our insurance policies on an annual basis, and therefore deductibles and levels of insurance coverage may change in future periods. In addition, insurers may cancel our coverage or determine to exclude certain items from coverage, or we may elect not to obtain certain types or incremental levels of insurance based on the potential benefits considered relative to the cost of such insurance, or coverage may not be available at reasonable and competitive rates. In any such event, our overall risk exposure would increase, which could negatively affect our results of operations, financial condition and cash flows. For example, due to the increased occurrence and future risk of wildfires in California and other areas in the western United States, Australia and other locations, insurers have reduced coverage availability and increased the cost of insurance coverage for such events in recent years. As a result, our level of insurance coverage for wildfire events decreased, including in connection with our annual insurance renewals in the spring of 2020 and 2019, and our levels of coverage may not be sufficient to cover potential losses. Our third-party insurers could also decide to further reduce or exclude coverage for wildfires or other events in the future.

Hallen Acquisition Assumed Liability. As discussed in further detail in *Legal Proceedings* within Note 11 of the Notes to Condensed Consolidated Financial Statements in Item 1. *Financial Statements*, we assumed certain contingent liabilities in connection with the acquisition of Hallen. Hallen's liabilities associated with this matter are expected to be covered under applicable insurance policies or contractual remedies negotiated by us with the former owners of Hallen. As of March 31, 2020, we had not recorded an accrual for any probable and estimable loss related to this matter. However, the ultimate amount of liability in connection with this matter remains subject to uncertainties associated with pending litigation, including, among other things, the apportionment of liability among the defendants and the likelihood and amount of potential damages claims. As a result, this matter could result in a loss that is in excess of, or not covered by, such insurance or contractual remedies, which could have a material adverse effect on our consolidated results of operations and cash flows.

Contingent Consideration Liabilities

The liabilities recorded represent the estimated fair values of future amounts payable to the former owners of the acquired businesses and are estimated by management based on entity-specific assumptions that are evaluated on an ongoing basis. Because acquisition-related contingent consideration liabilities are contingent upon future events, we include these liabilities in the contractual obligations table when the contingencies are resolved. We expect a significant portion of these liabilities to be settled by late 2020 or early 2021.

Aggregate fair values of these outstanding and unearned contingent consideration liabilities and their classification in the Consolidated Balance Sheets in Item 1. *Financial Statements* were as follows (in thousands):

	March 31, 2020	December 31, 2019
Accounts payable and accrued expenses	$ 80,947	$ 77,618
Insurance and other non-current liabilities	7,060	6,542
Total contingent consideration liabilities	$ 88,007	$ 84,160

The fair values of these liabilities were primarily determined using a Monte Carlo simulation valuation methodology based on probability-weighted performance projections and other inputs, including a discount rate and an expected volatility factor for each acquisition. The expected volatility factor ranged from 20.4% to 30.0% and had a weighted average of 22.6% based on historical asset volatility of selected guideline public companies. Depending on contingent consideration payment terms, the present values of the estimated payments are discounted based on a risk-free rate and/or our cost of debt, ranging from 1.6% to 3.9% and had a weighted average of 2.3%. The fair value determinations incorporate significant inputs not observable in the market. Accordingly, the level of inputs used for these fair value measurements is the lowest level (Level 3), as further described in Note 2 of the Notes to Condensed Consolidated Financial Statements in Item 1. *Financial Statements*. Significant changes in any of these assumptions could result in a significantly higher or lower potential liability.

The majority of our contingent consideration liabilities are subject to a maximum outstanding payment amount, which aggregated to $162.5 million as of March 31, 2020. One contingent consideration liability is not subject to a maximum payment amount, and such liability had a fair value of $1.0 million as of March 31, 2020.

Our aggregate contingent consideration liabilities can change due to additional business acquisitions, settlement of outstanding liabilities, changes in the fair value of amounts owed based on performance in post-acquisition periods and accretion in present value. During the three months ended March 31, 2020, we recognized a net increase of the fair value of our aggregate contingent consideration liabilities of $2.8 million. During the three months ended March 31, 2019 we recognized a net decrease in the fair value of our aggregate contingent consideration liabilities of $0.1 million. These changes are reflected in "Change in fair value of contingent consideration liabilities" in our consolidated statements of operations. Additionally, we settled certain contingent consideration liabilities during the three months ended March 31, 2020 with a cash payment of $1.0 million and issuance of 4,277 shares of Quanta common stock. We also made a $10.0 million interim cash payment in April 2020 to partially settle certain other contingent consideration liabilities, and such payment will be classified as a financing activity in our condensed consolidated statements of cash flows for the three and six months ended June 30, 2020.

Undistributed Earnings of Foreign Subsidiaries and Unrecognized Tax Benefits

We generally do not provide for taxes related to undistributed earnings of our foreign subsidiaries because such earnings either would not be taxable when remitted or they are considered to be indefinitely reinvested. We could also be subject to additional foreign withholding taxes if we were to repatriate cash that is indefinitely reinvested outside the United States, but we do not expect such amounts to be material.

Quanta and certain subsidiaries remain under examination by various U.S. state, Canadian and other foreign tax authorities for multiple periods. We believe it is reasonably possible that within the next 12 months unrecognized tax benefits may decrease by up to $6.8 million as a result of settlement of these examinations or the expiration of certain statute of limitations periods.

Letters of Credit Fees and Commitment Fees

The Contractual Obligations table excludes letters of credit and commitment fees under our senior secured credit facility because the amount of outstanding letters of credit, availability and applicable fees are all variable. Assuming that the amount of letters of credit outstanding and the fees as of March 31, 2020 remained the same, the annual cash expense for our letters of credit would be approximately $4.5 million. For additional information regarding our letters of credit and the associated fees and our borrowings under our senior secured credit facility, see *Liquidity and Capital Resources — Debt Instruments* above.

Off-Balance Sheet Transactions

As is common in our industry, we have entered into certain off-balance sheet arrangements in the ordinary course of business that result in risks not directly reflected in our balance sheets. Our significant off-balance sheet transactions include certain obligations relating to our investments and joint venture arrangements; short-term, non-cancelable leases; letters of credit obligations; surety guarantees related to performance bonds; committed expenditures for the purchase of equipment; and certain multiemployer pension plan liabilities. See *Contractual Obligations* above and Note 11 of the Notes to Condensed Consolidated Financial Statements in Item 1.*Financial Statements* for a description of these arrangements.

Critical Accounting Estimates and Policies Update

The discussion and analysis of our financial condition and results of operations are based on our condensed consolidated financial statements, which have been prepared in accordance with GAAP. The preparation of these condensed consolidated financial statements requires us to make estimates and assumptions that affect the reported amounts of assets and liabilities, disclosures of contingent assets and liabilities known to exist as of the date the condensed consolidated financial statements are published and the reported amounts of revenues and expenses recognized during the periods presented. We review all significant estimates affecting our condensed consolidated financial statements on a recurring basis and record the effect of any necessary adjustments prior to their publication. Judgments and estimates are based on our beliefs and assumptions derived from information available at the time such judgments and estimates are made. Uncertainties with respect to such estimates and assumptions are inherent in the preparation of financial statements. There can be no assurance that actual results will not differ from those estimates. Management has reviewed its development and selection of critical accounting estimates with the audit committee of our Board of Directors. Our accounting policies are primarily described in Note 2 of the Notes to Condensed Consolidated Financial Statements in Item 1. *Financial Statements* and should be read in conjunction with our critical accounting estimates detailed in Item 7. *Management's Discussion and Analysis of Financial Condition and Results of Operations* in Part II of our 2019 Annual Report. Significant changes to our critical accounting policies as a result of adopting new guidance related to credit losses effective January 1, 2020 are referenced below:

Revenue Recognition **-** See *Current and Long-Term Accounts Receivable, Notes Receivable and Allowance for Credit Losses* in Note 2 of the Notes to Condensed Consolidated Financial Statements in Item 1. *Financial Statements* of Part I of this Quarterly Report for information on the new accounting standard related to current expected credit losses.

Uncertainty of Forward-Looking Statements and Information

This Quarterly Report includes “forward-looking statements” reflecting assumptions, expectations, projections, intentions or beliefs about future events that are intended to qualify for the “safe harbor” from liability established by the Private Securities Litigation Reform Act of 1995. You can identify these statements by the fact that they do not relate strictly to historical or current facts. They use words such as “anticipate,” “estimate,” “project,” “forecast,” “may,” “will,” “should,” “could,” “expect,” “believe,” “plan,” “intend” and other words of similar meaning. In particular, these include, but are not limited to, statements relating to the following:

- Projected revenues, net income, earnings per share, margins, cash flows, liquidity, weighted average shares outstanding, capital expenditures, tax rates and other projections of operating or financial results;
- Expectations regarding our business or financial outlook and opportunities, trends or economic and regulatory conditions in particular markets or industries;
- Expectations regarding the COVID-19 pandemic, including the potential impact of the COVID-19 pandemic and of governmental responses to the pandemic on our business, operations, supply chain and personnel, financial condition, results of operations, cash flows and liquidity;
- Expectations regarding our plans and strategies, including plans, effects and other matters relating to the COVID-19 pandemic and our exit, through potential sale or otherwise, from our Latin American operations;
- The business plans or financial condition of our customers, including with respect to or as a result of the COVID-19 pandemic;
- The potential impact of the recent decrease in commodity prices and volatility in commodity production volumes on our business, financial condition, results of operations and cash flows and demand for our services;
- Beliefs and assumptions about the collectability of receivables;
- The expected value of contracts or intended contracts with customers, as well as the scope, services, term or results of any awarded or expected projects;
- The development of larger electric transmission and pipeline projects, as well as the level of oil, natural gas and natural gas liquids prices and their impact on our business or demand for our services;
- Future capital allocation initiatives, including the amount, timing and strategies with respect to any future stock repurchases, and expectations regarding the declaration, amount and timing of any future cash dividends;
- The impact of existing or potential legislation or regulation;
- Potential opportunities that may be indicated by bidding activity or similar discussions with customers;
- The future demand for and availability of labor resources in the industries we serve;
- The expected realization of remaining performance obligations or backlog;
- The potential benefits from investments or acquisitions;
- The expected outcome of pending or threatened legal proceedings; and
- Possible recovery of pending or contemplated insurance claims, change orders and claims asserted against customers or third parties.

These forward-looking statements are not guarantees of future performance, involve or rely on a number of risks, uncertainties, and assumptions that are difficult to predict or are beyond our control, and reflect management’s beliefs and assumptions based on information available at the time the statements are made. We caution you that actual outcomes and results may differ materially from what is expressed, implied or forecasted by our forward-looking statements and that any or all of our forward-looking statements may turn out to be inaccurate or incorrect. Those statements can be affected by inaccurate assumptions and by known or unknown risks and uncertainties, including the following:

- Market, industry, economic, financial or political conditions outside our control, including weakness in the capital markets or the ongoing and potential impact to financial markets and worldwide economic activity resulting from the COVID-19 pandemic and related governmental actions;

- Quarterly variations in our operating and financial results, liquidity, financial condition, cash flows, capital requirements, and reinvestment opportunities, including the ongoing and potential impact to our business, operations and supply chains resulting from the COVID-19 pandemic and related governmental actions;

- The severity, magnitude and duration of the COVID-19 pandemic, including impacts of the pandemic and of business and governmental responses to the pandemic (e.g., shelter-in-place and other mobility restrictions, business closures) on our operations, personnel and supply chains, and on commercial activity and demand across our and our customers' businesses;

- Our inability to predict the extent to which the COVID-19 pandemic and related impacts will adversely impact our business, financial performance, results of operations, financial position, the prices of our securities and the achievement of our strategic objectives, including with respect to governmental restrictions on our ability to operate, workforce and key personnel availability, regulatory and permitting delays, and future demand for energy and the resulting impact on demand for our services;

- Trends and growth opportunities in relevant markets, including our ability to obtain future project awards;

- The time and costs required to exit our Latin American operations and our ability to effect related transactions on acceptable terms, as well as the business and political climate in Latin America;

- Delays, deferrals, reductions in scope or cancellations of anticipated, pending or existing projects as a result of, among other things, the COVID-19 pandemic, weather, regulatory or permitting issues (including the recent court ruling vacating the U.S. Army Corps of Engineers' Nationwide Permit 12), environmental processes, project performance issues, claimed force majeure events, protests or other political activity, legal challenges or customer capital constraints;

- The effect of natural gas, natural gas liquids and oil prices and commodity production volumes on our operations and growth opportunities and on our customers' capital programs and demand for our services, including as a result of the recent significant decrease in commodity prices;

- The successful negotiation, execution, performance and completion of anticipated, pending and existing contracts;

- Risks associated with operational hazards that arise due to the nature of the services we provide and the conditions in which we operate, including, among others, wildfires and explosions;

- Unexpected costs, liabilities, fines or penalties that may arise from legal proceedings, indemnity obligations, reimbursement obligations associated with letters of credit or bonds, multiemployer pension plans (e.g., underfunding of liabilities, termination or withdrawal liability) or other claims or actions asserted against us, including amounts that are not covered by, or are in excess of, our third-party insurance;

- Potential unavailability or cancellation of third-party insurance coverage, as well as the exclusion of coverage for certain losses, potential increases in premiums for coverage deemed beneficial to us, or the unavailability of coverage deemed beneficial to us at reasonable and competitive rates;

- Damage to our brands or reputation arising as a result of cyber-security breaches, environmental and occupational health and safety matters, corporate scandal, failure to successfully perform a high-profile project, involvement in a catastrophic event (e.g., fire, explosion) or other negative incidents;

- Our dependence on suppliers, subcontractors, equipment manufacturers and other third-party contractors and the impact of the COVID-19 pandemic on these service providers;

- Estimates and assumptions related to our financial results, remaining performance obligations and backlog;

- Our ability to attract and the potential shortage of skilled employees and our ability to retain key personnel and qualified employees and the impact of the COVID-19 pandemic on the availability and performance of our workforce and key personnel;

- Our dependence on fixed price contracts and the potential to incur losses with respect to these contracts;

- Adverse weather conditions, natural disasters and other emergencies, including wildfires, pandemics (including the ongoing COVID-19 pandemic), hurricanes, tropical storms, floods, earthquakes and other geological- and weather-related hazards;

- Our ability to generate internal growth;

- Competition in our business, including our ability to effectively compete for new projects and market share

- The future development of natural resources;

- The failure of existing or potential legislative actions and initiatives to result in increased demand for our services;

- Fluctuations of prices of certain materials used in our and our customers' businesses, including as a result of the imposition of tariffs, governmental regulations affecting the sourcing of certain materials and equipment and other changes in U.S. trade relationships with other countries;

- Cancellation provisions within our contracts and the risk that contracts expire and are not renewed or are replaced on less favorable terms;

- Loss of customers with whom we have long-standing or significant relationships;

- The potential that participation in joint ventures or similar structures exposes us to liability and/or harm to our reputation for acts or omissions by our partners;

- Our inability or failure to comply with the terms of our contracts, which may result in additional costs, unexcused delays, warranty claims, failure to meet performance guarantees, damages or contract terminations;

- The inability or refusal of our customers or third-party contractors to pay for services, which could be attributable to, among other things, the COVID-19 pandemic or the recent decrease in commodity prices and which could include the failure to collect our outstanding receivables, failure to recover amounts billed to customers in bankruptcy, or failure to recover on change orders or contract claims;

- Budgetary or other constraints that may reduce or eliminate tax incentives or government funding for projects, which may result in project delays or cancellations;

- Our ability to successfully complete our remaining performance obligations or realize our backlog;

- Risks associated with operating in international markets, including instability of foreign governments, currency exchange fluctuations, and compliance with unfamiliar foreign legal systems and cultural practices, the U.S. Foreign Corrupt Practices Act and other applicable anti-bribery and anti-corruption laws, and complex U.S. and foreign tax regulations and international treaties;

- Our ability to successfully identify, complete, integrate and realize synergies from acquisitions, including the ability to retain key personnel from acquired businesses;

- The potential adverse impact resulting from uncertainty surrounding acquisitions and investments, including the potential increase in risks already existing in our operations and poor performance or decline in value of our investments;

- The adverse impact of impairments of goodwill, other intangible assets, receivables, long-lived assets or investments;

- Our growth outpacing our decentralized management and infrastructure;

- Inability to enforce our intellectual property rights or the obsolescence of such rights;

- The impact of our unionized workforce on our operations, including labor stoppages or interruptions due to strikes or lockouts;

- The ability to access sufficient funding to finance desired growth and operations, including our ability to access capital markets on favorable terms, as well as fluctuations in the price and volume of our common stock, debt covenant compliance, interest rate fluctuations and other factors affecting our financing and investing activities;

- Our ability to obtain performance bonds and other project security;

- Our ability to meet the regulatory requirements applicable to us and our subsidiaries, including the Sarbanes-Oxley Act of 2002 and the U.S. Investment Advisers Act of 1940;

- Rapid technological and other structural changes that could reduce the demand for our services;

- Risks related to the implementation of new information technology systems;

- New or changed tax laws, treaties or regulations;

- Our ability to realize deferred tax assets;

- Legislative or regulatory changes that result in increased costs, including with respect of labor and healthcare costs;

- Significant fluctuations in foreign currency exchange rates; and

- The other risks and uncertainties described elsewhere herein and in Item 1A. *Risk Factors* of Part II of this Quarterly Report, Item 1A. *Risk Factors* of Part I of our 2019 Annual Report and as may be detailed from time to time in our other public filings with the SEC.

All of our forward-looking statements, whether written or oral, are expressly qualified by these cautionary statements and any other cautionary statements that may accompany such forward-looking statements or that are otherwise included in this report. In addition, we do not undertake and expressly disclaim any obligation to update or revise any forward-looking statements to reflect events or circumstances after the date of this report or otherwise.

Item 3. *Quantitative and Qualitative Disclosures about Market Risk.*

The information in this section should be read in connection with the information on financial market risk related to changes in interest rates and currency exchange rates in Item 7A. *Quantitative and Qualitative Disclosures About Market Risk* of Part II of our 2019 Annual Report. Our primary exposure to market risk relates to unfavorable changes in concentration of credit risk, interest rates and currency exchange rates.

Credit Risk. We are subject to concentrations of credit risk related to our cash and cash equivalents and net receivable position with customers, which includes amounts related to billed and unbilled accounts receivable and contract assets net of advanced billings with the same customer. Substantially all of our cash and cash equivalents are managed by what we believe to be high credit quality financial institutions. In accordance with our investment policies, these institutions are authorized to invest cash and cash equivalents in a diversified portfolio of what we believe to be high-quality investments, which primarily include interest-bearing demand deposits, money market investments and money market mutual funds. Although we do not currently believe the principal amounts of these cash and cash equivalents are subject to any material risk of loss, changes in economic conditions could impact the interest income we receive from these investments.

In addition, we grant credit under normal payment terms, generally without collateral, and therefore are subject to potential credit risk related to our customers' inability to pay for services provided. For example, in January 2019 one of our largest customers, PG&E, filed for bankruptcy protection under Chapter 11 of the U.S. Bankruptcy Code, as amended. See Item 2. *Management's Discussion and Analysis of Financial Condition and Results of Operations — Concentration of Credit Risk* for additional information regarding our pre-petition receivables and this bankruptcy matter. Furthermore, the risk of nonpayment may be heightened as a result of depressed economic and financial market conditions, including in connection with the ongoing COVID-19 pandemic and the significant decline in commodity prices and volatility in commodity production volumes. We believe the concentration of credit risk related to billed and unbilled receivables and contract assets is limited because of the diversity of our customers, and we perform ongoing credit risk assessments of our customers and financial institutions and in some cases obtain collateral or other security from our customers.

Interest Rate Risk. As of March 31, 2020, we had no derivative financial instruments to manage interest rate risk. As such, we were exposed to earnings and fair value risk due to changes in interest rates with respect to our long-term obligations. As of March 31, 2020, the fair value of our variable rate debt of $1.64 billion approximated book value. Our weighted average interest rate on our variable rate debt for the three months ended March 31, 2020 was 3.11%. The annual effect on our pretax earnings of a hypothetical 50 basis point increase or decrease in variable interest rates would be approximately $8.2 million based on our March 31, 2020 balance of variable rate debt.

Foreign Currency Risk. The U.S. dollar is the functional currency for the majority of our operations, which are primarily located within the United States. The functional currency for our foreign operations, which are primarily located in Canada and Australia, is typically the currency of the country in which the foreign operating unit is located. Accordingly, our financial performance is subject to fluctuation due to changes in foreign currency exchange rates relative to the U.S. dollar. During the three months ended March 31, 2020, revenues from our foreign operations accounted for and 17.9% of our consolidated revenues. Fluctuations in foreign exchange rates during the three months ended March 31, 2020 caused a decrease of approximately $9 million in foreign revenues compared to the three months ended March 31, 2019.

We are also subject to foreign currency risk with respect to sales, purchases and borrowings that are denominated in a currency other than the respective functional currencies of our operating units. To minimize the risk from changes in foreign currency exchange rates, we may enter into foreign currency derivative contracts to hedge our foreign currency risk on a cash flow basis. There were no outstanding foreign currency derivative contracts at March 31, 2020.

We also have foreign exchange risk related to cash and cash equivalents in foreign banks. Based on the balance of cash and cash equivalents in foreign banks of $26.8 million as of March 31, 2020, an assumed 5% adverse change to foreign exchange rates would result in a fair value decline of $1.0 million.

Item 4. *Controls and Procedures.*

Attached as exhibits to this Quarterly Report on Form 10-Q are certifications of Quanta’s Chief Executive Officer and Chief Financial Officer that are required in accordance with Rule 13a-14 of the Securities Exchange Act of 1934, as amended (the Exchange Act). This item includes information concerning the controls and controls evaluation referred to in the certifications, and it should be read in conjunction with the certifications for a more complete understanding of the topics presented.

Evaluation of Disclosure Controls and Procedures

Our management has established and maintains a system of disclosure controls and procedures that are designed to provide reasonable assurance that information required to be disclosed by us in the reports that we file or submit under the Exchange Act, such as this Quarterly Report, is recorded, processed, summarized and reported within the time periods specified in the SEC rules and forms. The disclosure controls and procedures are also designed to provide reasonable assurance that such information is accumulated and communicated to our management, including our Chief Executive Officer and Chief Financial Officer, as appropriate to allow timely decisions regarding required disclosure.

As of the end of the period covered by this Quarterly Report, we evaluated the effectiveness of the design and operation of our disclosure controls and procedures pursuant to Rule 13a-15(b) of the Exchange Act. This evaluation was carried out under the supervision and with the participation of our management, including our Chief Executive Officer and Chief Financial Officer. Based on this evaluation, these officers have concluded that, as of March 31, 2020, our disclosure controls and procedures were effective to provide reasonable assurance of achieving their objectives.

Evaluation of Internal Control over Financial Reporting

No change in our internal control over financial reporting occurred during the quarter ended March 31, 2020 that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

Design and Operation of Control Systems

Our management, including the Chief Executive Officer and Chief Financial Officer, does not expect that our disclosure controls and procedures or our internal control over financial reporting will prevent or detect all errors and all fraud. A control system, no matter how well designed and operated, can provide only reasonable, not absolute, assurance that the control system’s objectives will be met. The design of a control system must reflect the fact that there are resource constraints, and the benefits of controls must be considered relative to their costs. Further, because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that misstatements due to error or fraud will not occur or that all control issues and instances of fraud, if any, within the company have been detected. These inherent limitations include the realities that judgments in decision-making can be faulty and breakdowns can occur because of simple errors or mistakes. Controls can be circumvented by the individual acts of some persons, by collusion of two or more people, or by management override of the controls. The design of any system of controls is based in part on certain assumptions about the likelihood of future events, and there can be no assurance that any design will succeed in achieving its stated goals under all potential future conditions. Over time, controls may become inadequate because of changes in conditions or deterioration in the degree of compliance with policies or procedures.

PART II — OTHER INFORMATION

Item 1. *Legal Proceedings.*

We are from time to time party to various lawsuits, claims and other legal proceedings that arise in the ordinary course of business. These actions typically seek, among other things, compensation for alleged personal injury, breach of contract and/or property damages, employment-related damages, punitive damages, civil penalties or other losses, or injunctive or declaratory relief. With respect to all such lawsuits, claims and proceedings, we record a reserve when it is probable that a loss has been incurred and the amount of loss can be reasonably estimated. In addition, we disclose matters for which management believes a material loss is at least reasonably possible. See Note 11 of the Notes to Condensed Consolidated Financial Statements in Item 1. *Financial Statements* of Part I of this Quarterly Report, which is incorporated by reference in this Item 1, for additional information regarding litigation, claims and other legal proceedings.

Item 1A. *Risk Factors.*

Our business is subject to a variety of risks and uncertainties that are difficult to predict and many of which are outside of our control. For a detailed discussion of the risks that affect our business, refer to Item 1A. *Risk Factors* of Part I of our 2019 Annual Report. There have been no material changes to the risk factors previously described in our 2019 Annual Report, except as set forth below and except that the potential effects of the COVID-19 pandemic may also have the effect of heightening many of the other risks described in our 2019 Annual Report.

The matters specifically identified are not the only risks and uncertainties facing our company, and additional risks and uncertainties not known to us or not specifically identified may also impair our business. If any of these risks and uncertainties occur, our business, financial condition, results of operations and cash flows could be negatively impacted, which could negatively impact the value of an investment in our company.

The effects of the COVID-19 pandemic and related economic repercussions have materially affected how we and our customers are operating our businesses, and the duration and extent to which this will negatively impact our future results of operations and overall financial performance remains uncertain.

The COVID-19 pandemic has negatively impacted the global economy, disrupted consumer spending and global supply chains, and created significant volatility and disruption of financial markets. We have experienced some resulting disruptions to our business operations, and we expect the COVID-19 pandemic to have a material adverse impact on our business and financial performance. The extent of the impact of the COVID-19 pandemic on our business and financial performance, including our ability to execute our near-term and long-term business strategies and initiatives in the expected time frame, will depend on future developments, including the duration and severity of the pandemic and the resulting governmental and other measures implemented to address the pandemic, which are uncertain and cannot be predicted.

We have been negatively impacted by the COVID-19 pandemic as a result of the shelter-in-place restrictions in some of our service areas creating disruptions to portions of our operations, particularly in major metropolitan markets that have been meaningfully impacted by the pandemic. We have also experienced permitting and regulatory delays attributable to the COVID-19 pandemic. Restrictions on operations related to industrial facilities have also resulted in suspensions and delays related to our high-pressure and critical-path turnaround services to the downstream and midstream energy markets. In addition to these current dynamics, the COVID-19 pandemic may create or exacerbate risks related to our operations and regulatory and compliance matters, including as a result of:

- evolving governmental guidance or requirements, including travel and movement restrictions, that continue to impact our ability to perform services or complete projects in accordance with required delivery schedules, which could result in additional costs or penalties (e.g., liquidated damages);
- additional delays with respect to permitting and regulatory matters;
- additional project deferrals, delays, and cancellations and changes in customer spending patterns and strategic plans as a result of, among other things, prolonged decreases in energy demand, lack of available financing for our customers' businesses or termination of, or force majeure events arising under, existing customer agreements;
- governmental guidance or requirements, including work-from-home policies, or potential illness that negatively impact the availability or productivity of our key personnel or a significant number of employees or cause other disruptions to our business, corporate governance or financial reporting processes;
- increased payment risk associated with customers experiencing financial difficulties (including bankruptcy) and an increase in disputes with customers relating to billing and payment under contracts and change orders;

- potential liabilities and reputational harm related to occupational health and safety matters associated with COVID-19;
- our inability to execute our business strategy, including with respect to certain capital investments such as acquisitions, investments and service offering expansions;
- limitations on the ability of our suppliers, vendors and subcontractors to perform;
- asset impairment charges related to property and equipment, goodwill, other intangible assets, other long-lived assets and investments;
- additional costs associated with restructuring, severance and related matters, potential mandated increases in pay for critical infrastructure workers or other increased employment-related costs (e.g., workers' compensation insurance claims); and
- an increase in cyber-attacks and attempted intrusions into our information technology systems as a result of, among other things, increased reliance on such systems.

Additionally, oil demand has significantly deteriorated as a result of the COVID-19 pandemic and corresponding preventative measures taken around the world to mitigate the spread of the COVID-19. At the same time, prior increases in production of oil by certain producers have created a significant surplus in the supply of oil. The impact of these events has resulted in downward pressure on commodity prices, which has negatively impacted, and may continue to negatively impact, certain services within our Pipeline and Industrial Infrastructure Services segment. Lower commodity prices and production volumes, or perceived risk thereof, can also result in decreased or delayed spending by our customers, including with respect to larger pipeline and industrial projects. A decline in commodity prices, production or the development of resource plays can also negatively impact certain portions of our Electric Power Infrastructure Services segment.

Furthermore, given the uncertain duration of the COVID-19 pandemic, we may face potential challenges related to financing our business in the future. These challenges could arise due to fluctuations in economic, political and market conditions that limit our ability to increase the current commitments under our senior secured credit facility, which is dependent on additional commitments from our lenders, or otherwise secure adequate financing on acceptable terms. Additionally, due to extreme market volatility, there is a risk that we may not be able to access capital markets to obtain financing.

As a result of these factors, the extent of the impact of the COVID-19 pandemic on our business is highly uncertain and difficult to predict. At this point, we cannot reasonably estimate the duration and severity of the COVID-19 pandemic, or its ultimate impact on our business, financial condition, results of operations or cash flows.

Item 2. *Unregistered Sales of Equity Securities and Use of Proceeds.*

Unregistered Sales of Equity Securities

On January 20, 2020 and February 28, 2020, we completed acquisitions in which a portion of the consideration consisted of the unregistered issuance of shares of our common stock. The aggregate consideration paid at closing in these acquisitions included 116,812 shares of our common stock valued at approximately$4.2 million as of the acquisition dates. For additional information about these acquisitions, including additional contingent consideration stock issuances, see Note 4 of the Notes to Condensed Consolidated Financial Statements in Item 1. *Financial Statements* of Part I of this Quarterly Report. Additionally, on February 25, 2020, we settled a portion of a contingent consideration obligation owed to the former owner of an acquired business through the issuance of 4,277 shares of Quanta common stock valued at approximately$0.2 million as of the settlement date. For additional information regarding this and our other contingent consideration liabilities, see Note 2 of the Notes to Condensed Consolidated Financial Statements in Item 1. *Financial Statements* of Part I of this Quarterly Report.

The shares of common stock issued in these transactions were issued in reliance upon the exemption from registration provided by Section 4(a)(2) of the Securities Act of 1933, as amended, as the shares were issued to the owners or former owners of businesses acquired in privately negotiated transactions not involving any public offering or solicitation.

Issuer Purchases of Equity Securities During the First Quarter of 2020

The following table contains information about our purchases of equity securities during the three months ended March 31, 2020.

Period	Total Number of Shares Purchased (1)(2)	Average Price Paid per Share	Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs	Maximum Number (or Approximate Dollar Value) of Shares that may yet be Purchased Under the Plans or Programs (1)
January 1 - 31, 2020				
Open Market Stock Repurchases (1)	—	$ —	—	$ 286,756,122
Tax Withholdings (2)	49,962	$ 36.53	—	
February 1 - 29, 2020				
Open Market Stock Repurchases (1)	—	$ —	—	$ 286,756,122
Tax Withholdings (2)	351,869	$ 39.96	—	
March 1 - 31, 2020				
Open Market Stock Repurchases (1)	5,960,134	$ 33.56	5,960,134	$ 86,756,136
Tax Withholdings (2)	189,944	$ 38.54	—	
Total	6,551,909		5,960,134	$ 86,756,136

(1) Includes shares repurchased as of the trade date of such repurchases. On September 4, 2018, we issued a press release announcing that our Board of Directors approved a stock repurchase program that authorizes us to purchase, from time to time through June 30, 2021, up to $500.0 million of our outstanding common stock. Repurchases under this program can be made in open market and privately negotiated transactions, at our discretion, based on market and business conditions, applicable contractual and legal requirements and other factors. This program does not obligate us to acquire any specific amount of common stock and may be modified or terminated by our Board of Directors at any time at its sole discretion and without notice.

(2) Includes shares purchased from employees to satisfy tax withholding obligations in connection with the vesting of restricted stock unit and performance unit awards or the settlement of previously vested but deferred restricted stock unit awards.

Item 3. ***Defaults Upon Senior Securities.***

None.

Item 4. ***Mine Safety Disclosures.***

Not applicable.

Item 5. ***Other Information.***

None.

Item 6. ***Exhibits.***

Exhibit No.		Description
3.1		Restated Certificate of Incorporation of Quanta Services, Inc. (previously filed as Exhibit 3.1 to the Company's Form 8-K filed March 26, 2019 and incorporated herein by reference)
3.2		Bylaws of Quanta Services, Inc., as amended and restated December 6, 2018 (previously filed as Exhibit 3.1 to the Company's Form 8-K filed December 11, 2018 and incorporated herein by reference)
10.1	^*	Employment Agreement dated March 31, 2020, effective as of April 1, 2020, by and between Quanta Services, Inc. and James Redgie Probst
10.2	^	Quanta Services, Inc. Term Sheet for 2020 Annual Incentive Plan – Corporate Employees, Quanta Services, Inc. Term Sheet for 2020 Senior Leadership Long-Term Incentive Plan and Quanta Services, Inc. Term Sheet for 2020 Discretionary Plan – All Employees (previously filed as Exhibit 10.1 to the Company's Form 8-K filed April 1, 2020 and incorporated herein by reference)
31.1	*	Certification by Chief Executive Officer pursuant to Rule 13a-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002 (filed herewith)
31.2	*	Certification by Chief Financial Officer pursuant to Rule 13a -14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002 (filed herewith)
32.1	*	Certification by Chief Executive Officer and Chief Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 (furnished herewith)
101	*	The following financial statements from the Company's Quarterly Report on Form 10-Q for the quarter ended March 31, 2020, formatted in Inline XBRL: (i) Condensed Consolidated Balance Sheets, (ii) Condensed Consolidated Statements of Operations, (iii) Condensed Consolidated Statements of Comprehensive Income, (iv) Condensed Consolidated Statements of Cash Flows, (v) Condensed Consolidated Statements of Equity and (vi) Notes to Condensed Consolidated Financial Statements, tagged as blocks of text and with detailed tags
104	*	The cover page from the Company's Quarterly Report on Form 10-Q for the quarter ended March 31, 2020, formatted in Inline XBRL (included as Exhibit 101)

^ Management contracts or compensatory plans or arrangements

* Filed or furnished herewith

SIGNATURE

Pursuant to the requirements of the Securities Exchange Act of 1934, the Registrant, Quanta Services, Inc., has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

QUANTA SERVICES, INC.

By: /s/ JERRY K. LEMON

Jerry K. Lemon
Chief Accounting Officer
(Principal Accounting Officer)

Dated: May 8, 2020

EMPLOYMENT AGREEMENT

This Employment Agreement (the "Agreement") is entered into between Quanta Services, Inc. ("Quanta") and James Redgie Probst ("Employee") on this 31st day of March, 2020, but effective as of April 1, 2020 (the "Effective Date").

I. RECITALS

As of the date of this Agreement, the Employer Group (as defined below) is engaged primarily in the business of specialty contracting for customers in the electric power, natural gas, oil, pipeline, renewable energies and telecommunications industries, as well as for transportation, commercial and industrial customers. As such, the Employer Group has developed and continues to develop and use certain trade secrets and other Proprietary and Confidential Information, as hereinafter defined. The Employer Group has spent a substantial amount of time, effort and money, and will continue to do so in the future, to develop or acquire such Proprietary and Confidential Information and promote and increase its good will. Employer (as defined below) and Employee acknowledge and agree that Proprietary and Confidential Information is an asset of particular and immeasurable value to the Employer Group.

Pursuant to this Agreement, Employee shall be employed by Employer in a confidential and fiduciary relationship and such Proprietary and Confidential Information will necessarily be provided to, communicated to, or acquired by Employee by virtue of his employment with Employer.

Based upon the above, Employer desires to retain the services of Employee on its own behalf, as well as on the behalf of its subsidiaries and affiliated companies and, in so doing, protect its Proprietary and Confidential Information subject to the terms and conditions set forth herein.

II. DEFINITIONS

A. For purposes of this Agreement, "Employer" shall mean Quanta or any other affiliated entity that is deemed to be the employer of Employee, and "Employer Group" shall mean Quanta and its predecessors, designees, successors, and past, present and future operating companies, divisions, subsidiaries and/or affiliates.

B. As used in this Agreement, "Proprietary and Confidential Information" means any and all non-public information or data in any form or medium, tangible or intangible, which has commercial value and which the Employer Group possesses or to which the Employer Group has rights. Proprietary and Confidential Information includes, by way of example and without limitation, information concerning the Employer Group's specific manner of doing business, including, but not limited to, the processes, methods or techniques utilized by the Employer Group, the Employer Group's customers, marketing strategies and plans, pricing information, sources of supply and material specifications, the Employer Group's computer programs, system documentation, special hardware, related software development, and the Employer Group's business models, manuals, formulations, equipment, compositions, configurations, know-how, ideas, improvements and inventions. Proprietary and Confidential Information also includes information developed by Employee during his course of employment with Employer or otherwise relating to Company-Related Inventions and Developments, as hereinafter defined, as well as other information to which he may be given access to in connection with his employment.

C. As used in this Agreement, "Inventions and Developments" means any and all inventions, developments, creative works and useful ideas of any description whatsoever, whether or not patentable.

Inventions and Developments include, by way of example and without limitation, discoveries and improvements that consist of or relate to any form of Proprietary and Confidential Information.

D. As used in this Agreement, "Company-Related Inventions and Developments" means all Inventions and Developments that: (a) relate at the time of conception or development to the actual business of the Employer Group or to its actual research and development or to business or research and development that is the subject of active planning at the time; (b) result from or relate to any work performed for Employer, whether or not during normal business hours; (c) are developed on Employer's time; or (d) are developed through the use of the Employer Group's Proprietary and Confidential Information, equipment, software, or other facilities and resources.

E. As used in this Agreement, "Competitive Business" means engineering, procurement and construction services for comprehensive infrastructure needs in the electric power and oil and gas industries, including specialty contracting for customers, as applicable, in the electric power, natural gas, oil, pipeline, renewable energies and telecommunications industries, as well as for transportation, commercial and industrial customers, or with respect to any period following the Date of Termination, customers in those industries serviced by the Employer Group as of the Date of Termination, and any such other business that is actively engaged in by the Employer Group as of the Date of Termination.

F. For purposes of this Agreement, "make" or "made," when used in relation to Inventions and Developments, includes any one or any combination of: (a) conception; (b) reduction to practice; or (c) development; and is without regard to whether Employee is a sole or joint inventor.

G. For purposes of this Agreement, "Change in Control" shall mean:

1. Any person or entity, or more than one person or entity acting as a group, other than a member of the Employer Group or an employee benefit plan of the Employer Group, acquires directly or indirectly Beneficial Ownership (as defined in Section 13(d) of the Securities Exchange Act of 1934, as amended) of any Voting Security of Quanta and immediately after such acquisition such person, entity or group is, directly or indirectly, the Beneficial Owner of Voting Securities representing more than fifty percent (50%) of the total fair market value or total voting power of all of the then-outstanding Voting Securities of Quanta; or

2. Any person or entity, or more than one person or entity acting as a group, other than a member of the Employer Group or an employee benefit plan of the Employer Group, acquires directly or indirectly, or has acquired during the preceding twelve (12) months, Beneficial Ownership (as defined in Section 13(d) of the Securities Exchange Act of 1934, as amended) of any Voting Security of Quanta and immediately after such acquisition such person, entity or group is, directly or indirectly, the Beneficial Owner of Voting Securities representing thirty percent (30%) or more of the total voting power of all of the then-outstanding Voting Securities of Quanta; or

3. Individuals who, as of the date hereof, constitute the Board of Directors of Quanta (the "Board"), and any new director whose election by the Board or nomination for election by Quanta's stockholders was approved by a vote of a majority of the directors then still in office who were directors as of the date hereof or whose election or nomination for election was previously so approved, cease for any reason to constitute at least a majority of the members of the Board within a 12-month period; or

4. Any person or entity, or more than one person or entity acting as a group, other than a member of the Employer Group or an employee benefit plan of the Employer Group, acquires directly or indirectly, or has acquired during the preceding 12-months, forty percent (40%) or more of the total gross fair market value of assets of the Employer Group.

H. For purposes of this Agreement, "Voting Security" means common stock or other capital stock, including preferred stock, of the applicable entity entitled generally to vote in the election of directors and preferred stock and other equity securities (not including options, warrants or similar rights) convertible into securities entitled generally to vote in the election of directors (whether or not then convertible).

III. TERMS OF EMPLOYMENT

A. Position and Duties. Employee is hereby employed by Employer as President - Electric Power. Employee shall have the primary responsibilities, duties and authority commensurate with Employee's position and as prescribed from time to time by Quanta's Chief Executive Officer or the Board, in their discretion, in a manner consistent with Employee's position. Employee shall devote his full business time, attention and effort to the performance of this Agreement and to his duties as described herein.

1. Employee shall faithfully adhere to, execute and fulfill the duties and responsibilities of Employee's position and as modified or prescribed from time to time by Quanta's Chief Executive Officer or the Board.

2. Employee agrees to devote reasonable attention and time to the business and affairs of Employer and, to the extent necessary, to discharge the responsibilities assigned to Employee hereunder, to use Employee's reasonable best efforts to perform faithfully and efficiently such responsibilities.

3. Employee shall not, during the term of his employment, be engaged in any other business activity pursued for gain, profit or other pecuniary advantage if such activity interferes with Employee's duties and responsibilities to Employer. The foregoing limitations shall not be construed as prohibiting Employee from serving on corporate, civic or charitable boards or committees, delivering lectures or fulfilling speaking engagements, teaching at educational institutions, or making personal investments, so long as such activities do not significantly interfere with the performance of Employee's responsibilities to Employer as set forth in this Agreement.

4. In the performance of his duties, Employee shall use his best efforts to adhere to the legal requirements codified in statutes, ordinances and governmental regulations applicable to Employer.

B . Term. The initial term of this Agreement shall begin on the Effective Date and shall continue for two (2) years, unless terminated sooner pursuant to the provisions of this Agreement (the "Initial Term"). At the expiration of the Initial Term, unless terminated sooner pursuant to the provisions of this Agreement, and each annual anniversary thereafter, this Agreement will renew automatically for an additional one (1) year period (the "Renewal Term") unless either party notifies the other party in writing of its or his intention not to renew this Agreement (the "Renewal Termination Notice") not less than six (6) months prior to the expiration of the Initial Term or of any Renewal Term (the Initial Term and any Renewal Term are referred to collectively as the "Term")

1. Termination upon Death. This Agreement (and all of Employee's rights and Employer's obligations hereunder) shall terminate as of the date of Employee's death.

2. Termination upon Disability. If Employee becomes Disabled as defined herein, Employer may, by written notice to Employee, terminate this Agreement and Employee's employment hereunder. For purposes of this Agreement, "Disabled" or "Disability" means, as determined by the Compensation Committee of the Board (the "Committee"), that (i) Employee is unable to engage in any substantial gainful activity by reason of a physical or mental impairment that is expected to result in death or last twelve (12) months or more, or Employee receives replacement income for three (3) months or more due to such physical or mental impairment or (ii) such other definition that complies with the definition of disability under Section 409A of the Internal Revenue Code of 1986, as amended (the "Code") and the regulations promulgated thereunder.

3. Termination for Cause. Employer may terminate this Agreement and Employee's employment hereunder for or without Cause by providing written notice to Employee of its intention to do so. For purposes of this Agreement, "Cause" shall mean:

a. Employee's gross negligence in the performance of, intentional nonperformance of, or inattention to his material duties and responsibilities hereunder, other than due to Employee's mental or physical incapacity and excluding poor or unsatisfactory results that arise from Employee's good faith effort;

b. Employee's willful dishonesty, fraud or willful misconduct with respect to the business or affairs of Employer, other than of a de minimis nature;

c. the willful or intentional violation by Employee of any of Employer's policies or procedures that are applicable to Employee and of which Employee has been made aware in writing in advance;

d. a conviction of, a plea of nolo contendere, a guilty plea, or confession by Employee to, an act of fraud, misappropriation or embezzlement or any crime punishable as a felony or any other crime that involves moral turpitude;

e. Employee's use of illegal substances or habitual drunkenness such that Employee's work performance is affected or such condition causes embarrassment to the Employer; or

f. the material breach by Employee of this Agreement.

For purposes of this Agreement, no act or failure to act on the part of Employee shall be considered intentional or willful unless it is done, or omitted to be done, by Employee without the reasonable, good faith belief that Employee's act or omission was in accordance with, or not contrary to, the duties and responsibilities of Employee's position. Notwithstanding the foregoing, Employee's employment shall not be deemed to have been terminated for Cause unless (1) a Notice of Termination (as defined below) is delivered to Employee no later than 90 days after Quanta's Chief Executive Officer learns of the event which, taken together with any relevant prior events, Quanta's Chief Executive Officer, after consultation with the Board (or a committee thereof), deems to constitute Cause, (2) if such Notice of Termination is based on Section III.B.3.a, Section III.B.3.c or Section III.B.3.f and if Quanta's Chief Executive Officer, after consultation with the Board (or a committee thereof), determines reasonably and in good faith that such action or inaction is curable, Employee has been provided a period of 30 days after receipt of the Notice of Termination to cease the actions or inactions or otherwise cure such damage, and Employee fails to do so, and (3) Quanta's Chief Executive Officer, after consultation with the Board (or a committee thereof), shall have determined in good faith that Employee has committed Cause.

4. Termination With or Without Good Reason. Employee may terminate this Agreement and his employment hereunder with or without Good Reason by providing written notice to Employer of his intention to do so. For purposes of this Agreement, "Good Reason" shall mean:

a. the assignment to Employee of any duties inconsistent with Employee's position, authority, duties or responsibilities as Employer's President - Electric Power, or any other action by Employer that results in a diminution in Employee's position, authority, duties or responsibilities as President - Electric Power (excluding for this purpose an isolated, insubstantial and inadvertent action not taken in bad faith);

b. any material breach of this Agreement by Employer, including any requirement that Employee be based at any office or location that results in a violation of Section III.E of this Agreement; or

c. any failure by Employer to comply with any of the provisions of Section IV of this Agreement.

Employee must provide written notice to Employer of the existence of the condition(s) described in Section III.B.4.a through Section III.B.4.c above within 90 days of the initial existence, or if later, actual good faith knowledge of the condition(s). Employer shall have 30 days after such notice is given during which to remedy the condition(s) to the extent that such condition(s) is reasonably curable, and such occurrence shall not be deemed to constitute Good Reason if such event or circumstance has been fully corrected by Employer within the 30 day cure period and Employee has been reasonably compensated for monetary losses or damages resulting therefrom.

5. Termination for Change in Control Good Reason. Employee may terminate this Agreement and his employment hereunder for Change in Control Good Reason in the twelve (12) months following a Change in Control by providing written notice to Employer of his intention to do so. For purposes of this Agreement, "Change in Control Good Reason" shall mean:

a. the assignment to Employee of any duties inconsistent with Employee's position, authority, duties or responsibilities as Employer's President - Electric Power, or any other action by Employer that results in a diminution in Employee's position, authority, duties or responsibilities as President - Electric Power (excluding for this purpose an isolated, insubstantial and inadvertent action not taken in bad faith);

b. any material breach of this Agreement by Employer, including any requirement that Employee be based at any office or location that results in a violation of Section III.E of this Agreement;

c. any failure by Employer to comply with any of the provisions of Section IV of this Agreement;

d. any failure by Employer to continue in effect any cash or stock-based incentive or bonus plan, retirement plan, welfare benefit plan or other compensation, retirement or benefit plan and policy, unless the aggregate value (as computed by an independent employee benefits consultant selected by Employer and reasonably acceptable to Employee or Employee's legal representative) of all such compensation, retirement or benefit plans and policies provided to Employee is not materially less than their aggregate value as in effect at any time during the one hundred twenty (120) day period immediately preceding a Change in Control or, if more favorable to Employee, those provided generally at any time after the Change in Control to other peer employees of Employer and its affiliated companies; or

e. in the event of a pending Change in Control, Employer and Employee have not received written notice at least five (5) business days prior to the anticipated closing date of the transaction giving rise to the Change in Control from the successor to all or a substantial portion of the Employer Group's business and/or assets that such successor is willing as of the closing to assume and agree to perform Employer's obligations under this Agreement in the same manner and to the same extent that Employer is hereby required to perform.

Employee must provide written notice to Employer of the existence of the condition(s) described in Section III.B.5.a through Section III.B.5.d above within 90 days of the initial existence, or if later, actual good faith knowledge of the condition(s). Employer shall have 30 days after such notice is given during which to remedy the condition(s) to the extent that such condition(s) is reasonably curable, and such occurrence shall not be deemed to constitute Change in Control Good Reason if such event or circumstance has been fully corrected by Employer within the 30 day cure period and Employee has been reasonably compensated for monetary losses or damages resulting therefrom.

C. Notice of Termination. Any termination by Employer for Cause or Disability or by Employee for Good Reason or for Change in Control Good Reason shall be communicated by a Notice of Termination provided to the other party pursuant to the provisions of Section IX.C of this Agreement. For purposes of this Agreement, "Notice of Termination" means a written notice that: (1) indicates the specific termination provision or provisions as set forth in this Agreement relied upon by either Employer or Employee; (2) to the extent applicable, sets forth in reasonable detail the facts and circumstances claimed to provide the basis for termination under the provision or provisions of this Agreement relied upon by either Employer or Employee and, as applicable, the manner of cure; and (3) if the Date of Termination (as defined below) is other than the date of receipt of such Notice of Termination, specifies the termination date. The failure by either Employer or Employee to set forth in the Notice of Termination any fact or circumstance that contributes to a showing of Cause, Good Reason or Change in Control Good Reason shall not waive any right of Employer or Employee or preclude Employer or Employee from asserting such fact or circumstance in enforcing Employer's or Employee's rights or obligations under this Agreement.

D . Date of Termination. According to this Agreement, "Date of Termination" shall mean: (1) if Employee's employment is terminated for Cause or Disability, the date of receipt of the Notice of Termination or any later date specified therein or as required under this Agreement; (2) if Employee's employment is terminated by Employee for Good Reason or Change in Control Good Reason, no earlier than forty-five (45) days and no later than sixty-five (65) days after the date of the Employer's receipt of the Notice of Termination; (3) if Employee's employment is terminated by Employer other than for Cause or Disability, the Date of Termination shall be the date on which Employer notifies Employee of such termination; (4) if Employee's employment is terminated by reason of death, the Date of Termination shall be the date of the death of Employee; or (5) if Employee voluntarily terminates his employment, the Date of Termination shall be thirty

(30) days after Employee delivers written notice of his voluntary termination to Employer or such other date on which Employee and Employer shall agree to be the Date of Termination.

E. Place of Performance. Other than normal business travel consistent with Employee's duties, responsibilities and position, for so long as Employee is serving in the role of President - Electric Power, Employee shall carry out Employee's duties and responsibilities under this Agreement at the corporate offices of Employer or any affiliate of Employer in the Houston, Texas or Salt Lake City, Utah metropolitan areas, it being understood that employment of Employee in a different role may require relocation.

IV. COMPENSATION

A. Annual Base Salary. Employer agrees to compensate and pay Employee, or to cause Employee to be compensated and paid, an annual base salary of $650,000 USD, payable on a regular basis in accordance with Employer's standard payroll procedures but not less frequently than monthly.

On at least an annual basis, Quanta's Chief Executive Officer or a duly constituted committee of the Board will review Employee's performance and may make increases to Employee's annual base salary if, in its sole discretion, any such increase is warranted.

B. Bonus. Employee shall participate in Employer's annual bonus plan at a level commensurate with Employee's position. Employee may participate in other current and future incentive bonus plans as determined by Quanta's Chief Executive Officer or a duly constituted committee of the Board.

C. Incentive, Savings and Retirement Plans. Employee shall be entitled to participate in all incentive, savings and retirement plans, practices, policies and programs generally applicable to other similarly situated officers of Employer.

D. Welfare Benefit Plans. Employee and Employee's dependents shall receive coverage under the welfare benefit plans, practices, policies and programs provided by Employer including, but not limited to, medical, prescription, dental, disability, employee life, group life, accidental death and travel accident insurance plans and programs, generally applicable to other peer employees of Employer, the terms and conditions of which shall be no less favorable than those available to other similarly situated officers of Employer.

E. Reimbursement of Expenses. Employer shall reimburse Employee or cause Employee to be promptly reimbursed for all reasonable and necessary expenses incurred by Employee in furtherance of the business and affairs of the Employer Group including, but not limited to, all travel expenses and living expenses while away from home on business or at the request of Employer or Quanta's Chief Executive Officer. Such reimbursement shall be effected as soon as reasonably practicable after such expenditures are made, against presentation of signed, itemized expense reports in accordance with the travel and business expense reimbursement policies of Employer.

F. Severance Benefits upon Termination. Upon any termination of Employee's employment with Employer for any or no reason (including, without limitation, at the end of the Term following a Renewal Termination Notice), Employee (or Employee's estate or beneficiary, as applicable, in the event of death) shall be entitled to (i) Employee's accrued but unpaid base salary through the Date of Termination, (ii) any accrued vested benefits under Employer's employee welfare benefit plans and tax-qualified retirement plans in accordance with the terms of those plans, (iii) any earned and awarded unpaid bonus for a completed performance period, (iv) reimbursement of any reasonable and necessary business expense incurred prior to the Date of Termination in accordance with the policies of the Employer, and (v) accrued vacation through the Date of Termination if and to the extent payable in accordance with any future policies of the Employer (collectively, the "Accrued Amounts"). As set forth below, the following obligations are imposed upon Employer upon termination of this Agreement; provided, however, that to be entitled to such severance benefits, Employee will be required to execute, and not revoke, a Confidential Severance Agreement and Release provided by Employer as more fully described in Section IV.I below. All references under this Section IV.F to "base salary" and any benefit calculated based on "base salary" will be determined without giving effect to any reduction in base salary by the Employer which the Employee objected to by written notice to Quanta's Chief Executive Officer at the time of such reduction.

1. Death. If Employee's employment is terminated due to his death, Employee shall not be entitled to any severance benefits under the terms of this Agreement; provided, however, that if such termination occurs 6 months or more after the beginning of the annual incentive bonus year, Employee's estate shall be entitled to an annual incentive bonus for the year in which the termination of employment occurs based on actual performance of the applicable performance goals, pro-rated to reflect the period of Employee's employment with Employer during such annual incentive bonus year, paid at the same time that annual incentive bonuses for the year in which Employee's termination of employment occurred are paid to active employees of Employer (a "Prorated Bonus").

2. Disability. If Employee's employment is terminated due to his Disability, Employee shall be entitled to (a) a Prorated Bonus, provided that such termination occurs 6 months or more after the beginning of the annual incentive bonus year, and (b) severance benefits equal to one (1) year of Employee's annual base salary. Subject to Employee's compliance with the requirements of Section IV.I below, the severance benefits shall be paid to Employee in a lump-sum payment within sixty (60) days of the Date of Termination.

3. Cause. If Employee's employment is terminated for Cause as defined under this Agreement, Employee shall not be entitled to any severance benefits under the terms of this Agreement.

4. Without Cause or With Good Reason. If Employee's employment is terminated by Employer without Cause or if Employee resigns his employment with Good Reason (in each case, other than such termination that occurs within the twelve (12) months following a Change in Control), Employee shall be entitled to (a) provided that such termination occurs 6 months or more after the beginning of the annual incentive bonus year, an annual incentive bonus for the year in which the termination of employment occurs based on actual performance of the applicable performance goals, without pro-ration, paid at the same time that annual incentive bonuses for the year in which Employee's termination of employment occurred are paid to active employees of Employer and (b) severance benefits equal to two (2) years of Employee's annual base salary. Subject to Employee's compliance with the requirements of Section IV.I below, the severance benefits shall be paid to Employee in a lump-sum payment within sixty (60) days of the Date of Termination. In the event that Employee is entitled to receive severance benefits under Section IV.G.1, Employee will not be entitled to receive severance benefits under this Section.

5. Resignation by Employee Without Good Reason; Nonrenewal. If Employee resigns his employment without Good Reason or in the event of a Renewal Termination Notice where Employee's employment terminates on or following the end of the then Term, Employee shall not be entitled to any severance benefits under the terms of this Agreement.

G. Severance Benefits upon Change in Control.

1. Termination without Cause; Termination With Change in Control Good Reason; Termination After Receipt of Renewal Termination Notice. In the event Employee is terminated without Cause by Employer, Employee resigns his employment with Change in Control Good Reason or Employee's employment ends at the end of the applicable Term after Employee's receipt of a Renewal Termination Notice, in each case, provided that such termination (or receipt of such Renewal Termination Notice) occurs within twelve (12) months following a Change in Control, Employee shall be entitled to the Accrued Amounts and the following:

a. a lump-sum payment, due on the Date of Termination, of a sum equal to three (3) times Employee's base salary at the rate then in effect;

b. provided that such termination occurs 6 months or more after the beginning of the annual incentive bonus year, a lump-sum payment, due on the Date of Termination, equal to the target amount of the annual incentive bonus for the year in which the termination of employment occurs, provided, however, that such amount shall be reduced by any portion of such annual incentive bonus to which Employee is entitled pursuant to the terms of any applicable annual incentive bonus plan of the Employer Group or the transaction document with respect to the Change in Control;

c. a lump-sum payment, due on the Date of Termination, of a sum equal to three (3) times the higher of (i) the highest annual cash bonus paid (or earned if not yet paid) to Employee for the three (3) fiscal years preceding Employee's termination under Employer's annual incentive bonus plan or a direct predecessor thereto or replacement thereof or (ii) Employee's target annual cash bonus payable, including any bonus or portion thereof which has been earned but deferred, under Employer's annual incentive bonus plan or a direct predecessor thereto or replacement thereof for the current fiscal year or, if such target bonus has not yet been determined, for the most recently completed fiscal year; and

d. for a period of three (3) years following Employee's termination continuation of medical, dental and vision benefit coverage for Employee and Employee's dependents at least equal to those that would have been provided to the same in accordance with the plans, programs, practices and policies described in Section IV.D of this Agreement if Employee's employment had not been terminated or, if more favorable to Employee, as in effect generally at any time thereafter with respect to other peers of Employee; provided, however, that if Employee becomes reemployed with another employer and is eligible to receive medical, dental or vision benefits under another employer provided plan, the medical, dental and vision benefits described herein shall be secondary to those provided under such other plan during such applicable period of eligibility.

In the event that Employee is entitled to receive severance benefits under this Section IV.G.1, Employee will not be entitled to receive severance benefits under Section IV.F.4. All references under this Section IV.G to "base salary" and any benefit calculated based on "base salary" will be determined without giving effect to any reduction in base salary by the Employer which the Employee objected to by written notice to Quanta's Chief Executive Officer at the time of such reduction.

2. Limitation on Severance Benefits. Anything in this Agreement to the contrary notwithstanding, in the event that it shall be determined (as herein after provided) that any payment

or distribution by Employer or any of its affiliates to or for the benefit of Employee, whether paid or payable or distributed or distributable pursuant to the terms of this Agreement or otherwise pursuant to or by reason of any other agreement, policy, plan, program, or arrangement including, without limitation, any stock option, restricted stock, stock appreciation right or similar right, or the lapse or termination of any restriction on, or the vesting or exercisability of, any of the foregoing (individually and collectively, a "Payment"), would be subject, but for the application of this Section IV.G.2 to the excise tax imposed by Section 4999 of the Code, or any successor provision thereto (hereinafter the "Excise Tax"), by reason of being considered "contingent on a change in ownership or control" of Employer, within the meaning of Section 280G(b)(2) of the Code, or any successor provision thereto, then:

a. if the After-Tax Payment Amount would be greater by reducing the amount of the Payment otherwise payable to Employee to the minimum extent necessary (but in no event less than zero) so that, after such reduction, no portion of the Payment would be subject to the Excise Tax, then the Payment shall be so reduced; and

b. if the After-Tax Payment Amount would be greater without the reduction then there shall be no reduction in the Payment.

As used in this Section IV.G.2, "After-Tax Payment Amount" means (i) the amount of the Payment, less (ii) the amount of federal income taxes payable with respect to the Payment calculated at the maximum marginal income tax rate for each year in which the Payment shall be paid to Employee (based upon the rate in effect for such year as set forth in the Code at the time of the Payment), less (iii) the amount of the Excise Tax, if any, imposed upon the Payment. For purposes of any reduction made under Section IV.G.2.a, the Payments that shall be reduced shall be those that provide Employee the best economic benefit, and to the extent any Payments are economically equivalent, each shall be reduced pro rata. All determinations with respect to this Section IV.G.2 shall be made by an independent nationally recognized certified public accounting firm at Employer's sole expense.

H. Compliance with Section 409A of the Code. The payments to be made under this Agreement are intended to be exempt from or compliant with Section 409A of the Code. Specifically, the severance payments and benefits under Section IV.F and Section IV.G hereof are intended to be exempt from Section 409A of the Code by compliance with the short-term deferral exemption as specified in 26 C.F.R. Section 1.409A-1(b)(4) and/or the separation pay exemption as specified in 26 C.F.R. Section 1.409A-1(b)(9) or are intended to comply with Section 409A of the Code including, but not limited to, as applicable, being paid upon disability pursuant to 26 C.F.R. Section 1.409-3(i)(4), pursuant to change in control event pursuant to 26 C.F.R. Section 1.409A-3(i)(5) or pursuant to a fixed schedule or specified date pursuant to 26 C.F.R. Section 1.409A-3(a), and the provisions of this Agreement will be administered, interpreted and construed accordingly. Notwithstanding the foregoing, Employer makes no representation or warranty and shall have no liability to Employee or any other person if any provisions of this Agreement are determined to constitute deferred compensation subject to Section 409A of the Code and do not satisfy an exemption from, or the conditions of, Section 409A of the Code.

For all purposes of this Agreement, Employee shall be considered to have terminated employment with Employer when Employee incurs a "separation from service" with the Employer Group within the meaning of Section 409A(a)(2)(A)(i) of the Code.

If the Committee determines that severance payments due under this Agreement on account of termination of Employee's employment constitute "deferred compensation" subject to Section 409A of the the

Code, and that Employee is a "specified employee" as defined in Section 409A(a)(2)(B)(i) of the Code and 26 C.F.R. Section 1.409A-1(i), then such severance payments shall commence on the first to occur of the first payroll date (i) of the seventh month following the month in which Employee's termination occurs (with the first such payment being a lump sum equal to the aggregate severance payments Employee would have received during the prior six-month period if no such delay had been imposed) or (ii) following the date of Employee's death. For purposes of this Agreement, whether Employee is a "specified employee" will be determined in accordance with the written procedures adopted by the Committee which are incorporated by reference herein.

Except as would result in non-compliance with the requirements of Section 409A of the Code, in the event of any amounts of deferred compensation that are payable to Employee under this Agreement in a series of installment payments, Employee's right to receive such payments shall be treated as a right to receive a series of separate payments.

All reimbursements and in-kind benefits provided under this Agreement shall be made or provided in accordance with the requirements of Section 409A of the Code and the regulations to the extent that such reimbursements or in-kind benefits are not excepted from Section 409A of the Code, including where applicable, the requirement that (i) any reimbursement is for expenses incurred during Employee's lifetime (or during a shorter period of time specified in the Agreement); (ii) the amount of expenses eligible for reimbursement during the calendar year may not affect the expenses eligible for reimbursement in any other calendar year; (iii) the reimbursement of an eligible expense will be made on or before the last day of the calendar year following the year in which the expense is incurred; and (iv) the right to reimbursement is not subject to set off or liquidation or exchange for any other benefit.

I. Confidential Severance Agreement and Release. Notwithstanding any provision herein to the contrary, if Employee has not delivered to Employer an executed Confidential Severance Agreement and Release in a form mutually agreeable to the parties (the "Release"), which shall effectuate a full and complete release of claims against the Employer Group and its affiliates, officers and directors (with reasonably customary carveouts, including for outstanding equity and equity incentive awards, vested employee benefits, and indemnification and insurance rights) and acknowledge the applicability of continuing covenants under this Agreement, on or before the fiftieth (50th) day after the Date of Termination, or if Employee revokes such executed Release prior to the sixtieth (60th) day after the Date of Termination, Employee shall forfeit all of the payments and benefits described in Section IV.F.2 or Section IV.F.4, as applicable; provided, however, that Employee shall not forfeit such amounts if Employer has not delivered to Employee the required form of Release on or before the 25th day following the Date of Termination.

J. Mitigation/Offset. Employee shall be under no obligation to seek other employment or to otherwise mitigate the obligations of Employer under this Agreement, and there shall be no offset against amounts or benefits due to Employer under this Agreement or otherwise on account of any claim Employer may have against Employee or any remuneration or other benefit earned or received by Employee after the Date of Termination from any other source.

V. COMPANY-RELATED INVENTIONS AND DEVELOPMENTS

A. Records of Inventions. Employee shall keep complete and current written records of Inventions and Developments made during the course of his employment with Employer and promptly disclose all such Inventions and Developments in writing to Employer so that it may adequately determine its rights in such Inventions and Developments. Employee shall supplement any such disclosure to the extent

Employer may request. If Employee has any doubt as to whether or not to disclose any Inventions and Developments, Employee shall disclose the same to Employer.

B. Ownership of Inventions. All Company-Related Inventions and Developments made by Employee during the term of his employment with Employer shall be the sole and exclusive property of the applicable member(s) of the Employer Group. Employee shall assign, and does hereby assign, his entire right, title and interest in such Company-Related Inventions and Developments to the applicable member(s) of the Employer Group. Employer's ownership and the foregoing assignment shall apply, without limitation, to all rights under the patent, copyright, and trade secret laws of any jurisdiction relating to Company-Related Inventions and Developments. If Employee asserts any property right in any Inventions and Developments made by Employee during the term of his employment with Employer, Employee shall promptly notify Employer of the same in writing.

C. Cooperation with Employer. Employee shall assist and fully cooperate with Employer in obtaining and maintaining the fullest measure of legal protection which the Employer Group elects to obtain and maintain for Inventions and Developments in which the Employer Group has a property right. Employee shall execute any lawful document requested by Employer relating to obtaining and maintaining legal protection for any said Inventions and Developments including, but not limited to, executing applications, assignments, oaths, declarations and affidavits. Employee shall make himself available for interviews, depositions and testimony relating to any said Inventions and Developments. These obligations shall survive the termination of Employee's employment with Employer, provided that Employer shall compensate Employee at a reasonable rate after such termination for time actually spent by Employee at Employer's requests on such assistance. In the event Employer is unable for any reason whatsoever to secure Employee's signature to any document reasonably necessary or appropriate for any of the foregoing purposes including, but not limited to, renewals, extensions, continuations, divisions or continuations in part, in a timely manner, Employee irrevocably designates and appoints Employer and its duly authorized officers and agents as his agents and attorneys-in-fact to act for Employee and on his behalf, but only for purposes of executing and filing any such document and doing all other lawfully permitted acts to accomplish the foregoing purposes with the same legal force and effect as if executed by Employee.

D. Pre-employment Inventions. Employee shall completely identify on Exhibit A attached hereto, without disclosing any trade secret or other proprietary and confidential information, all Inventions and Developments made by Employee prior to his employment with Employer or prior to execution of this Agreement in which Employee has an ownership interest and which is not the subject matter of an issued patent or a printed publication at the time Employee executes this Agreement.

E. Disclosure of Inventions after Termination. Employee shall promptly and completely disclose in writing to Employer's law department all Company-Related Inventions and Developments made by Employee during the one (1) year immediately following Employee's termination of employment, whether voluntarily or involuntarily, for the purposes of determining Employer's rights in each such invention. It will be presumed that Company-Related Inventions and Developments conceived by Employee which are reduced to practice within one (1) year after termination of Employee's employment, whether voluntary or involuntary, were conceived during the term of Employee's employment with Employer unless Employee is able to establish a later conception date by clear and convincing evidence.

VI. OBLIGATIONS RELATING TO PROPRIETARY AND CONFIDENTIAL INFORMATION

A. Obligations of Employer.

1. Proprietary and Confidential Information. Employer shall provide Employee, during his employment, with valuable Proprietary and Confidential Information for the purpose of assisting Employee in the performance of his job requirements and responsibilities with Employer. In addition, Employer shall provide to Employee, during his employment, with the equipment, materials and facilities necessary to assist Employee in the performance of his job requirements and responsibilities with Employer. Notwithstanding the foregoing, nothing in this Agreement prohibits or restricts the Employee from reporting possible violations of law to any governmental authority or making other disclosures that are protected under whistleblower provisions of applicable law.

2. Training. Employer shall provide Employee with any and all specialized training necessary to assist Employee in the performance of his job requirements and responsibilities with Employer including, but not limited to, training relating to the Employer Group's cost structures, methods of operation, the Employer Group's products and marketing techniques, the Employer Group's business strategies, plans and models.

B. Obligations of Employee.

1. Nondisclosure of Proprietary and Confidential Information. Both during and after the termination of employment, whether such termination is voluntary or involuntary, Employee shall keep in confidence and trust all Proprietary and Confidential Information. Both during and after the termination of employment, whether such termination is voluntary or involuntary, Employee shall not use or disclose Proprietary or Confidential Information without the written consent of Employer, except as may be necessary in the ordinary course of performing his duties to Employer.

2. Return of Proprietary and Confidential Information. All documents and tangible things (whether written or electronic) embodying or containing Proprietary and Confidential Information are the Employer Group's exclusive property. Employee shall be provided with or given access to such Proprietary and Confidential Information solely for performing his duties of employment with Employer. Employee shall protect the confidentiality of their content and shall return all such Proprietary and Confidential Information, including all copies, facsimiles and specimens of them in any tangible or electronic forms in Employee's possession, custody or control to Employer before leaving the employment of Employer for any reason, whether voluntary or involuntary. In addition, Employee shall return all property of the Employer Group, including, but not limited to, computers, peripheral electronic equipment, personal digital assistants, cellular telephones, credit cards, keys, door cards, equipment, books, manuals and journals before leaving the employment of Employer for any reason, whether voluntary or involuntary.

3. Confidential Information from Previous Employment. Employee shall not disclose or use during his employment with Employer any proprietary and confidential information which Employee has acquired as a result of any previous employment or under a contractual obligation of confidentiality before his employment with Employer and, furthermore, Employee shall not bring to the premises of Employer any copies or other tangible embodiments of any such proprietary and confidential information.

4. Conflict of Interest. Employee shall not engage in outside employment or other activities in the course of which Employee would use or might be tempted or induced to use Proprietary and Confidential Information in other than the Employer Group's own interest.

5. Agreement Not to Compete/Solicit.

a. Non-Compete. Employee agrees that during the Covenant Period (as defined below), he shall not, without Employer's written consent, directly or indirectly, for himself or on behalf of or in conjunction with any other person, persons, company, partnership, corporation or business venture of any nature:

(i) engage, as an officer, director, shareholder, owner, partner, joint venturer or in a managerial capacity, whether as an employee, independent contractor, consultant, advisor or sales representative, in any Competitive Business, within any country in which the Employer Group conducts business, including any territory serviced by the Employer Group, or in which the Employer Group is actively pursuing business opportunities or has definitive plans to conduct business at any time during the Covenant Period (the "Territory"), provided, however, that nothing herein shall prohibit an investment action made by a third party without direction from Employee resulting in Employee's passive beneficial ownership of not more than 5% of any class of equity securities of a private company in which private company's activities Employee is not involved, directly or indirectly; provided, further, that the foregoing shall not prohibit Employee from being employed by or providing services to an entity that has a division or business that competes with the Employer Group so long as Employee is not employed by or providing services to such competing division or business;

(ii) call upon any person or entity which is, at that time, or which has been, within one (1) year prior to that time, a customer of the Employer Group, or a prospective customer that has been actively solicited by the Employer Group, within the Territory for the purpose of soliciting or selling products or services in competition with the Employer Group; or

(iii) call upon any prospective acquisition candidate, on Employee's own behalf or on behalf of any competitor, which candidate was, to Employee's actual knowledge after due inquiry, either called upon by the Employer Group or for which the Employer Group made an acquisition analysis for the purpose of acquiring such entity.

b. Non-Solicitation. Employee agrees that during the Covenant Period, he shall not, without Employer's written consent, employ, hire, solicit, induce or identify for employment or attempt to employ, hire, solicit, induce or identify for employment, directly or indirectly, any employee(s) of the Employer Group to leave his or her employment and become an employee, consultant or representative of any other entity including, but not limited to, Employee's new employer, if any. A general solicitation for employment that is not targeted to employees of the Employer Group shall not be a violation of this Section VI.B.5.b.

c. Publicly Traded Securities. The provisions of Section VI.B.5 of this Agreement shall not prevent Employee from acquiring or holding publicly traded stock or other public securities of a competing company, so long as Employee's ownership does not exceed two percent (2%) of the outstanding securities of such company.

d. Agreement to Inform Subsequent Employers. For a period of two (2) years after the termination of Employee's employment with Employer, whether voluntary or involuntary, Employee agrees to inform each new employer, prior to accepting employment, of the existence of this Agreement and provide that employer with a copy of this Agreement.

e. Reasonableness of Restrictions. Employee acknowledges that the restrictions set forth in Section VI.B.5 of this Agreement are intended to protect the Employer Group's legitimate business interests and its Proprietary and Confidential Information and established relationships and good will. Employee acknowledges that the time, geographic and scope of activity limitations set forth herein are reasonable and necessary to protect the Employer Group's legitimate business interests. However, if in any judicial proceeding, a court shall refuse to enforce this Agreement as written, whether because the time limitation is too long or because the restrictions contained herein are more extensive (whether as to geographic area, scope of activity or otherwise) than is necessary to protect the legitimate business interests of the Employer Group, it is expressly understood and agreed between the parties hereto that this Agreement is deemed modified to the extent necessary to permit this Agreement to be enforced in any such proceedings.

f. Ability to Obtain Other Employment. Employee acknowledges that (1) in the event of the termination of his employment with Employer (whether voluntary or involuntary), Employee's knowledge, experience and capabilities are such that Employee can obtain employment in business activities which are of a different and non-competing nature than those performed in the course of his employment with Employer or in the geographic areas outside of the Territory and (2) the enforcement of a remedy hereunder including, but not limited to, injunctive relief, will not prevent Employee from earning a reasonable livelihood.
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g. Injunctive Relief. Employee acknowledges that compliance with Section VI.B of this Agreement is necessary to protect the good will and other legitimate business interests of the Employer Group and that a breach of any or all of these provisions will give rise to irreparable and continuing injury to the Employer Group that is not adequately compensable in monetary damages or at law. Accordingly, Employee agrees that Employer, its successors and assigns, may obtain injunctive relief against the breach or threatened breach of any or all of these provisions, in addition to any other legal or equitable remedies which may be available to the Employer Group at law or in equity or under this Agreement. Because Employee further acknowledges that it would be difficult to measure any damages caused to the Employer Group that might result from any breach by Employee of any promises set forth in this Agreement, Employee agrees that Employer shall be entitled to seek an injunction or other appropriate equitable relief to restrain any such breach without showing or proving any actual damage to the Employer Group, as well as to be relieved of any obligation to provide further payment or benefits to Employee or Employee's dependents.

h. Other Remedies. If Employee is determined in a final, non-appealable judgment by a court of competent jurisdiction or arbitrator, as the case may be under this Agreement, to have violated and/or breached this Agreement, Employer shall be entitled to an accounting and repayment of all lost profits, compensation, commissions, remuneration or benefits that Employee directly or indirectly has realized or may realize, if any, as a result of any such violation or breach. Employer shall also be entitled to recover for all lost sales, profits, commissions, good will and customers caused by such violation or breach by Employee, in addition to and not in limitation of any injunctive relief or other rights or remedies that Employer is or may be entitled to at law or in equity or under this Agreement. Any repayment or recovery under this Section VI.B.5.h shall be in an amount as determined by a final, non-appealable arbitration or judgment of a court.

i. <u>Costs</u>. Employee acknowledges that should it become necessary for Employer to file suit to enforce the provisions contained herein, and any arbitrator or court of competent jurisdiction awards the Employer Group any damages and/or an injunction due to the acts of Employee, then Employer shall be entitled to recover its reasonable costs incurred in conducting the suit including, but not limited to, reasonable attorneys' fees and expenses. In addition to the Employee's rights under Article VIII, Employer acknowledges that should it become necessary for Employee to file suit to enforce the provisions of Section VI.B.6, and any arbitrator or court of competent jurisdiction awards Employee any damages and/or an injunction due to the acts of any member or representative of the Employer Group, then Employee shall be entitled to recover his reasonable costs incurred in conducting the suit including, but not limited to, reasonable attorneys' fees and expenses.

j. <u>Covenant Period</u>. For purposes of this Section VI.B.5, the Covenant Period shall mean the period from and during the Term of this Agreement and ending on the date that is two (2) years after Employee's employment with Employer terminates, whether voluntary or involuntary; provided, however, that if Employer delivers to Employee a Renewal Termination Notice, as provided in Section III.B, and Employee remains employed with Employer through the expiration of the Term (and this Agreement), then the Covenant Period shall end on the date that is one (1) year after the date of receipt of such Renewal Termination Notice. For purposes of clarity, in the event that Employee's employment with Employer terminates for any reason, whether voluntary or involuntary, after Employee receives a Renewal Termination Notice and before the end of the Term, the Covenant Period shall end on the date that is two (2) years after the termination of Employee's employment.

6. <u>Nondisparagement</u>. Employee acknowledges and agrees that both during and after his employment with Employer, whether such termination is voluntary or involuntary, Employee shall not disparage, denigrate or comment negatively upon, either orally or in writing, the Employer Group or any of their respective officers, directors, employees or representatives, to or in the presence of any person or entity unless compelled to act by a valid subpoena or other legal mandate; provided, however, if Employee receives such a valid subpoena or legal mandate, he shall provide Employer with written notice of the same at least five (5) business days prior to the date on which Employee is required to make the disclosure. Employer agrees that during and after Employee's employment with Employer, Employer will not, and will direct members of the Board and Employer's executive officers not to, disparage, denigrate or comment negatively upon, either orally or in writing, Employee in any respect or make any comments concerning any aspect of Employee's relationship with the Employer Group (other than to confirm dates of service) or any conduct or events which precipitated any termination of Employee's employment with Employer, unless compelled to act by a valid subpoena or other legal mandate.

7. <u>Exclusivity of Covenants</u>. For purposes of clarity and without limiting Section IX.G of this Agreement, Employee and Employer agree that the restrictive covenants in Section V and

Section VI of this Agreement supersede and replace in their entirety any and all prior restrictive covenants applicable to Employee.

VII. WAIVER OF RIGHT TO JURY TRIAL

EMPLOYER AND EMPLOYEE HEREBY VOLUNTARILY, KNOWINGLY AND INTENTIONALLY WAIVE ANY AND ALL RIGHTS TO TRIAL BY JURY TO ALL CLAIMS ARISING OUT OF OR RELATING TO THIS AGREEMENT, AS WELL AS TO ALL CLAIMS ARISING OUT OF EMPLOYEE'S EMPLOYMENT WITH EMPLOYER OR TERMINATION THEREFROM INCLUDING, BUT NOT LIMITED TO:

A. Any and all claims and causes of action arising under contract, tort or other common law including, without limitation, breach of contract, fraud, estoppel, misrepresentation, express or implied duties of good faith and fair dealing, wrongful discharge, discrimination, retaliation, harassment, negligence, gross negligence, false imprisonment, assault and battery, conspiracy, intentional or negligent infliction of emotional distress, slander, libel, defamation and invasion of privacy;

B. Any and all claims and causes of action arising under any federal, state or local law, regulation or ordinance, including, without limitation, claims arising under Title VII of the Civil Rights Act of 1964, the Age Discrimination in Employment Act, the Americans with Disabilities Act, the Family and Medical Leave Act, the Fair Labor Standards Act and all corresponding state laws; and

C. Any and all claims and causes of action for wages, employee benefits, vacation pay, severance pay, pension or profit sharing benefits, health or welfare benefits, bonus compensation, commissions, deferred compensation or other remuneration, employment benefits or compensation, past or future loss of pay or benefits or expenses.

VIII. ARBITRATION; CLAIMS

Except with respect to enforcement of Employer's rights under Section V and Section VI of this Agreement, Employee and Employer agree to submit exclusively to final and binding arbitration any and all disputes or disagreements relating to or concerning the interpretation, performance or subject matter of this Agreement in accordance with the National Rules for the Resolution of Employment Disputes of the American Arbitration Association ("AAA") using a mutually acceptable single arbitrator. The arbitration will take place in Houston, Texas. Employee and Employer agree that the decision of the arbitrator will be final and binding on both parties. Arbitration shall be commenced by either party filing a demand for arbitration with the AAA within 60 days after such dispute has arisen. The prevailing party in a final and binding arbitration decision shall be entitled to recover from the other party the arbitrator's award and the reasonable costs and expenses incurred by such prevailing party in connection therewith (including attorneys' fees); provided, however, that any and all charges that may be made for the cost of the arbitration and the fees of the arbitrators shall in all circumstances be paid by Employer. Any court having jurisdiction may enter a judgment upon the award rendered by the arbitrator.

Employer and Employee acknowledge and agree that this Agreement shall be interpreted, governed by and construed in accordance with the laws of the State of Texas, without regard to the conflict of laws principles or rules thereof.

Subject first to the requirement to seek arbitration, Employer and Employee irrevocably and unconditionally agree that any legal suit, action or proceeding arising out of or relating to this Agreement, as well as to all claims arising out of Employee's employment with Employer or termination therefrom, shall be brought in either the Federal District Court for the Southern District of Texas-Houston Division or in a judicial district court of Harris County, Texas (hereinafter referred to as the "Texas Courts"). In that regard, Employer and Employee waive, to the fullest extent allowed, any objection that Employer or Employee may have to the venue of any such proceeding being brought in the Texas Courts, and any claim that any such action or proceeding brought in the Texas Courts has been brought in an inconvenient forum. In addition, Employer and Employee irrevocably and unconditionally submit to the exclusive jurisdiction of the Texas Courts in any such suit, action or proceeding. Employer and Employee acknowledge and agree that a judgment in any suit, action or proceeding brought in the Texas Courts shall be conclusive and binding on each and may be enforced in any other courts to whose jurisdiction Employer or Employee is or may be subject to, by suit upon such judgment.

In the event Employee obtains a final judgment in his favor by a court of competent jurisdiction with respect to any dispute regarding Employer's failure to pay Employee on a timely basis the amounts to which he is entitled under this Agreement or as a result of any other breach of this Agreement by Employer, Employer shall pay all amounts and damages to which Employee may be entitled as a result of such breach, including interest thereon and all reasonable legal fees and expense and other costs incurred by Employee to enforce Employee's rights hereunder.

IX. MISCELLANEOUS

A. Publicity Release. By executing this Agreement, Employee forever gives the Employer Group, its successors, assigns, licensees and any other designees, the absolute right and permission, throughout the world: (1) to copyright (and to renew and extend any copyright), use, reuse, publish and republish photographic portraits and pictures, motion or still, of Employee, or in which Employee may be included, in whole or in part, or composite or distorted character in any form, whether heretofore taken or to be taken in the future, in conjunction with Employee's own or a fictitious name or title (which Employee now has or may have in the future), or reproductions thereof, in color or otherwise, made through any media at any place, for art, advertising, trade or any other purpose whatsoever; and (2) to record, reproduce, amplify, simulate, "double" and/or "dub" Employee's voice and transmit the same by any mechanical or electronic means, for any purpose whatsoever. Employee further consents to the use of any printed matter giving Employee, or not giving Employee, a credit, in the sole discretion of any of the aforementioned parties to whom this authorization and release is given, in conjunction therewith. Employee waives any right he may have to inspect and/or approve the finished product or the advertising copy or printed matter that may be used in connection therewith, or the use to which it may be applied.

B. Withholding. Employer may withhold from any amounts payable under this Agreement such federal, state, local, F.I.C.A., foreign or other taxes as shall be required to be withheld pursuant to any applicable law or regulation.

C. Notices. All notices, consents, requests, instructions, approvals and other communications provided for in this Agreement shall be in writing and shall be addressed as follows:

To Employer: Quanta Services, Inc.
2800 Post Oak Boulevard, Suite 2600
Houston, Texas 77056
Attention: General Counsel

To Employee: James Redgie Probst
2800 Post Oak Boulevard, Suite 2600
Houston, Texas 77056

Notice shall be deemed given and effective: (1) upon receipt, if delivered personally; (2) three (3) days after it has been deposited in the U.S. mail, addressed as required above, and sent via registered or certified mail, return receipt requested, postage prepaid; or (3) the next business day after it has been sent via a recognized overnight courier. Employer and/or Employee may change the address for notice purposes by notifying the other of such change in accordance with this Section IX.C.

D. Severability. If any provision of this Agreement is held to be invalid, inoperative or unenforceable for any reason, it shall be modified rather than voided, if possible, in order to achieve the intent of the parties hereto to the maximum extent possible. In any event, if any provision this Agreement is held to be invalid, inoperative or unenforceable for any reason, the other provisions of this Agreement shall be deemed valid and operative and, so far as is reasonable and possible, effect shall be given to the intent manifested by the provision or provisions held invalid or inoperative.

E. Survival of Certain Obligations. The obligations of the parties set forth in this Agreement that by their terms extend beyond or survive the termination of this Agreement, whether voluntarily or involuntarily, will not be affected or diminished in any way by the termination of this Agreement.

F. Headings. The headings contained in this Agreement are for purposes of reference and convenience only and are not intended in any way to describe, interpret, define or limit the extent or intent of this Agreement.

G. Entire Agreement. This Agreement supersedes any other agreements, written or oral, between the Employer Group and Employee regarding the subject matter hereof, including, but not limited to, any restrictive covenants and that certain Employment Agreement by and between Probst Electric, Inc. and Employee dated November 4, 2013, as amended, and Employee has no oral representations, understandings or agreements with the Employer Group or any of their respective officers, directors or representatives covering the same subject matter as this Agreement. This written Agreement is the final, complete and exclusive statement and expression of the agreement between Employer and Employee and of all the terms of this Agreement. This Agreement cannot be modified, varied, contradicted or supplement by evidence of any prior or contemporaneous oral or written agreements. Nothing in this Agreement supersedes any rights of Employee under any outstanding equity incentive award, under any indemnification agreement or provision, or under any insurance policy for directors' or officers' insurance or liability insurance.

H. Amendment/Waiver. Neither this Agreement nor any term hereof may be modified or amended except by written instrument signed by a duly authorized officer of Employer and by Employee. No term of this Agreement may be waived other than by written instrument signed by the party waiving the benefit of such term. Any such waiver shall constitute a waiver only with respect to the specific matter described in such written instrument and shall in no way impair the rights of the party granting such waiver in any other respect or at any other time. Neither the waiver by Employer or Employee of a breach of or a default under any of the provisions of this Agreement, nor the failure by either Employer or Employee, on one or more occasions, to enforce any of the provisions of this Agreement or to exercise any right or privilege hereunder, shall be construed as a waiver of any other breach or default of a similar nature, or as a waiver of any such provisions, rights or privileges hereunder.

I. Assignment. This Agreement is personal to the parties and neither party may assign any rights or obligations under the same without the prior written consent of the other; provided, however, that in the event of a sale of the Employer Group's business to a third party (whether by sale of all or a majority of the Employer Group's issued and outstanding equity securities, by a merger or reorganization, or by a sale of all or substantially of the Employer Group's assets), then this Agreement may be assigned by Employer to such third party purchaser without the prior written consent of Employee, provided that such third party purchaser agrees to assume and abide by all of Employer's obligations set forth in this Agreement and provides written notice thereof to Employee. In the event of any such assignment, all references to "Quanta" hereunder shall mean the assignee, and to the extent any entity becomes the successor to Quanta, all obligations hereunder shall be the obligations of the successor and "Quanta" mean the successor entity.

J. Counterparts. This Agreement may be executed simultaneously in two (2) or more counterparts, each of which shall be deemed an original and all of which together shall constitute one and the same instrument.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the date first written above, but to be effective as of the Effective Date.

QUANTA SERVICES, INC.:

By: /s/ Earl C. Austin, Jr.
EARL C. AUSTIN, JR.
CHIEF EXECUTIVE OFFICER

EMPLOYEE:

/s/ James Redgie Probst
JAMES REDGIE PROBST

EXHIBIT A

Pre-Employment Inventions

None

Exhibit 31.1

I, Earl C. Austin, Jr., certify that:

1. I have reviewed this quarterly report on Form 10-Q of Quanta Services, 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.

Dated: May 8, 2020

By: /s/ EARL C. AUSTIN, JR.
Earl C. Austin, Jr.
President, Chief Executive Officer and Chief Operating Officer
(Principal Executive Officer)

Exhibit 31.2

I, Derrick A. Jensen, certify that:

1. I have reviewed this quarterly report on Form 10-Q of Quanta Services, 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.

Dated: May 8, 2020

By: /s/ DERRICK A. JENSEN

Derrick A. Jensen
Chief Financial Officer
(Principal Financial Officer)

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

Each of the undersigned officers of Quanta Services, Inc. (the “Company”) hereby certifies, pursuant to 18 U.S.C. § 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, to such officer’s knowledge that:

(1) the accompanying Form 10-Q report for the period endingMarch 31, 2020 as filed with the U.S. Securities and Exchange Commission (the “Report”) fully complies with the requirements of Section 13(a) of the Securities Exchange Act of 1934, as amended; and

(2) the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company as of the dates and for the periods expressed in the Report.

Dated: May 8, 2020

/s/ EARL C. AUSTIN, JR.

Earl C. Austin, Jr.
President, Chief Executive Officer and Chief Operating Officer

Dated: May 8, 2020

/s/ DERRICK A. JENSEN

Derrick A. Jensen
Chief Financial Officer