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

Form 10-K

(Mark One)

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

For the fiscal year ended December 31, 2023

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

Commission File Number: 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.)*

2727 North Loop West
Houston, Texas 77008
(Address of principal executive offices, including zip code)

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

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

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

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

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

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

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

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

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

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

Indicate by check mark whether the registrant has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report. ☑

If securities are registered pursuant to Section 12(b) of the Act, indicate by check mark whether the financial statements of the registrant included in the filing reflect the correction of an error to previously issued financial statements. ☐

Indicate by check mark whether any of those error corrections are restatements that required a recovery analysis of incentive-based compensation received by any of the registrant's executive officers during the relevant recovery period pursuant to §240.10D-1(b). ☐

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 June 30, 2023 (the last business day of the registrant's most recently completed second fiscal quarter), the aggregate market value of the Common Stock of the registrant held by non-affiliates of the registrant, based on the last sale price of the Common Stock reported by the New York Stock Exchange on such date, was $28.2 billion.

As of February 19, 2024, the number of outstanding shares of Common Stock of the registrant was 145,748,976.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's Definitive Proxy Statement for the 2024 Annual Meeting of Stockholders are incorporated by reference into Part III of this Form 10-K.

QUANTA SERVICES, INC.
ANNUAL REPORT ON FORM 10-K
For the Year Ended December 31, 2023
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Cautionary Statement About Forward-Looking Statements and Information

This Annual Report on Form 10-K (Annual Report) of Quanta Services, Inc. (together with its subsidiaries, Quanta, we, us or our) 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, interest rates and tax rates, as well as other projections of operating results and GAAP (as defined herein) and non-GAAP financial results, including EBITDA (as defined herein), adjusted EBITDA (as defined herein) and backlog;
- Expectations regarding our business or financial outlook;
- Expectations regarding opportunities, technological developments, competitive positioning, future economic and regulatory conditions and other trends in particular markets or industries;
- Expectations regarding our plans and strategies, including with respect to our supply chain and expanded or new service offerings;
- The business plans or financial condition of our customers, including with respect to the transition to a reduced-carbon economy;
- The potential benefits from, and future financial and operational performance of, acquired businesses and our investments;
- Beliefs and assumptions about the collectability of receivables;
- The expected value of contracts or intended contracts with customers, as well as the expected timing, scope, services, term or results of any awarded or expected projects;
- Possible recovery of pending or contemplated insurance claims, change orders and claims asserted against customers or third parties;
- The development of and opportunities with respect to future projects, including renewable energy projects and other projects designed to support the transition to a reduced-carbon economy, electrical grid modernization, upgrade and hardening projects and larger transmission and pipeline projects;
- Expectations regarding the future availability and price of materials and equipment necessary for the performance of our business;
- The expected impact of global and domestic economic or political conditions on our business, financial condition, results of operations, cash flows, liquidity, and demand for our services, including inflation, interest rates, recessionary economic conditions and commodity prices and production volumes;
- The expected impact of changes and potential changes in climate and the physical and transition risks associated with climate change and the transition to a reduced-carbon economy;
- Future capital allocation initiatives, including the amount and timing of, and strategies with respect to, any future acquisitions, investments, cash dividends, repurchases of our equity or debt securities or repayments of other outstanding debt;
- The expected 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, availability of and costs related to labor resources in the industries we serve;
- The expected recognition and realization of our remaining performance obligations or backlog;
- Expectations regarding the outcome of pending or threatened legal proceedings, as well as the collection of amounts awarded in legal proceedings; and
- Expectations with respect to our ability to reduce our debt and maintain our current credit ratings.

These forward-looking statements are not guarantees of future performance; rather they 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. These statements can be affected by inaccurate assumptions and by known or unknown risks and uncertainties, including risks and uncertainties described elsewhere herein, including in Item 1A. *Risk Factors* in Part I of this Annual Report and as may be detailed from time to time in our other public filings with the U.S. Securities and Exchange Commission (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. Although forward-looking statements reflect our good faith beliefs at the time they are made, reliance should not be placed on forward-looking statements because they involve known and unknown risks, uncertainties and other factors, which may cause our actual results, performance or achievements to differ materially from anticipated future results, performance or achievements expressed or implied by such forward-looking statements. 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.

PART I

ITEM 1. *Business*

OVERVIEW

Quanta Services, Inc. (together with its subsidiaries, "Quanta," "we," "us" or "our") is a leading provider of comprehensive infrastructure solutions for the electric and gas utility, renewable energy, communications, pipeline and energy industries in the United States, Canada, Australia and select other international markets. We provide engineering, procurement, construction, upgrade and repair and maintenance services for infrastructure within each of these industries, including electric power transmission and distribution networks; substation facilities; wind and solar generation and transmission and battery storage facilities; communications and cable multi-system operator networks; gas utility systems; pipeline transmission systems and facilities; and downstream industrial facilities. Our operations are decentralized and labor-intensive, and we rely on craft skilled labor personnel and experienced operators to successfully manage our day-to-day business. We also have an experienced management team, both at the executive and regional levels and within our subsidiaries, which we refer to as operating companies. We operate a fleet of owned and leased trucks and trailers, support vehicles and specialty construction equipment, as well as various proprietary technologies that enhance our service offerings. We have a large and diverse customer base, including many of the leading companies in the utility, renewable energy, communications, industrial and energy delivery 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. Our services are typically provided pursuant to master service agreements (MSAs), repair and maintenance contracts and fixed price and non-fixed price construction and engineering contracts. We offer comprehensive and diverse solutions on a broad geographic scale and have a solid base of long-standing customer relationships in each of the industries we serve. We believe our reputation for safety leadership, responsiveness and performance, geographic reach, comprehensive service offerings and financial strength have resulted in strong relationships with numerous customers, and we endeavor to develop and maintain strategic alliances and preferred service provider status with our customers.

We believe that our business strategies, along with our safety culture and financial resources, differentiate us from our competition and position us to benefit from future programmatic and capital spending by our customers. Our strategies include delivering and continuing to expand our portfolio of infrastructure solutions to existing and potential customers, developing our technological and training capabilities, remaining committed to the safety of our employees, and maintaining an entrepreneurial culture throughout our organization. We believe executing on these strategies places us in the position to capitalize on opportunities and trends in the industries we serve and expand our operations to select new markets.

SEGMENTS

We report our results under three reportable segments: Electric Power Infrastructure Solutions (Electric Power), Renewable Energy Infrastructure Solutions (Renewable Energy) and Underground Utility and Infrastructure Solutions (Underground and Infrastructure). Our entrepreneurial business model allows multiple operating companies to serve the same or similar customers and to provide a range of services across end user markets and our reportable segments. Our operating companies 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.

We operate primarily in the United States; however, we derived approximately 14.2%, 15.7% and 14.7% of our revenues from foreign operations, primarily in Canada and Australia, during the years ended December 31, 2023, 2022 and 2021.

Electric Power

Services

Our Electric Power segment provides comprehensive services primarily for the electric power and also for the communications markets. Services performed generally include:

- design, procurement, new construction, upgrade and repair and maintenance services for electric power transmission and distribution infrastructure, both overhead and underground, and substation facilities, along with other engineering and technical services, including services that support the implementation of upgrades by utilities to modernize and harden the electric power grid in order to ensure its safety and enhance reliability and to accommodate increased residential and commercial use of electric vehicles (EVs);
- emergency restoration services, including the repair of infrastructure damaged by fires and inclement weather;
- energized installation, maintenance and upgrade of electric power infrastructure utilizing our bare hand and hot stick methods and our robotic arm techniques;

- installation of “smart grid” technologies on electric power networks;
- design and construction services to wireline and wireless communications companies, cable multi-system operators and other customers within the communications industry (including services in connection with 5G wireless deployment);
- design, installation, maintenance and repair services related to commercial and industrial wiring; and
- aviation services primarily for the utility industry, including the transportation of line workers, the setting of poles and towers, and the stringing of wires.

This segment also includes (i) the majority of the financial results of our advanced training facility and our 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 and (ii) our portion of earnings of our unconsolidated integral affiliates, which includes, among others, our 50% equity interest in LUMA Energy, LLC (LUMA), a joint venture that was selected to operate, maintain, and modernize the approximately 18,000-mile electric transmission and distribution system in Puerto Rico.

Business Environment

With respect to our electric power service offerings, utilities are continuing to invest 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. We also expect demand for electricity in North America to continue to grow, including through electrification trends (e.g., EV adoption) and increased demand for data center infrastructure and manufacturing facilities, and believe that certain segments of the North American electric power grid are not adequate to efficiently supply this future demand. To accommodate this growth, we expect continued demand for new or expanded transmission, substation and distribution infrastructure to reliably transport power to meet demand driven by electrification and the modification and reengineering of existing infrastructure as existing coal and nuclear generation facilities are retired or shut down. In order to reliably and efficiently deliver power, including in response to federal reliability standards and in preparation for emerging technologies, such as EVs, utilities are also integrating smart grid technologies into distribution systems to improve grid management and create efficiencies. A number of utilities also continue to implement system upgrades and hardening programs in response to recurring severe weather events. For example, utilities throughout the United States are executing storm hardening programs to make their systems more resilient to hurricanes and other severe weather events, and there are significant system resiliency initiatives underway in California and other regions in the United States that are designed to prevent and manage the impact of wildfires. Utilities are also executing significant initiatives to underground critical infrastructure, including additional underground transmission and distribution initiatives by utilities in California, underground transmission projects in the northeast United States and underground distribution circuits along the U.S. coastlines.

With respect to our communications service offerings, which are focused on the North American market, consumer and commercial demand for communication and data-intensive, high-bandwidth wireline and wireless services and applications are driving significant investment in infrastructure and the deployment of new technologies. In particular, communications providers remain 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 commercial applications. Additionally, recent legislative and regulatory initiatives, including the Rural Digital Opportunity Fund and the Infrastructure Investment and Jobs Act (IIJA), have dedicated billions of dollars of funding to support broadband service to underserved markets.

Renewable Energy

Services

Our Renewable Energy segment provides comprehensive infrastructure solutions to customers that are involved in the renewable energy industry. Services performed generally include:

- engineering, procurement, new construction, repowering and repair and maintenance services for renewable generation facilities, such as utility-scale wind, solar and hydropower generation facilities and battery storage facilities; and
- engineering and construction services for substations and switchyards, transmission and other electrical infrastructure needed to interconnect and transmit electricity from renewable energy generation and battery storage facilities.

Business Environment

With respect to these services, we believe the transition to a reduced-carbon economy, which is being driven by regulatory requirements, consumer and investor preferences, state and federal policies, increasing electrification trends and

declining levelized costs of renewable energy, will require sizeable long-term investment in renewable generation and related infrastructure, including meaningful repowering and modernization of existing assets. To that end, renewable energy developers are expected to continue to increase investments in wind and solar projects, as well as energy storage projects. Utilities have increased the percentage of renewable electricity bought through power purchase agreements (PPAs) with renewable energy developers, and we believe are in the early stages of investing directly in renewable generation facilities, which could expand significantly over time as they pursue clean energy strategies and emissions-reduction initiatives. Also, a growing number of corporate enterprises, particularly technology companies, are entering into PPAs with renewable energy developers to source renewable electricity to power their facilities and achieve their own carbon-reduction initiatives. Increased battery storage is also being developed to support increased renewable energy production by providing shorter-term storage of electricity from renewable energy generation, particularly from solar facilities, which helps to manage the amount and timing of intermittent power placed on the grid from renewable generation. These dynamics necessitate the development and construction of related infrastructure, including high-voltage electric transmission and substation infrastructure, that is necessary to interconnect and transmit electricity from new renewable energy generation facilities into the existing electric power grid and enhance grid reliability.

Additionally, we believe various legislative and policy objectives throughout North America support these industry and market trends. For example, the Inflation Reduction Act of 2022 (IRA) includes policy and related financial incentives designed to support and accelerate, along with providing certainty for, the United States' efforts to transition towards a reduced-carbon economy. We believe the IRA includes, among other things, favorable provisions targeting increases in utility-scale wind, solar and energy storage capacity and increased domestic manufacturing capacity and availability of products and components for these projects, that could reduce supply chain risks in the future. While we believe demand for our renewable infrastructure services will grow as a result of the IRA, the requirements associated with this legislation are complex, and the timing of the expected growth depends in part on the speed at which we and our customers determine how to proceed.

Underground and Infrastructure

Services

Our Underground and Infrastructure segment provides comprehensive infrastructure solutions to customers involved in the transportation, distribution, storage, development and processing of natural gas, oil and other products. Services performed generally include:

- design, engineering, procurement, new construction, upgrade and repair and maintenance services for natural gas systems for gas utility customers;
- pipeline protection, integrity testing, rehabilitation and replacement services;
- catalyst replacement services, high-pressure and critical-path turnaround services, instrumentation and electrical services, piping, fabrication and storage tank services for the midstream and downstream industrial energy markets, as well as specialty cleaning and environmental solutions for the industrial energy and petrochemical markets;
- engineering and construction services for pipeline systems, storage systems and compressor and pump stations and the fabrication of pipeline support systems and related structures and facilities;
- trenching, directional boring and mechanized welding services related to the services described above; and
- engineering, construction and maintenance services for energy transition and carbon-reduction related projects, such as alternative fuel facilities, carbon capture systems and hydrogen facilities.

Business Environment

With respect to these services, we are focused on specialty services and industries that we believe are driven by regulated utility spending; regulation, replacement and rehabilitation of aging infrastructure; and safety and environmental initiatives, including gas utility services, pipeline integrity and transmission services and downstream industrial services. We believe this strategic decision provides a greater level of business sustainability and predictability and helps to offset the cyclicality of larger pipeline projects described below. Natural gas utilities have implemented multi-decade modernization programs to replace aging cast iron, bare steel and plastic system infrastructure with modern materials for safety, reliability and environmental purposes, and regulatory measures have increased the frequency and stringency of pipeline integrity testing requirements that require our customers to test, inspect, repair, maintain and replace pipeline infrastructure to ensure that it operates in a safe, reliable and environmentally conscious manner. Further, permitting challenges associated with construction of new pipelines can make existing pipeline infrastructure more valuable, motivating owners to extend the useful life of existing pipeline assets through integrity initiatives. Additionally, with respect to our downstream industrial services, including our high-pressure and critical-path turnaround services, as well as our capabilities with respect to instrumentation and electrical services, piping, fabrication and storage tanks services, and other industrial services, we are focused on processing facilities located along the

U.S. Gulf Coast region, which we believe should have certain long-term strategic advantages due to their proximity to competitively priced and abundant hydrocarbon resources. Through a recent acquisition, we also provide a variety of cleaning and other specialty environmental solutions to processing and petrochemical facilities throughout the United States.

Our revenues related to larger pipeline services have fluctuated in recent years. For example, revenues associated with larger U.S. pipeline projects have declined significantly as the pipeline and related infrastructure development necessary to support U.S. shale formations has largely been completed in the near term and as a result of a more challenging permitting and regulatory environment. Although revenues associated with large pipeline projects in Canada increased in 2022 and 2023, as compared to prior years, we anticipate that revenues associated with these projects will continue to fluctuate. Despite these fluctuations and cyclicality, we continue to selectively pursue larger pipeline project opportunities to the extent they satisfy our margin and risk profiles.

We also believe that customers in this segment are implementing strategies to reduce carbon emissions produced from their operations, which are providing incremental opportunities for our services, including the development of infrastructure for blending hydrogen into natural gas flow and carbon capture projects, which could include building or repurposing pipeline infrastructure. Furthermore, the favorable characteristics of natural gas could also position North America as a leading competitor in the global LNG export market, which could provide additional opportunities for our pipeline service offerings.

GENERAL

Recent Acquisitions

In January 2024, we acquired two businesses located in the United States including: a business that provides specialty environmental solutions to industrial companies (which will be primarily included in the Underground and Infrastructure segment) and a business that specializes in testing, manufacturing and distributing safety equipment and supplies (which will be primarily included in the Electric Power and Renewable Energy segments). The consideration for these transactions consisted of approximately $379.9 million paid or payable in cash and 221,700 shares of Quanta common stock issued in consideration for one of the acquired businesses, which had a fair value of $44.9 million as of the applicable acquisition date, plus the potential payment of certain contingent consideration.

During the year ended December 31, 2023, we acquired five businesses located in the United States including: a business that provides services related to high-voltage transmission lines, overhead and underground distribution, emergency restoration and industrial and commercial wiring and lighting (primarily included in the Electric Power segment); a business that procures parts, assembles kits for sale, manages logistics and installs solar tracking equipment for utility and development customers (primarily included in the Renewable Energy segment); a business that provides concrete construction services (primarily included in the Electric Power and Renewable Energy segments); a business specializing in power studies, maintenance testing and commissioning primarily for utility and commercial customers (included in the Electric Power segment) and a business that manufactures power transformers for the electric utility, renewable energy, municipal power and industrial markets (included in the Electric Power and Renewable Energy segments). The consideration for these transactions consisted of approximately $782.4 million paid or payable in cash (subject to certain adjustments) and 1,238,576 shares of Quanta common stock, which had a fair value of $158.9 million as of the applicable acquisition dates. The final amount of consideration for these acquisitions remains subject to certain post-closing adjustments, including with respect to net working capital. The results of these acquired businesses have been included in our consolidated financial statements beginning on the respective acquisition dates.

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 due to capital or liquidity constraints. While the attractiveness of certain acquisition targets may be diminished in the short term by increased interest rates, regulatory conditions and market volatility, 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 products and services.

Customer Relationships

We have a large and diverse customer base, including many of the leading companies in the industries we serve, and we have developed strong strategic alliances with numerous customers and strive to develop and maintain our status as a preferred solutions provider to our customers. For the year ended December 31, 2023, our largest customer accounted for 6% of our

consolidated revenues and our ten largest customers accounted for 31% of our consolidated revenues. Representative customers include:

- American Electric Power Company, Inc.
- ATCO Electric
- Berkshire Hathaway, Inc.
- CenterPoint Energy, Inc.
- Comcast Corporation
- Con Edison Development, Inc.
- Duke Energy Corporation
- EDF Renewables
- Engie IR Holdings LLC
- Entergy Corporation
- Enterprise Products Partners L.P.
- Exelon Corporation
- FirstEnergy Corp.
- Fortis Inc.
- Invenergy LLC
- Lower Colorado River Authority
- National Grid plc
- NextEra Energy, Inc.
- Orsted US
- Pattern Energy
- PG&E Corporation
- Puget Sound Energy, Inc.
- Sempra Energy
- The Southern Company
- TC Energy Corporation
- Trans Mountain Corporation
- Valero Energy Corporation
- Xcel Energy Inc.

Our customers include utilities, renewable energy developers, communications, industrial and energy delivery companies, as well as governmental entities. We have estimated revenues by customer type as a percentage of total revenues below. Such estimates are based on management judgment and assumptions and are provided to show perceived trends in our customer types and should be considered directional in nature.

	2023	2022	2021
Utility	58 %	67 %	74 %
Renewable Energy Developers	16	7	2
Industrial	10	9	10
Energy Delivery	8	7	5
Communications	5	6	5
Other	3	4	4
Total revenues	100 %	100 %	100 %

The customer types set forth in the table above are described in further detail as follows:

- Utility - Customers that are electric and gas utility companies;
- Industrial - Customers that own and/or operate downstream refinery, chemical and industrial facilities, as well as other commercial or manufacturing facilities;
- Energy Delivery - Customers that own and/or operate pipelines for the delivery of hydrocarbons;
- Renewable Energy Developers – Customers that develop, own and/or operate renewable energy solutions other than electric and gas utility companies;
- Communications - Customers that own and/or operate assets supporting delivery of data, communications and digital services; and
- Other - Customers that are not accurately described by the categories set forth above.

We believe utility, renewable energy, communications and industrial customers provide us with growth opportunities due to their programmatic and long-term capital programs and/or the longer term trends and transitions associated with these industries. Our opportunities associated with energy delivery customers are driven by capital programs for energy delivery and industrial customers, as well as pipeline project activity, which was materially impacted by uncertainties and challenges in the energy market and overall economy during the global pandemic but began to recover in 2022 and continued to recover in 2023.

We are a preferred service provider for many of our customers, which generally means we have met minimum standards for a specific category of service, maintained a high level of performance and agreed to certain payment terms and negotiated rates. We strive to maintain our preferred status as we believe it provides us an advantage in the award of future work for the

applicable customer. Furthermore, many of our strategic relationships with customers take the form of strategic alliance or long-term maintenance agreements, which typically extend for an initial term and may include renewal options to extend the initial term. Strategic alliance agreements also generally state an intention to work together over a period of time and/or on specific types of projects, and many provide us with preferential bidding procedures.

Although we have an integrated marketing and business development strategy, management at each of our operating companies is primarily responsible for developing and maintaining successful long-term relationships with customers. Our operating company management teams build upon existing customer relationships to secure additional projects and increase revenues. Many of these customer relationships are long-standing and are maintained through a partnering approach with centralized account management, which includes project evaluation and consulting, quality performance, performance measurement and direct customer contact. Additionally, operating company management focuses on pursuing growth opportunities with prospective customers. We also encourage operating company management to cross-sell services of our other operating companies to their customers and coordinate with our other operating companies to pursue projects, especially those that are larger and more complex. We believe our ability to provide services that cover a broad spectrum of our customers' needs and requirements is a significant differentiator. Our corporate-level business development and regional management groups support these activities by promoting and marketing our services for existing and prospective large accounts, as well as projects that are capable of utilizing services from multiple operating companies.

Competition and Market Demand

The industries and geographic markets in which we operate are highly competitive, and several of our competitors are large companies that have significant financial, technical and marketing resources. In addition, there are relatively few barriers to entry into some of the industries in which we operate and, as a result, organizations that have adequate financial resources and access to technical expertise may become a competitor. Furthermore, companies that we engage as subcontractors, including pursuant to certain regulatory and customer requirements, may develop the expertise necessary to compete with us with respect to the award of prime contracts from our customers.

A significant portion of our revenues is currently derived from unit price or fixed price agreements, and price is often an important factor in the award of such agreements. Accordingly, we could be underbid by our competitors. However, customers often consider other factors in choosing a service provider, including technical expertise and experience, safety ratings, financial and operational resources, geographic presence, industry reputation and dependability, which we expect to benefit larger service providers such as us. In addition, competition may lessen as industry resources, such as labor supplies, approach capacity. There can be no assurance, however, that our competitors will not develop the expertise, experience and resources to provide services that are superior in both price and quality to our services, or that we will be able to maintain or enhance our competitive position. The in-house service organizations of our existing or prospective customers employ personnel who perform some of the same types of services we provide. Although these companies currently outsource a significant portion of these services, there can be no assurance that they will continue to do so in the future or that they will not acquire additional in-house capabilities.

For further information regarding the effects of competition on our business and trends in market demand affecting our business, see *Risks Related to Operating Our Business* and *Risks Related to Our Industries* in Item 1A. *Risk Factors* in Part I of this Annual Report and *Results of Operations* in Item 7. *Management's Discussion and Analysis of Financial Condition* in Part II of this Annual Report.

Material Resources

Equipment

We depend on the availability of a wide range of equipment to perform our services and operate a fleet of owned and leased trucks and trailers, as well as support vehicles and specialty construction and support equipment, such as bucket trucks, digger derricks, sidebooms, dozers, backhoes, excavators, trenchers, generators, boring machines, cranes, robotic arms, wire pullers, tensioners and helicopters. As of December 31, 2023, the total size of the fleet was approximately 71,000 units. A number of factors that we may not be able to predict or control could result in increased costs for, or delays in delivery of, this equipment, including supply chain and other logistical challenges, as well as global trade relationships and other general market and political conditions that could impact production, delivery or pricing of such equipment (e.g., inflation, interest rates, recessionary economic conditions). Additionally, our ability to efficiently allocate equipment, including our vehicle fleet, across our operating companies may impact our ability to perform services and the profitability of our operations. As such, we have invested, and continue to invest, significant resources and management attention to the utilization of our equipment.

Project Materials

We and our customers depend on the availability of certain materials for construction, upgrade and repair and maintenance of their infrastructure, including, among other things, steel, copper, aluminum, and components for renewable

energy projects (e.g., solar panels, wind turbine blades). While our customers are typically responsible for supplying most or all of the materials required for the services we perform on their projects, pursuant to certain of our contracts, including contacts for our comprehensive engineering, procurement and construction (EPC) services, we are required to procure all or part of the materials needed for a project. As we continue to expand our EPC services, customers are increasingly requesting that we be responsible for procuring materials, and this trend is expected to continue to increase. For further information regarding certain risks associated with sources and availability of project materials and components, see *Regulation* below and *Risks Related to Operating Our Business* in Item 1A. *Risk Factors* in Part I of this Annual Report.

Seasonality and Cyclicality

Typically, our revenues and results of operations can be subject to seasonal and other variations. These variations are influenced by, among other things, weather, customer spending patterns, bidding seasons, receipt of required regulatory approvals, permits and rights of way, project timing and schedules, and holidays. Our revenues are generally 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.

Regulation

Compliance with numerous regulations has a material effect on our operations. Our operations are subject to various federal, state, local and international laws and regulations, including:

- licensing, permitting and inspection requirements applicable to contractors and engineers;
- regulations relating to worker safety (e.g., Occupational Safety and Health Administration regulations) and environmental protection;
- permitting and inspection requirements applicable to construction projects;
- wage and hour regulations (e.g., Fair Labor Standards Act) and regulations associated with our collective bargaining agreements and unionized workforce;
- regulations relating to sourcing and transportation of equipment and materials, including licensing and permitting requirements;
- regulations regarding engagement of suppliers and subcontractors that meet diversity-ownership or disadvantaged-business requirements;
- regulations relating to aviation activities;
- building and electrical codes;
- applicable U.S. and non-U.S. anti-corruption regulations;
- immigration regulations applicable to U.S. and cross-border employment; and
- special bidding, procurement and other requirements on government projects.

We believe that we are in compliance with all material licensing and regulatory requirements that are necessary to conduct our operations. Our failure to comply with applicable regulations could result in substantial fines or revocation of certain of our operating licenses, as well as give rise to termination or cancellation rights under our contracts or disqualify us from future bidding opportunities. We are also subject to numerous federal, state, local and international environmental laws and regulations governing our operations, including the handling, transportation and disposal of non-hazardous and hazardous substances and wastes, as well as emissions and other discharges into the environment, including discharges to air, surface water, groundwater and soil. We also are subject to laws and regulations that impose liability and cleanup responsibility for releases of hazardous substances into the environment. Under certain of these laws and regulations, liability can be imposed for cleanup of previously owned or operated properties or currently owned properties at which hazardous substances or wastes were discharged or disposed of by a former owner or operator, regardless of whether we directly caused the contamination or violated any law at the time of discharge or disposal. The presence of contamination from such substances or wastes could also interfere with ongoing operations or adversely affect our ability to sell or lease the property or use it as collateral for financing. In addition, we could be held liable for significant penalties and damages under certain environmental laws and regulations or be subject to revocation of certain licenses or permits, which could materially and adversely affect our business, results of

operations and cash flows. Our contracts with customers may also impose liability on us for environmental issues that arise through the performance of our services. As a result, from time to time, we incur, and expect to continue to incur, costs and obligations to remain in compliance with applicable environmental laws and regulations, to correct environmental noncompliance matters and for remediation at or relating to certain of our properties. We believe that we are in substantial compliance with our environmental obligations and that any such obligations will not have a material adverse effect on our business or financial performance.

The overall regulatory environment also creates both challenges and opportunities for our business. In recent years, certain of our projects and certain customer spending in our industries have been negatively impacted by regulatory and permitting delays, as well as private legal challenges related to regulatory requirements, particularly with respect to large transmission and pipeline projects. Any tariffs, duties, taxes, assessments, or other limitations on the availability or sourcing of materials or components for our customers' projects can also increase costs for customers and create variability of project timing. For example, regulatory action with respect to various aspects of the supply chain for components required for solar projects created delays, shortages and other availability concerns during 2022 and into 2023. For further information regarding the effects of regulation on our business, see *Risks Related to Operating Our Business* and *Risks Related Regulation and Compliance* in Item 1A. *Risk Factors* in Part I of this Annual Report.

Conversely, 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 both electrical and pipeline system investment and maintenance. Additionally, certain new legislation, such as the IRA and the IIJA, as well as other policy and economic incentives and overall public sentiment, are expected to support and encourage renewable projects that can potentially increase demand for our services over the long term.

Human Capital Resources

We believe our employees are our most important assets, and we focus significant attention and resources on attracting, developing and retaining talented and experienced individuals. We believe our industry-leading training and safety programs are a strength and competitive differentiator with not only our current and potential employees, but with our customers, which have high safety standards and are increasing the amount of their outsourced infrastructure services. Our operations are decentralized and labor-intensive, and we rely on craft skilled labor personnel and experienced operators to successfully manage our day-to-day business, as well as corporate management and professional personnel to coordinate and help execute our business strategies, allocate capital and coordinate equipment usage, and facilitate certain centralized administrative services.

Employee Profile

As of December 31, 2023, we had approximately 52,500 employees, consisting of approximately 10,100 salaried employees, including, among others, executive officers, professional and administrative staff, project managers and engineers, job superintendents and field personnel, and approximately 42,400 hourly employees, the number of which fluctuates depending upon the number and size of the projects that are ongoing and planned at any particular time. Additionally, approximately 32% of our employees as of December 31, 2023 were covered by collective bargaining agreements, which require the payment of specified wages, the observance of certain workplace rules and the payment of certain amounts to multiemployer pension plans and employee benefit trusts. These collective bargaining agreements have varying terms and expiration dates, and the majority contain provisions that prohibit work stoppages or strikes, even during specified negotiation periods relating to agreement renewals, and provide for binding arbitration dispute resolution in the event of prolonged disagreement. As of December 31, 2023, we had approximately 47,200 U.S. employees and approximately 5,300 non-U.S. employees, with the majority of our non-U.S. employees based in Canada.

Employee Health and Safety

Performance of our services requires the use of heavy equipment and exposure to inherently hazardous conditions. In response to these inherent hazards and as part of our commitment to the safety of our employees, customers and third parties, our corporate and operating company management personnel have established safety programs, policies and procedures and ongoing training requirements for our employees and have also developed and implemented critical safety equipment and innovations. For example, on our project sites we have implemented emergency response plans, personal voltage detectors, first aid training and automated external defibrillators, which have helped save the lives of our employees and bystanders. We have also continued to invest significant resources in our safety programs and training facilities, including the Quanta Advanced Training Center, located in Texas, and our safety monitoring tools, including fleet management software. Our operating companies also develop and share best practices for safety policies and practices, and we have an established program for onboarding newly acquired companies and working with them to augment their existing safety practices as necessary. We are

also subject to, and must comply with, extensive regulations relating to worker health and safety, including the regulations of the Occupational Safety and Health Administration.

Employee Recruiting, Development and Training

Our success depends on our ability to attract, develop and retain highly qualified employees, including craft skilled labor, project management, engineers, architects, designers, management and professional and administrative employees.

Craft Skilled Labor. We continue to address the longer-term need for additional labor resources in our markets, as 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 such a degree that demand for labor resources will outpace supply. Furthermore, the increased demand for our services based on favorable dynamics in certain of our industries can create shortages of qualified labor. In order to take advantage of available opportunities and successfully implement our long-term strategy, we must be able to employ, train and retain the necessary skilled personnel. As a result, 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 facilities and postsecondary educational institution. For example, we own and operate Northwest Lineman College, a postsecondary educational institution that provides training programs for the electric power infrastructure, communications and underground utility and infrastructure industries and specializes in pre-apprenticeship training, apprenticeship training and specialized utility task training for electric workers. We also continue to invest in our education and training capabilities at the Quanta Advanced Training Center and other dedicated training facilities, which provide programs for, among other things, beginning linemen, energized electric power services, telecommunications services, industrial services, lead and cable splicing, directional drilling, gas distribution services and pipeline integrity training. These training facilities allow us to provide classroom and on-the-job training programs and allow us to train employees in a controlled environment without the challenges of limited structure access and other constraints.

Additionally, we have entered into strategic relationships with universities, the military and unions in order to attract potential employees and develop our workforce. For example, our operating companies performing more sophisticated and technical jobs utilize, when applicable, training programs provided by the International Brotherhood of Electrical Workers/National Electrical Contractors Associations (IBEW/NECA) Apprenticeship Program, training programs sponsored by the four trade unions administered by the Pipe Line Contractors Association (PLCA), apprenticeship training programs sponsored by the Canadian Union of Skilled Workers (CUSW) or our equivalent programs. Certain of our operating companies have also established apprenticeship training programs approved by the U.S. Department of Labor that prescribe equivalent training requirements for employees who are not otherwise subject to the requirements of the IBEW/NECA Apprenticeship Program. In addition, the Laborers International Union of North America, the International Brotherhood of Teamsters, the United Association of Plumbers and Pipefitters and the International Union of Operating Engineers have training programs specifically designed for developing and improving the skills of their members who work in the pipeline construction industry. Our operating companies also share best practices for training and educational programs. Although we believe these and other initiatives will help address workforce needs, meeting our customers' demand for labor resources could prove challenging. For additional information on the risks associated with labor resources in our industries, see *Risks Related to Operating Our Business* in Item 1A. *Risk Factors* in Part I of this Annual Report.

Management and Professional Personnel. Due to our decentralized operating structure, significant decision-making authority resides with management at our operating companies, and our corporate management and professional and administrative personnel are relied upon to allocate capital and communicate, coordinate and help execute our business strategies. We are focused on our ability to attract and retain qualified employees for these important positions, as we rely on them to successfully manage our decentralized operations and grow and expand our business. We have also implemented enterprise-wide talent development and succession planning programs designed to identify and develop future and/or replacement candidates for key positions. For example, we have developed and administer a succession program with respect to our executive officers and senior operating company personnel, which is reviewed and/or overseen by our Board of Directors (Board).

Compensation and Benefits

Our compensation programs are generally designed to align employee compensation with market practices and our performance, as well as provide the proper incentives to attract, retain and motivate employees. With respect to our executive officers, operating company management, other senior leadership and corporate employees, compensation programs consist of both fixed and variable components. The fixed portion is generally set based on consideration of various market factors, with variable compensation designed to reward employees based on company financial and operational performance. We also grant stock-based compensation broadly throughout our organization, including to management and key operations personnel at the majority of our operating companies, which we believe is a key component of our compensation programs that helps to align

incentives throughout our decentralized organization. We also enter into employment agreements with our executive officers and certain other key personnel.

We provide additional benefits to our employees. For example, we provide health, welfare and benefit plans for most employees who are not covered by collective bargaining agreements, and we maintain a 401(k) plan pursuant to which eligible U.S. employees who are not provided retirement benefits through a collective bargaining agreement may make contributions through payroll deductions and to which we make certain matching contributions.

Ethics and Compliance

All of our employees are subject to Quanta's Code of Conduct, which addresses compliance with applicable laws and Quanta's policies concerning, among other things, general business ethics, competition, anti-corruption and bribery, environmental protection, conflicts of interest, harassment and discrimination, data security and privacy, and insider trading. Quanta's Code of Conduct also informs employees and third parties (such as suppliers, subcontractors and members of the public) about the resources and confidential reporting mechanisms available to detect, prevent and report unethical and illegal conduct, and our Chief Compliance Officer communicates directly with our Board about actual and alleged violations of the law or the Code of Conduct. Training with respect to Quanta's Code of Conduct and other policies and procedures is conducted as part of our comprehensive ethics and compliance training program.

Climate Change-Related Impacts

Our management considers climate-related risks and opportunities in connection with its long-term strategic planning and enterprise risk management process, which are overseen by our Board. While the overall impact on our operations continues to evolve, various aspects of climate change, as well as market and societal concerns about the future impact of climate change, have resulted and are expected to continue to result in operational opportunities and challenges. These opportunities and challenges arise from the physical risks associated with changes in climate, as well as technological advances, market developments and additional regulatory and compliance costs.

Changes in climate have caused, and are expected to continue to cause, among other things, increasing temperatures, rising sea levels and changes to meteorological and hydrological patterns, as well as impacts to the frequency and intensity of wildfires, hurricanes, floods, droughts, winter storms and other storms and severe weather-related events and natural disasters. Our operating results can be significantly influenced by the climates in which we operate and severe weather events, and these changes have and could continue to significantly impact our future operating results. A greater amount of rainfall, snow, ice or other less accommodating weather conditions, as well as an increase in severe weather events and natural disasters, reduces our productivity and causes delays and cancellations of our ongoing projects. For example, hurricanes and tropical storms in the U.S. Gulf Coast region have impacted our ability to perform industrial services operations during certain periods. However, an increase in certain of these events, such as hurricanes, tropical storms, wildfires, blizzards and ice storms, also creates opportunities for us to perform a greater amount of emergency restoration services and, as described above, can increase customer spending on modernization, grid hardening and other infrastructure improvements (e.g., fire hardening programs and storm hardening programs). The timing and impact of these events is difficult to predict and can vary from period to period, and our emergency restoration services attributable to these events have fluctuated significantly in the last several years. Additionally, changes in climate could result in more accommodating weather patterns for greater periods of time in certain areas, which may enable us to increase our productivity in those areas.

Physical risks associated with changes in climate have also increased hazards associated with certain of our operations, which in turn has increased the potential for liability and increased the costs associated with such operations. For example, severe drought and high wind speeds have significantly increased the risk of wildfires throughout our operating locations, which in turn has exposed us and other contractors to increased risk of liability, particularly as these events can be started by electrical power and other infrastructure on which we have performed services. Given the potentially significant liabilities associated with these events, to the extent we are deemed liable or are otherwise responsible for damages or other amounts associated with a wildfire event, it could have a material adverse impact on our business. Furthermore, these climate conditions have also resulted in increased costs for wildfire-related third-party insurance and reduced the amount of insurance carriers are willing to make available to us under such policies.

Climate change has also caused, and is expected to continue to cause, changes in the markets in which we operate. For example, in support of the transition to a reduced-carbon economy, utility customers are transitioning toward more sustainable sources of power generation, such as renewables (e.g., wind and solar) coupled with battery storage technology, and are replacing aging, less efficient infrastructure. Concerns regarding climate change are also leading to the increased electrification of consumer goods (e.g., EVs), which is expected to provide continued additional demand for new and expanded electric power infrastructure and reengineering of existing electric power infrastructure. We believe these market dynamics and technological

advances provide significant opportunities for us, including increased demand for our renewable energy infrastructure services, as well as our portfolio of electric power infrastructure services.

The increasing focus on climate change has also impacted markets within our Underground and Infrastructure segment. Certain services within this segment have experienced challenges, and could continue to experience challenges, related to a transition toward a reduced-carbon economy. For example, concerns about the impact of certain large pipeline projects on the environment, among other things, have contributed to significant delays and cancellations of certain projects in recent years, and as a result of this and other reasons, we have decreased our strategic focus on these service offerings. Furthermore, a potential for longer-term decline in demand for fossil fuels or refined products as a result of climate change concerns and/or regulation could further negatively impact these projects or negatively impact demand for our midstream and industrial services operations. However, we believe there are climate change-related opportunities for certain services in this segment, as described above. We also believe the timeline for the transition to a reduced-carbon economy will be extended and will need to be supported by certain legacy energy resources, including natural gas as a transition fuel, and therefore have strategically focused on expanding our natural gas utility services in recent years.

Lastly, new legislation or regulation related to climate change could increase our costs. Most significantly, we maintain a large fleet of vehicles and a significant amount of construction machinery, and the costs associated with them could significantly increase as a result of regulations related to greenhouse gas emissions from such sources or regulations that result in an increase in fuel prices. Additionally, the SEC and the State of California have proposed new rules relating to the disclosure of a range of climate-related risks. We are currently assessing these rules and regulations but at this time we cannot predict the costs of implementation or any potential adverse impacts resulting from the rules. To the extent these rules are finalized, we or our customers could incur increased costs related to the assessment and disclosure of climate-related risks. In addition, enhanced climate disclosure requirements could accelerate the trend of certain stakeholders and lenders restricting or seeking more stringent conditions with respect to their investments in certain carbon intensive sectors, which could further impact our customers and demand for our services.

For additional information regarding the risks and opportunities described above, see *Risks Related to Operating Our Business* in Item 1A. *Risk Factors* in Part I of this Annual Report.

Risk Management and Insurance

We maintain insurance coverage from third-party insurers as part of our overall risk management strategy and because some of our contracts require us to maintain specific insurance coverage limits. We are insured for, among other things, employer's liability, workers' compensation, auto liability, aviation and general liability claims. The deductibles for the employer's liability and workers' compensation programs are $5.0 million per occurrence and the deductibles for the general liability and auto liability programs are $25.0 million per occurrence. We also maintain 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. We manage and maintain a portion of our casualty risk indirectly through our wholly-owned captive insurance company, which reimburses claims up to the amount of the applicable deductible of our third-party insurance programs, as well as with respect to certain other amounts, and issue letters of credit to secure our obligations in connection with our casualty insurance programs. For additional information regarding our insurance and the risks associated with insurance coverage, see Note 16 of the Notes to Consolidated Financial Statements in Item 8. *Financial Statements and Supplementary Data* and *Risks Related to Operating Our Business* in Item 1A. *Risk Factors* in Part I of this Annual Report.

Website Access and Other Information

Our website address is *www.quantaservices.com*. Interested parties may obtain free electronic copies of our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K, and any amendments to these reports in the *Investors / SEC Filings* section of our website or through the website of the SEC at *www.sec.gov*. These reports are available on our website as soon as reasonably practicable after we electronically file them with, or furnish them to, the SEC. We will also make available to any stockholder, without charge, copies of our Annual Report on Form 10-K as filed with the SEC. For copies of this or any other Quanta publication, stockholders may submit a request in writing to Quanta Services, Inc., Attn: Corporate Secretary, 2727 North Loop West, Houston, Texas 77008, or by phone at (713) 629-7600.

Investors and others should note that we announce material financial information and make other public disclosures of information regarding Quanta through SEC filings, press releases, public conference calls, and our website. We also utilize social media to communicate this information, and it is possible that the information we post on social media could be deemed material. Accordingly, we encourage investors, the media and others interested in our company to follow Quanta, and review the information we post, on the social media channels listed on our website in the *Investors / Social Media* section.

This Annual Report, our website and our social media channels contain information provided by other sources that we believe is reliable. We cannot provide assurance that the information obtained from other sources is accurate or complete. No information on our website or our social media channels is incorporated by reference herein.

ITEM 1A. *Risk Factors*

Our business is subject to a variety of risks and uncertainties, including, but not limited to, the material risks and uncertainties described below. The matters described below are not the only risks and uncertainties facing our company, and risks and uncertainties not known to us or not described below also may impair our business operations. If any of the following risks actually occur, our business, financial condition, results of operations and cash flows can be negatively affected, the value of securities we have issued could be adversely affected, resulting in stockholders and purchasers losing part or all of their investment, and we may not be able to achieve our strategic initiatives or expectations. This Annual Report also includes statements reflecting assumptions, expectations, projections, intentions or beliefs about future events that are intended as "forward-looking statements" under the Private Securities Litigation Reform Act of 1995 and should be read in conjunction with the section entitled *Cautionary Statement About Forward-Looking Statements and Information.*

Summary Risk Factors

The following is a summary of some of the material risks and uncertainties that could materially adversely affect our business, financial condition and results of operations. You should read this summary together with the more detailed description of each risk factor contained below.

Risks Related to Operating Our Business

- Our operating results may vary significantly from quarter to quarter.
- A variety of issues could affect the timing or profitability of our projects, and could result in, among other things, project termination or payment of liquidated damages.
- Our business is subject to operational hazards (e.g., wildfires, explosions) that can result in significant liabilities, and we may not be insured against all potential liabilities.
- Unavailability or cancellation of third-party insurance would increase our risk exposure and disrupt our operations, and our estimates of losses under our insurance programs could prove inaccurate.
- Our business and operating results are subject to physical risks associated with climate change.
- Our business is labor-intensive, and we may be unable to attract and retain qualified employees or we may incur significant costs if we are unable to efficiently manage our workforce.
- A loss of business from certain significant customers could have a material effect on our business.
- Changes in estimates related to revenues and costs under customer contracts could result in a reduction or elimination of revenues or profits and the recognition of losses.
- We may fail to adequately recover on contract change orders or claims against customers.
- We are subject to lawsuits, claims and other legal proceedings, as well as project surety claims.
- We may be unsuccessful in generating internal growth.
- Many of our contracts may be canceled or suspended on short notice or may not be renewed or replaced.
- The nature of our business exposes us to warranty, engineering and other related claims.
- We can incur liabilities or suffer negative financial or reputational impacts due to health and safety matters.
- Disruptions or failure to adequately protect our information technology systems could materially affect our business or result in harm to our reputation.
- A deterioration of our reputation or brands could have an adverse impact on our business.
- Our financial results are based on estimates and assumptions that may differ from actual results.
- Our inability to successfully execute our acquisition strategy may adversely impact our growth.
- Our management structure could be inadequate to support our business as it expands and becomes more complex.
- The loss of, or our inability to attract, key personnel could disrupt our business.
- Our investments, including our joint ventures, expose us to risks and may result in conflicts of interest.
- We are subject to credit and investment risk with respect to our customers and projects.
- Risks associated with operating in international markets and U.S. territories could harm our business and prospects.
- Our business is subject to the availability of suppliers, subcontractors and equipment manufacturers.
- A lack of availability or an increase in the price of fuel, materials or equipment could adversely affect our business or our customers.
- Increasing scrutiny and expectations with respect to corporate sustainability practices may impose additional costs on us or expose us to reputational or other risks.

Risks Related to Our Industries

- Negative macroeconomic conditions and industry-specific economic and market conditions can adversely impact our business.
- Our revenues and profitability can be negatively impacted if customers encounter financial difficulties or disputes arise with our customers.
- Our business is highly competitive and competitive pressures could negatively impact our business.
- Technological advancements and other market conditions could negatively affect our business.

Risks Related to Regulation and Compliance

- Regulatory requirements applicable to our business and potential changes related to those requirements may adversely affect our business.
- Our unionized workforce and related obligations may adversely affect our operations.
- We could be adversely affected by failure to comply with laws applicable to our foreign activities.
- Our failure to comply with environmental laws and regulations could result in significant liabilities and costs.
- Certain specific regulatory requirements are applicable to us and certain of our subsidiaries, which could materially impact our business.
- Changes in tax laws could adversely affect our financial results.
- Opportunities for government contracts or projects could subject us to increased regulation and costs and may pose additional risks relating to funding and compliance.
- Immigration laws, including inability to verify employment and restrictions on movement, could adversely impact our business.

Risk Related to Financing Our Business

- We may not have access to sufficient funding to finance desired growth and operations.
- We have a significant amount of debt that can negatively impact our business.
- We may not have sufficient cash flow to service our debt.
- Our variable rate indebtedness subjects us to interest rate risk.
- We may be unable to compete for projects if we cannot obtain surety bonds, letters of credit or bank guarantees.
- A downgrade in our debt rating could restrict our ability to access capital markets.

Risks Related to Our Common Stock

- Our sale or issuance of additional common stock or other equity securities could be dilutive to each stockholder's ownership interest or affect the market price of our common stock.
- There can be no assurance that we will declare or pay future dividends on our common stock.
- Certain provisions of our governing documents could make an acquisition of Quanta more difficult.

Risks Related to Operating Our Business

Our operating results may vary significantly from quarter to quarter.

Certain industries in which we operate can be cyclical and our business is subject to seasonality and other factors that can result in significantly different operating results from quarter to quarter, and therefore our results in any particular quarter may not be indicative of future results. Our quarterly results have been and may in the future be materially and/or adversely affected by, among other things:

- the timing and volume of work we perform and our performance with respect to ongoing projects and services, including as a result of fluctuations in the amount of work customers assign to us under our agreements (e.g., MSAs), delays and reductions in scope of projects, and project and agreement terminations, expirations or cancellations;
- increases in project costs that result from, among other things, natural disasters and emergencies, adverse weather conditions or events, legal challenges, permitting, regulatory or environmental processes, or inaccurate project cost estimates;
- variations in the size, scope, costs and operating income margins of ongoing projects, as well as the mix of our customers, contracts and business;
- fluctuations in economic, political, financial, industry and market conditions on a regional, national or global basis, including as a result of, among other things, inflationary pressure that impacts our costs associated with labor, equipment and materials; increased interest rates; default or threat of default by the U.S. federal government with respect to its debt obligations; U.S. government shutdowns; natural disasters and other emergencies (e.g., wildfires, weather-related events, pandemics); deterioration of global or specific trade relationships; or geopolitical conflicts and political unrest;

- pricing pressures as a result of competition;
- changes in the budgetary spending patterns or strategic plans of customers or governmental entities;
- supply chain and other logistical difficulties, as well as sourcing restrictions on materials necessary for the services we provide;
- liabilities and costs incurred in our operations that are not covered by, or that are in excess of, our third-party insurance or indemnification rights, including significant liabilities that arise from the inherently hazardous conditions of our operations (e.g., explosions, fires) and the operations of our subcontractors, and which could be exacerbated by the geographies in which we operate;
- disputes with customers or delays and payment risk relating to billing and payment under our contracts and change orders, including as a result of customers that encounter financial difficulties, are insolvent or have filed for bankruptcy protection;
- the resolution of, or unexpected or increased costs associated with, pending or threatened legal proceedings, indemnity obligations, multiemployer pension plan obligations (e.g., withdrawal liability) or other claims;
- restructuring, severance and other costs associated with, among other things, winding down certain operations and exiting markets;
- estimates and assumptions in determining our financial results, remaining performance obligations and backlog, including the timing and significance of impairments of long-lived assets, equity or other investments, receivables, goodwill or other intangible assets;
- significant fluctuations in foreign currency rates;
- the recognition of tax impacts related to changes in tax laws or uncertain tax positions; and
- the timing and magnitude of costs we incur to support our operations or growth internally or through acquisitions.

A variety of issues could affect the timing or profitability of our projects, which may result in additional costs to us, reductions or delays in revenues, the payment of liquidated damages or project termination.

Our business is dependent in part upon projects that can be cyclical in nature and are subject to risks of delay or cancellation. The timing of or failure to obtain contracts, delays in awards of, start dates for or completion of projects and the cancellations of projects can result in significant periodic fluctuations in our business, financial condition, results of operations and cash flows. Many of our projects involve challenging design, engineering, financing, permitting, right of way acquisition, procurement and construction phases that occur over extended time periods, sometimes several years, and we have encountered and may in the future encounter project delays, additional costs or project performance issues as a result of, among other things:

- inability to meet project schedule requirements or achieve guaranteed performance or quality standards for a project, which can result in increased costs, through rework, replacement or otherwise, or the payment of liquidated damages to the customer or contract termination;
- failure to accurately estimate project costs or accurately establish the scope of our services;
- failure to make judgments in accordance with applicable professional standards (e.g., engineering standards);
- unforeseen circumstances or project modifications not included in our cost estimates or covered by our contract for which we cannot obtain adequate compensation, including concealed or unknown environmental, geological or geographical site conditions or technical problems such as design or engineering issues;
- changes in laws or permitting and regulatory requirements during the course of our work;
- delays in the delivery or management of design or engineering information, equipment or materials;
- our or a customer's failure to manage a project, including the inability to timely obtain land, permits or rights of way or meet other permitting, regulatory or environmental requirements or conditions;
- changes to project or customer schedules;
- natural disasters or emergencies, including wildfires and earthquakes, as well as significant weather events (e.g., hurricanes, tropical storms, tornadoes, floods, droughts, blizzards and extreme temperatures) and adverse or unseasonable weather conditions (e.g., prolonged rainfall or snowfall, early thaw in Canada and the northern United States);

- difficult terrain and site conditions where delivery of materials and availability of labor are impacted or where there is exposure to harsh and hazardous conditions;
- protests and other public activism, legal challenges or other political activity or opposition to a project;
- other factors such as terrorism, geopolitical conflicts, public health crises (e.g. pandemics) and delays attributable to U.S. government shutdowns or any related under-staffing of government departments or agencies;
- changes in the cost, availability or quality of equipment, commodities, materials, consumables or labor; and
- delay or failure to perform by suppliers, subcontractors or other third parties, or our failure to coordinate performance of such parties, as approximately 20% of our work is subcontracted to other service providers.

Many of these difficulties and delays are beyond our control and can negatively impact our ability to complete the project in accordance with the required delivery schedule or achieve our anticipated margin on the project. Delays and additional costs associated with delays may be substantial and not recoverable from third parties, and in some cases, we may be required to compensate the customer for such delays, including in circumstances where we have guaranteed project completion or performance by a scheduled date and incur liquidated damages if we do not meet such schedule.

We also generate a significant portion of our revenues under fixed price contracts, including contracts for large projects and/or projects where we provide EPC services (e.g., large transmission, substation and renewable generation projects). We have strategically expanded these service offerings in recent years, including with respect to renewable energy projects, and the size and scope of these projects continues to increase. The contracts for these projects often involve complex pricing, scope of services and other bid preparation components that require challenging estimates and assumptions on the part of our personnel, which increases the risk that costs incurred on such projects can vary, sometimes substantially, from our original estimates.

Performance difficulties can result in project delays, project cancellations and damage to our relationship with customers, as well as damage to our reputation, which can be exacerbated when the difficulties arise on a high profile project. As a result, additional costs or penalties, a reduction in our productivity or efficiency or a project termination in any given period can have a material adverse effect on our business, financial condition, results of operations and cash flows and can also adversely affect our ability to secure new contracts.

Our business is subject to operational hazards, including, among others, wildfires and explosions, that can result in significant liabilities, and we may not be insured against all potential liabilities.

Due to the nature of our services and certain of our product solutions, as well as the conditions in which we and our customers operate, our business is subject to operational hazards and accidents that can result in significant liabilities. These operational hazards include, among other things, electricity, fires, explosions, leaks, collisions, mechanical failures, and damage from severe weather conditions and natural disasters. Furthermore, certain operational hazards have become more widespread in recent years due to changes in climate and other factors, and certain of our customers operate energy- and communications-related infrastructure assets in locations and environments that increase the likelihood and/or severity of these operational hazards.

In particular, locations throughout our primary operating regions, including but not limited to, the United States, Canada and Australia, have recently experienced and are increasingly impacted by wildfires, including locations that have not historically experienced wildfire events but that are becoming more susceptible to wildfire events due to changes in climate. Our customers operate electrical power, natural gas, communications and other infrastructure assets in these areas, which in turn has exposed us and other contractors to increased risk of liability in connection with our operations, as these wildfire events can be started by electrical power and other infrastructure on which we have performed services, including inspection, consulting, construction, upgrade, repair and maintenance and other services. For example, certain of our customers have been determined to be or are potentially responsible for certain catastrophic wildfire events in the western United States due to failure of their infrastructure, and in connection with certain of these events, Quanta operating companies have received document hold requests and subpoenas, and as described further in Note 16 of the Notes to Consolidated Financial Statements in Item 8. *Financial Statements and Supplementary Data* in Part II of this Annual Report, two Quanta operating companies have received tenders of defense and demands for preservation of documents. Additionally, certain of these wildfire events remain under investigation and additional claims or legal proceedings involving Quanta and its operating companies related to these events may be brought in the future.

We also often perform services in locations that are densely populated and that have higher value property and assets, such as California and metropolitan areas, which can increase the impact of any of these hazards or other accidents. For example, one of our larger operating companies specializes in underground gas and electric distribution and transmission services and operates in metropolitan areas throughout the northeastern United States, including New York City, New York. Additionally, we operate a significant number of helicopters in the performance of our services, including the transportation of line workers, the setting of poles, the stringing of wires and wildfire control and prevention, among other activities, including in

locations that have a higher risk of wildfires and in densely populated areas. Our operation of helicopters is subject to various risks, such as crashes, collisions, fires, adverse weather conditions or mechanical failures. Additionally, we manufacture certain products, including power transformers and mobile energy storage systems, and a failure of one of our products could also lead to similar operational hazards (e.g., explosions or mechanical failures).

Events arising from operational hazards and accidents have resulted in significant liabilities to us in the past and may expose us to significant claims and liabilities in the future. These claims and liabilities can arise through indemnification obligations to customers, our negligence or otherwise, and such claims and liabilities can arise even if our operations are not the cause of the harm. Our exposure to liability can also extend for years after we complete our services, and potential claims and liabilities arising from significant accidents and events can take years and significant legal costs to resolve.

Potential liabilities include, among other things, claims associated with personal injury, including severe injury or loss of life, and destruction of or significant damage to property and equipment (with respect to both our customers and other third parties), as well as harm to the environment, and other claims discussed above and can lead to suspension of operations, adverse effects to our safety record and reputation and/or material liabilities and legal costs. In addition, if any of these events or losses related thereto are alleged or found to be the result of our or our customer's activities or services, we could be subject to government enforcement actions, regulatory penalties, civil litigation and governmental actions, including investigations, citations, fines and suspension of operations. Insurance coverage may not be available to us or may be insufficient to cover the cost of any of these liabilities and legal costs, and our insurance costs may increase if we incur liabilities associated with operational hazards. If we are not fully insured or indemnified against such liabilities and legal costs or a counterparty fails to meet its indemnification obligations to us, it could materially and adversely affect our business, financial condition, results of operations and cash flows. Further, to the extent our reputation or safety record is adversely affected, demand for our services could decline or we may not be able to bid for certain work.

Unavailability or cancellation of third-party insurance coverage would increase our overall risk exposure, as well as disrupt our operations, and estimates of losses covered by our insurance policies could prove incorrect.

We maintain insurance coverage from third-party insurers as part of our overall risk management strategy and because some of our contracts require us to maintain specific insurance coverage limits. Such insurance is subject to deductibles and limits and may be canceled or may not cover all of our losses. We also manage and maintain a portion of our casualty risk through our wholly-owned captive insurance company, which insures all claims up to the amount of the applicable deductible of our third-party insurance programs, as well as with respect to certain other amounts, and issue letters of credit to secure our obligations in connection with our casualty insurance programs. Our insurance policies include various coverage requirements, including notice requirements, and coverage could be denied if we fail to comply with those requirements.

Additionally, our insurance coverages may not be sufficient or effective under all circumstances or against all claims and liabilities asserted against us, and if we are not fully insured against such claims and liabilities, it could expose us to significant liabilities and materially and adversely affect our business, financial condition, results of operations and cash flows. We also renew our insurance policies on an annual basis, and therefore deductibles and levels of coverage offered by third parties may change in future periods, and there is no assurance that any of our coverages will be renewed at their current levels or at all or that any future coverage will be available at reasonable and competitive rates. Our third-party insurers could also fail, cancel our coverage or otherwise be unable or unwilling to provide us with adequate insurance coverage for certain items, including wildfires, 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. For example, due to the increased occurrence and future risk of wildfires, as described above, insurers have reduced coverage availability and increased the cost of insurance coverage for such events in recent years. As a result, Quanta's level of insurance coverage for wildfire events has decreased in recent years, and the current level of coverage may not be sufficient to cover potential losses in connection with these events. Furthermore, our third-party insurers could also decide to further reduce or exclude coverage for wildfires or other events in connection with future insurance renewals. Adverse changes in our insurance coverage could increase our exposure to uninsured losses, which could have a negative effect on our business, financial condition, results of operations and cash flows or result in a disruption of our operations.

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 unreported incidents. If we experience claims or costs above our estimates, our business, financial condition, results of operations and cash flows could be materially and adversely affected.

Our business and operating results are subject to physical risks associated with climate change.

Changes in climate have caused, and are expected to continue to cause, among other things, increasing mean annual temperatures, rising sea levels and changes to meteorological and hydrological patterns, as well as impacts to the frequency and

intensity of wildfires, hurricanes, floods, droughts, other storms and severe weather-related events and natural disasters. These changes have and could continue to significantly impact our future operating results and may have a long-term impact on our business, results of operation, financial condition and cash flows. While we seek to mitigate our risks associated with climate change, we recognize that there are inherent climate-related risks regardless of how and where we conduct our operations. For example, catastrophic natural disasters can negatively impact projects we are working on, our facilities and other physical locations, portions of our equipment, or the locations and service regions of our customers. Accordingly, a natural disaster has the potential to disrupt our and our customers' businesses and may cause us to experience work stoppages, project delays, financial losses and additional costs to resume operations, including increased insurance costs or loss of coverage, legal liability and reputational losses, and we expect that increasing physical climate-related impacts may result in further changes to the cost or availability of insurance in the future.

Physical risks associated with climate change have also increased hazards associated with certain of our operations, which in turn has increased the potential for liability and increased the costs associated with such operations. For example, as discussed above, severe drought and high wind speeds have significantly increased the risk of wildfires throughout the areas where we operate, which in turn has exposed us and other contractors to increased risk of liability in connection with our operations in those locations, as these events can be started by electrical power and other infrastructure on which we have performed services. Given the potentially significant liabilities associated with these events, to the extent we are deemed liable for a wildfire event, it could have a material adverse impact on our business, financial condition, results of operations and cash flows. Furthermore, these climate conditions have also resulted in increased costs for wildfire-related third-party insurance and reduced the amount insurance carriers are willing to make available to us under such policies.

Our business is labor-intensive, and we may be unable to attract and retain qualified employees or we may incur significant costs in the event we are unable to efficiently manage our workforce or the cost of labor increases.

Our ability to efficiently manage our business and achieve our strategic initiatives is limited by our ability to employ, train and retain the necessary skilled personnel, which is subject to a number of risks. The demand for labor resources has continued to increase in response to the increasing duration and complexity of customer capital budgets, the commencement of new, large-scale infrastructure projects, increased demand for infrastructure improvements and reliability and increased pressure to reduce costs. The pool of skilled workers in certain of our industries has also been reduced, and may be further reduced, due primarily to an aging utility workforce and longer-term labor availability issues, including with respect to experienced program managers and qualified journeyman linemen available for our Electric Power segment and experienced supervisors and foremen for our Underground and Infrastructure segment. The cyclical nature of certain of the industries in which we operate can also create shortages of qualified labor during periods of high demand and production, and the amount of travel required for project management-level positions can impact the number of potential candidates that decide to enter our industries. A shortage in the supply of personnel creates competitive hiring markets that may result in increased labor expenses, and we have incurred, and expect to continue to incur, significant education and training expenses in order to recruit and train employees. The uncertainty of contract award timing and project delays can also present difficulties in managing our workforce size. Additionally, we may not be able to attract and retain the necessary skilled personnel for our expanded product and service offerings. Our inability to efficiently manage our workforce may require us to incur costs resulting from excess staff, reductions in staff, or redundancies that could have a material adverse impact on our business, financial condition, results of operations and cash flows.

Additionally, the recent inflationary pressure in the United States and our other markets has increased our labor costs. Under certain of our contracts, labor costs are passed through to customers, and the portion of our workforce that is represented by labor unions typically operates under multi-year collective bargaining agreements that provide some visibility into future labor costs. However, the costs related to a significant amount of our workforce are subject to market conditions, and therefore inflationary pressure could increase our labor costs with respect to those employees. Increased labor costs can also impact our customers' decision-making with respect to viability or timing of certain projects, which could result in project delays or cancellations and in turn have a material adverse effect on our business, financial condition, results of operations or cash flows.

The loss of, or reduction in business from, certain significant customers could have a material adverse effect on our business.

A few customers have in the past and may in the future account for a significant portion of our revenues. For example, our ten largest customers accounted for 31% of our consolidated revenues for the year ended December 31, 2023. Although we have long-standing relationships with many of our significant customers, a significant customer may unilaterally reduce or discontinue business with us at any time or merge or be acquired by a company that decides to reduce or discontinue business with us. A significant customer may also encounter financial constraints, based on cost of capital or other reasons, file for bankruptcy protection or cease operations, any of which could also result in reduced or discontinued business with us. The loss of business from a significant customer could have a material adverse effect on our business, financial condition, results of operations and cash flows.

Changes in estimates related to revenues and costs associated with our contracts with customers could result in a reduction or elimination of revenues, a reduction of profits or the recognition of losses.

For fixed price contracts and certain unit-price contracts, we recognize revenue as performance obligations are satisfied over time and earnings or losses recognized on individual contracts are based on estimates of contract revenues, costs and profitability, as discussed in further detail in Note 4 of the Notes to Consolidated Financial Statements in Item 8. *Financial Statements and Supplementary Data* in Part II of this Annual Report. Changes in contract estimates are recognized on a cumulative catch-up basis in the period in which the revisions to the estimates are made, and contract losses are recognized in full when losses are determined to be probable and can be reasonably estimated. Variable consideration amounts, including performance incentives, early pay discounts and penalties, may also cause changes in contract estimates. In addition, we recognize amounts associated with change orders and/or claims as revenue when it is probable that the contract price will be adjusted and the amount of any such adjustment can be reasonably estimated. Actual amounts collected in connection with change orders and claims can differ from estimated amounts. Consequently, the timing for recognition of revenues and profit or loss and any subsequent changes in estimates is uncertain and could result in a reduction or an elimination of previously reported revenues or profits or the recognition of losses on the associated contract. Any such adjustments could be significant and could have a material adverse impact on our financial condition, results of operations and cash flows.

We may fail to adequately recover on contract change orders or claims brought by us against customers.

We have in the past brought, and may in the future bring, claims against our customers. For example, as of December 31, 2023, the amount recognized related to unapproved change orders and claims was $778.9 million, which is discussed further in Note 4 of the Notes to Consolidated Financial Statements in Item 8. *Financial Statements and Supplementary Data* in Part II of this Annual Report. These types of claims occur due to, among other things, impacts to projects as a result of factors not within the control of Quanta, such as natural disasters, significant weather events and public health events (e.g., pandemics), delays caused by customers and third parties and changes in project scope, which can result in additional costs that may not be recovered until the claim is resolved. While we generally negotiate with the customer for additional compensation, we may be unable to obtain, through negotiation, arbitration, litigation or otherwise, adequate amounts to compensate us for the additional work or expenses incurred. Litigation, arbitration or government approval (if needed) with respect to these matters is generally lengthy and costly, involves significant uncertainty as to timing and amount of any resolution, and can adversely affect our relationship with existing or potential customers. Furthermore, we can be required to invest significant working capital to fund cost overruns while the resolution of a claim is pending. Failure to obtain adequate and prompt compensation for these matters can result in a reduction of revenues and gross profit recognized in prior periods or the recognition of a loss. Any such reduction or loss can be substantial and can have a material adverse effect on our business, financial condition, results of operations and cash flows.

During the ordinary course of our business, we are subject to lawsuits, claims and other legal proceedings, as well as bonding claims and related reimbursement requirements.

We have in the past been, and may in the future be, named as a defendant in lawsuits, claims and other legal proceedings that arise in the ordinary course of our business. These actions seek, among other things, compensation for alleged personal injury (including claims for loss of life), workers' compensation, employment discrimination, sexual harassment, workplace misconduct, wage and hour claims and other employment-related damages, compensation for breach of contract, negligence or gross negligence or property damage, environmental liabilities, multiemployer pension plan withdrawal liabilities, punitive damages, consequential damages, and civil penalties or other losses or injunctive or declaratory relief, as well as interest and attorneys' fees associated with such claims. Furthermore, given our recent growth, we have become a more attractive target for lawsuits by various third parties.

In addition, we generally indemnify our customers for claims related to the services we provide and actions we take under our contracts, and, in some instances, we are allocated risk through our contract terms for actions by our customers, subcontractors or other third parties. Because our services in certain instances can be integral to the operation and performance of our customers' infrastructure, we have been and may become subject to lawsuits or claims for any failure of the systems that we work on or damages caused by accidents and events related to such systems, even if our services are not the cause of such failures and damages. We could also be subject to civil and criminal liabilities, which could be material. Insurance coverage may not be available or may be insufficient for these lawsuits, claims or legal proceedings. The outcome of any allegations, lawsuits, claims or legal proceedings, as well as any public reaction thereto, is inherently uncertain and could result in significant costs, damage to our brands or reputation and diversion of management's attention from our business. Payments of significant amounts, even if reserved, could materially and adversely affect our business, reputation, financial condition, results of operations and cash flows.

In addition, 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. As of December 31, 2023, the total amount of our outstanding performance bonds was estimated to be approximately $7.7 billion. To the extent reimbursements are required, the amounts could be material and could adversely affect our consolidated business, financial condition, results of operations or cash flows.

We may be unsuccessful at generating internal growth, which could adversely affect our business.

Many of the factors affecting our ability to generate internal growth are beyond our control, and we cannot be certain that our strategies for achieving internal growth will be successful. Our ability to generate internal growth will be affected by, among other factors, our ability to profitably scale the services we currently offer; expand our overall service offerings and product solutions; attract new customers; increase the number of projects we perform for existing customers; hire and retain qualified employees; and expand geographically within our current markets, as well as our ability to address regulatory, environmental and permitting requirements and economic or market conditions that affect us or our customers. Our inability to successfully generate internal growth may adversely affect our financial condition, results of operations and cash flows.

Many of our contracts may be canceled or suspended on short notice or may not be renewed upon completion or expiration, and we may be unsuccessful in replacing our contracts, which could adversely affect our business.

Our customers have in the past and may in the future cancel, delay or reduce the number or size of projects available to us for a variety of reasons, including capital constraints or inability to meet regulatory requirements. Furthermore, many of our customers may cancel or suspend our contracts on short notice even if we are not in default under the contract. Certain of our customers assign work to us on a project-by-project basis under MSAs. Under these agreements, our customers generally have no obligation to assign a specific amount of work to us. Additionally, the in-house service organizations of our existing or prospective customers are capable of performing, or acquiring businesses that perform, the same types of services we provide, and these customers may also face pressure or be compelled by regulatory or other requirements to self-perform an increasing amount of the services we currently perform for them, thereby reducing the services they outsource to us in the future. Our financial condition, results of operations and cash flows can be negatively impacted if our customers cancel or suspend contracts having significant value, we fail to renew or replace a significant number of our existing contracts when they expire or are completed or the anticipated volume of work under an existing MSA is not assigned to us.

The nature of our business exposes us to potential liability for warranty, engineering and other related claims.

We typically provide contractual warranties for our services and materials, guaranteeing the work performed against, among other things, defects in workmanship, and we may agree to indemnify our customers for losses related to our services. The length of these warranty periods varies and can extend for several years, and certain projects can have longer warranty periods and include facility performance warranties that are broader than the warranties we generally provide. Warranties generally require us to re-perform the services and/or repair or replace the warranted item and any other facilities impacted thereby, at our sole expense, and we could also be responsible for other damages if we are not able to adequately satisfy our warranty obligations. In addition, we can be required under contractual arrangements with our customers to warrant any defects or failures in materials we provide. While we generally require materials suppliers to provide us warranties that are consistent with those we provide customers, if any of these suppliers default on their warranty obligations to us, we may incur costs to repair or replace the defective materials.

Furthermore, our business involves professional judgments regarding the planning, design, development, construction, operations and management of electric power, renewable generation, communications, underground utility and pipeline infrastructure. Because our projects are often technically complex, our failure to make judgments and recommendations in accordance with applicable professional standards, including engineering standards, could result in damages. A significantly adverse or catastrophic event at a project site or completed project resulting from the services we performed could result in significant professional or product liability, personal injury (including claims for loss of life) or property damage claims or other claims against us, as well as reputational harm. These liabilities could exceed our insurance limits or impact our ability to obtain third-party insurance in the future, and customers, subcontractors or suppliers who have agreed to indemnify us against any such liabilities or losses might refuse or be unable to pay us. As a result, warranty, engineering and other related claims could have a material adverse impact on our business, financial condition, results of operations and cash flows.

Additionally, certain of our operating companies manufacture products sold to customers and other third parties, and we can be exposed to product liability and warranty claims if our products result in, or are alleged to result in, bodily injury and/or property damage or our products actually or allegedly fail to perform as expected. Furthermore, certain of our products are designed to support critical infrastructure and any failure of such products could result in significant product liability and warranty claims, as well as damage to our reputation in the marketplace. Our product development, manufacturing and testing may be inadequate to detect all defects, errors, failures and quality issues, which could impact customer satisfaction or result in claims against us. As a result, we may have, and from time to time have had, to replace certain components and/or provide remediation in response to the discovery of defects in our products, and the occurrence of any defect, error, failure or quality

issue could result in cancellation of orders, product returns, damage to our reputation, diversion of our resources, lawsuits or claims by our customers or other third parties and other losses to us or to any of our customers or third parties, which could have a material adverse impact on our business, financial condition, results of operations and cash flows.

We can incur liabilities or suffer negative financial or reputational impacts relating to health and safety matters.

Our operations are inherently hazardous and subject to extensive laws and regulations relating to the maintenance of safe conditions in the workplace. While we have invested, and will continue to invest, substantial resources in our occupational health and safety programs, our industry involves a high degree of operational risk, and there can be no assurance that we will avoid significant liability exposure. Although we have taken precautions designed to mitigate this risk, we have suffered serious accidents, including fatalities, and we anticipate that our operations may result in additional serious accidents in the future. As a result of these events, we could be subject to substantial penalties, revocation of operating licenses, criminal prosecution or civil litigation, including claims for bodily injury or loss of life, that could result in substantial costs and liabilities. In addition, if our safety record were to substantially deteriorate or we were to suffer substantial penalties or criminal prosecution for violation of health and safety regulations, our customers could cancel our contracts and elect to procure future services from other providers. Unsafe work sites also have the potential to increase employee turnover, increase the costs of projects for our clients, and raise our operating costs. Any of the foregoing could have a material adverse impact on our business, financial condition, results of operations and cash flows.

Disruptions to our information technology systems or our failure to adequately protect critical data, sensitive information and technology systems could materially affect our business or result in harm to our reputation.

We rely on information technology systems to manage our operations and other business processes and to protect sensitive company information. We also collect and retain information about our customers, stockholders, vendors, employees, contractors, business partners and other parties, all of which expect that we will adequately protect such information. We face numerous and evolving cybersecurity risks that threaten the confidentiality, integrity and availability of our information technology systems and confidential information. Breaches or disruptions of our information systems, or systems of key third parties and information technology vendors that we rely upon, can result from, among other things, cyber-attacks, theft, inadvertent exposure of sensitive information, acts of terrorism, war, storms or other natural phenomena, information technology solution failures or network disruptions, and any such cyber-attacks or breaches can go unnoticed for some period of time. For example, a cyber-attack on one of our vendors or vulnerabilities identified in proprietary or open-source code disclosed by vendors or federal agencies could potentially impact information technology systems relevant to our business and/or sensitive information that we retain. Furthermore, some of the energy infrastructure systems on which we work may be considered to be strategic targets, and therefore at greater risk of cyber-attacks or acts of terrorism than other targets. Additionally, an intrusion into the information systems of a business we acquire may also ultimately compromise our systems, and malicious third parties or insiders may attempt to fraudulently induce employees or customers into disclosing sensitive information such as user names, passwords or other information or otherwise compromise the security of our information systems. Our operations are decentralized with operating companies maintaining some of their own information systems, data and service providers. While our cybersecurity risk management program and processes, including policies, controls and procedures, are designed to cover our operating companies, there can be no assurance that these will be fully implemented, complied with or effective in protecting all information systems and operations.

While we have security measures and technology in place to protect our and our clients' confidential or proprietary company information, there can be no assurance that our efforts will prevent all threats to our computer systems. Moreover, we have acquired and continue to acquire companies with cybersecurity vulnerabilities and/or unsophisticated security measures, which exposes us to significant cybersecurity, operational, and financial risks until they are fully integrated into our information systems. Additionally, the increased use of remote working arrangements by employees, vendors, and other third parties has increased the exposure to possible attacks, thereby increasing the risk of a data security compromise. We have addressed breaches and disruptions of our information systems, or systems of key third parties and information technology vendors that we rely upon, in the past, and we expect such events to continue to arise in the future. While to date we have not experienced any material impact as a result of cyber-attacks, the ultimate impact of future and similar events remains unknown, and we expect additional vulnerabilities may arise. Cyber-attacks can result in compromises of our payment systems, monetary losses, inability to access or operate our systems (e.g., ransomware), delays in processing transactions or reporting financial results, the disclosure or misappropriation of confidential, personal or proprietary company information (including for the purpose of transacting in our stock), or the release of customer, stockholder, vendor or employee information. An attack could also cause service disruptions to our internal systems or, in extreme circumstances, infiltration into, damage to or loss of control of our customers' energy infrastructure systems. Any such breach or disruption could subject us to significant liabilities, cause damage to our reputation or customer relationships, or result in regulatory investigations or other actions by governmental authorities, which could have a material adverse impact on our business, financial condition, results of operations and cash flows. Furthermore, we may incur additional costs related to the investigation and reporting of any such breach or disruption as a result of the SEC's increased reporting requirements for cyber incidents. Additionally, because the techniques used to obtain

unauthorized access or sabotage information technology systems change frequently and are generally not identifiable until they are launched against a target, we may be unable to anticipate these techniques or to implement adequate preventative measures. As a result, we may be required to expend significant resources to protect against the threat of system disruptions and security breaches or to alleviate problems caused by these disruptions and breaches.

Any deterioration in the quality or reputation of our brands, which can be exacerbated by the effect of social media or significant media coverage, could have an adverse impact on our business.

Our brands and our reputation are among our most important assets, and our ability to attract and retain customers depends on brand recognition and reputation. Such dependence makes our business susceptible to reputational damage and to competition from other companies. A variety of events could result in damage to our reputation or brands, some of which are outside of our control, including:

- acts or omissions that adversely affect our business such as a crime, scandal, cyber-related incident, litigation or other negative publicity;
- failure to successfully perform, or negative publicity related to, a high-profile project, including, among others, our joint venture in LUMA and large-scale infrastructure projects designed to support the energy transition (i.e., large electric transmission and renewable generation projects);
- actual or potential involvement in a catastrophic fire, explosion or similar event; or
- actual or perceived responsibility for a serious accident or injury.

Increased media coverage and interest in energy transition matters and our industries, along with the intensification of media coverage generally, including through the considerable expansion in the use of social media, have increased the volume and speed at which negative publicity arising from these events can be generated and spread, and we may be unable to timely respond to, correct any inaccuracies in, or adequately address negative perceptions arising from such media coverage. If the reputation or perceived quality of our brands decline or customers lose confidence in us, our business, financial condition, results of operations, or cash flows could be adversely affected.

Our financial results, financial condition and other financial and operational disclosures are based upon estimates and assumptions that may differ from actual results or future outcomes.

In preparing our consolidated financial statements and financial and operational disclosures, estimates and assumptions are used by management to report, among other things, assets, liabilities, revenues and expenses. These estimates and assumptions are necessary because certain information utilized is dependent on future events, cannot be calculated with a high degree of precision from available data or cannot be readily calculated based on generally accepted methodologies. In some cases, these estimates are particularly difficult to determine, and we must exercise significant judgment, and as a result actual results and future outcomes can differ materially from the estimates and assumptions that we use and have a material adverse effect on our financial condition, results of operations and cash flows. For example, our remaining performance obligations and backlog are difficult to determine with certainty. Customers often have no obligation under our contracts to assign or release work to us, and many contracts may be terminated on short notice. Cancellation or reduction in scope of a contract can significantly reduce the revenues and profit we recognize. Consequently, our estimates of remaining performance obligations and backlog may not be accurate, and we may not be able to realize our estimated remaining performance obligations and backlog.

Our results of operations and financial condition can also be adversely affected by impairments to goodwill, other intangible assets, and long-lived assets, the value of which is dependent upon certain estimates and assumptions. We record goodwill when we acquire a business, which must be tested at least annually for impairment. We have recorded impairments in the past, and any future impairments could have a material adverse effect on our financial condition and results of operations for the period in which the impairment is recognized. See *Critical Accounting Estimates* in Item 7. *Management's Discussion and Analysis of Financial Condition* in Part II of this Annual Report for further information about our critical accounting estimates.

Our inability to successfully execute our acquisition strategy may have an adverse impact on our growth.

Our business strategy includes expanding our presence in the industries we serve and adjacent industries through strategic acquisitions of companies that complement or enhance our business. The number of acquisition targets that meet our criteria may be limited. We may also face competition for acquisition opportunities, and other potential acquirers may offer more favorable terms or have greater financial resources available for potential acquisitions. This competition may further limit our acquisition opportunities or raise the prices of acquisitions and make them less accretive, or possibly not accretive, to us. Furthermore, the increased antitrust scrutiny of and compliance requirements for potential acquisitions, including by the Federal Trade Commission (FTC) and Department of Justice under the Hart-Scott Rodino Act, the Sherman Act, the Clayton Act (each

as amended) or other applicable laws, could negatively impact the cost and timing of or our ability to complete certain potential acquisitions. Failure to consummate future acquisitions could negatively affect our growth strategies.

Additionally, our past acquisitions have involved, and our future acquisitions may involve, significant cash expenditures and stock issuances, the incurrence or assumption of debt and other known and unknown liabilities and exposure to burdensome regulatory requirements. We may also discover previously unknown liabilities or, due to market conditions, be required pursuant to specific transaction terms to assume certain prior known liabilities associated with an acquired business, and we may have inadequate or no recourse under applicable indemnification provisions or representation and warranty insurance coverage (due to policy terms or lack of coverage at rates we believe are reasonable). Known liabilities may also change over time and become more severe than previously anticipated. As a result, past or future acquisitions may ultimately have a negative impact on our business, financial condition, results of operations and cash flows.

The success of our acquisition strategy also depends on our ability to successfully integrate the operations of the acquired businesses with our existing operations and realize the anticipated benefits from the acquired businesses, such as the expansion of our existing operations, expansion into new, complementary or adjacent business lines, elimination of redundant costs and capitalizing on cross-selling opportunities. Our ability to integrate and realize benefits can be negatively impacted by, among other things:

- failure of an acquired business to achieve the results we expect;
- diversion of our management's attention from operational and other matters or other potential disruptions to our existing business;
- difficulties incorporating the operations and personnel, or inability to retain key personnel, of an acquired business;
- the complexities and difficulties associated with managing our business as it grows;
- additional financial reporting and accounting challenges associated with an acquired business;
- unanticipated events or liabilities associated with the operations of an acquired business;
- loss of business due to customer overlap or other factors; and
- risks and liabilities arising from the prior operations of an acquired business, such as performance, operational, safety, cybersecurity, environmental, workforce or other compliance or tax issues, some of which we may not have discovered or accurately estimated during our due diligence and may not be covered by indemnification obligations or insurance.

We cannot be sure that we will be able to successfully complete the integration process without substantial costs, delays, disruptions or other operational or financial problems. Failure to successfully integrate acquired businesses could adversely impact our business, financial condition, results of operations and cash flows.

Additionally, we also generally require that key management and former principals of the businesses we acquire agree to non-compete covenants in the purchase agreement or, as applicable, employment agreements. Enforceability of these non-competition agreements varies by jurisdiction and typically is dependent upon specific facts and circumstances, making it difficult to predict their enforceability. Additionally, the FTC has proposed new rules to, among other things, prohibit and make unenforceable any post-employment non-compete arrangement that restricts an employee or individual independent contractor, unless such arrangement was entered into in connection with an acquisition and meets certain conditions. If a member of the key management of the businesses we acquire leaves voluntarily or is terminated, we might be subject to increased competition if the restrictive covenants entered into by such person are not enforceable or have expired, which could materially and adversely affect our business, financial condition, results of operations and cash flows.

Our management structure could be inadequate to support our business as it expands and becomes more complex.

We cannot be certain that our management structure will be adequate to support our business as it expands and becomes more complex.Due to our continued growth, as well as the increasing complexity of our projects, operations and industries, we may encounter difficulties managing our business, including with respect to our ability to coordinate and execute business strategies, plans and tactics. Furthermore, as our operations grow and increase in complexity, we may lack timely access to information that could impact the quality of decision-making by management or our ability to react to problems affecting key business matters. Future growth could also impose significant additional responsibilities on members of our senior management, and we cannot be certain that we will be able to recruit, integrate and retain new senior-level managers and executives. To the extent that we are unable to manage our growth effectively or are unable to attract and retain additional qualified management, we may not be able to continue to expand our operations or execute our business plan.

The loss of, or our inability to attract, key personnel could disrupt our business.

We depend on the continued efforts of our executive officers, senior corporate management, regional leadership and management of our operating companies, which includes leadership and key personnel of the businesses we acquire. Although we typically enter into employment agreements with our executive officers and other key employees for initial terms of one year and subsequent renewal options, we cannot be certain that any individual will continue in such capacity for any particular period of time. We also depend on our ability to attract key operational and professional personnel as we grow our business and in order to establish and maintain an effective succession planning process. A shortage of these employees for various reasons, including intense competition for skilled employees, labor shortages, increased labor costs and the preference of some candidates to work remotely, could jeopardize our ability to successfully manage our decentralized operations or our ability to grow and expand our business. As a result, the loss of key personnel, as well as our inability to attract, develop and retain qualified employees that can succeed these key personnel, could negatively impact our ability to manage our business. Additionally, if the proposed FTC rulemaking regarding non-compete covenants discussed above is finalized, Quanta could be required to individually rescind any post-termination non-compete clauses in its employment and other service agreements with key management, other employees and individual independent contractors, which would increase the risk that key individuals, upon departure from Quanta, would compete with us despite any severance or other consideration paid or owed to any such individual.

Our investments, including our joint ventures, expose us to risks and may result in conflicts of interest that could adversely impact our business or result in reputational harm.

We have entered into strategic relationships, joint ventures and other investment arrangements with various partners, including customers and infrastructure investors, through which we have invested in infrastructure assets and businesses, and we expect this activity to continue in the future. Certain of these investments are described further in Note 8 of the Notes to Consolidated Financial Statements in Item 8. *Financial Statements and Supplementary Data* in Part II of this Annual Report. These types of investments expose us to increased risks, including poor performance by the infrastructure projects or businesses in which we have invested due to, among other things, difficult market or economic conditions or slowdowns (which may occur across one or more industries, sectors or geographies), changes to the supply or demand and fluctuations in the price of commodities, or fluctuations in the market price of the equity securities we hold in a company. That negative performance could result in lower investment returns, a decline in value or total loss of our investments or the possible sale of our investments at values below our initial projections, including at a loss, all of which could adversely affect our business, financial condition, results of operations and cash flows. For example, during 2022, we recorded a $91.5 million impairment in connection with our investment in Starry Group Holdings, Inc. Furthermore, our investments are often illiquid, as they are typically investments in private companies and/or subject to contractual restrictions that impose restrictions or lock-up periods affecting our ability to sell our interest, and as a result, we may not be able to exit an investment that is performing poorly, declining in value or resulting in reputational harm. Quanta may also be exposed to reputational harm based on poor or incomplete performance of our investments or an investment fund in which we participate, or based on the actions or conduct of the entities in which we are invested or our partners in such investments, all of which may be outside of our control. Any such reputational harm could adversely affect our ability to secure certain future projects or participate in future investment opportunities. Further, our relationship with a customer or investor that partners with us in a poorly performing investment could become impaired, which may negatively impact our ability to continue providing services to that customer.

Conflicts of interest may also exist or arise as a result of the structure of our investment arrangements. For example, in these structures, Quanta can be the contractor for construction of a project as well as an equity investor in an entity that owns, manages or operates the project or possibly the manager of investments in the project. In those instances, conflicts of interest can exist for such things as contractor pricing and the handling of contractor change orders and other claims. While certain of these conflicts of interest are governed by applicable laws and regulations and we have also taken certain actions that we believe minimize or address anticipated conflicts of interest, including through internal management practices and the terms of agreements governing the investment arrangement, failure to properly manage such conflicts of interest, or even the appearance of a potential conflict of interest, can expose us to liability or harm our relationships with investment partners, which could impact our business, financial condition, results of operations and cash flows or cause reputational harm to Quanta.

Additionally, the purpose of our joint ventures is typically to combine skills and resources to allow for the bidding and performance of particular projects, and the success of these projects can be adversely affected by the performance of our joint venture partners, over whom we may have little or no control. Differences in opinions or views between us and our joint venture partners may result in delayed decision-making or failure to agree on material issues that may adversely affect the business and operations of our joint ventures. We and our joint venture partners are also generally jointly and severally liable for all liabilities and obligations of a joint venture. If a joint venture partner fails to perform or is unable to satisfy required capital contributions or other obligations, including liabilities stemming from claims or lawsuits, we could be required to make additional investments, provide additional services or pay more than our proportionate share of a liability to make up for their shortfall. Further, if our partners experience cost overruns or project performance issues that we are unable to adequately

address, the customer may terminate the project, which could result in legal liability to us, harm our reputation and reduce our profit or increase our loss on a project. As a result, the failure by a joint venture partner to successfully perform or comply with applicable laws, regulations or client requirements could negatively impact our business.

We extend credit to customers for purchases of our services and enter into other arrangements with certain of our customers, which subjects us to potential credit or investment risk.

We grant credit, generally without collateral, to our customers, which primarily include utilities, renewable energy developers, communications providers, industrial companies and energy delivery companies located primarily in the United States, Canada and Australia. In certain circumstances, we also allow our customers to defer payment until certain project milestones have been met or until a project is substantially completed, and customers typically withhold some portion of amounts due to us as retainage until a project is complete. In addition, we have provided in the past and may provide in the future other forms of financing to our customers or make investments in our customers' projects. These payment arrangements subject us to potential credit risk related to changes in business and economic factors affecting our customers, and certain of our customers have experienced financial difficulties (including bankruptcy) in recent years, which has impacted our ability to collect amounts owed to us. If we are unable to collect amounts owed, or retain amounts paid to us, our cash flows are reduced, and we could experience losses. Business and economic factors resulting in financial difficulties (including bankruptcy) for our customers can also reduce the value of any financing or equity investment arrangements we have with our customers, thereby increasing the risk of loss in those circumstances. Losses experienced as a result of these credit and investment risks could materially and adversely affect our financial condition, results of operations and cash flows.

Risks associated with operating in international markets and U.S. territories could harm our business and prospects.

Our overall business, financial condition, results of operations and cash flows can be negatively impacted by our activities and operations outside the continental United States, including our international operations and operations in U.S. territories. Although these operations are presently conducted primarily in Canada and Australia, we also perform work in other foreign countries and U.S. territories. For the year ended December 31, 2023, we derived $2.97 billion, or 14.2%, of our consolidated revenues from foreign operations, the substantial majority of which was related to Canada and Australia. Changes in economic conditions, including those resulting from wars and other geopolitical conflicts, civil unrest, public health crises, pandemics, acts of terrorism, or volatility in global markets, may adversely affect demand for our services and our customers' ability to pay for our services. In addition, at times we are paid for work outside the United States in currencies other than the U.S. dollar. Such payments are subject to fluctuating foreign currency exchange rates and may exceed our local currency needs, and, in certain instances, those amounts may be subject to temporary blocking, taxes or tariffs, and we may experience difficulties if we attempt to convert such amounts to U.S. dollars. Furthermore, to the extent the volume of services we provide internationally increases, our financial condition, results of operations and cash flows could be further exposed to the effects of fluctuating exchange rates.

There are numerous other risks associated with operating in international markets and U.S. territories, including, but not limited to, changes in applicable regulatory requirements; political, economic and social instability; expropriation or nationalization of our assets and operations; unfamiliar legal systems or business and labor practices; and complex U.S. and foreign tax regulations and other laws and international treaties. For example, as discussed in further detail in *Legal Proceedings* within Note 16 of the Notes to Consolidated Financial Statements in Item 8. *Financial Statements and Supplementary Data* in Part II of this Annual Report, the termination of a telecommunications project in Peru resulted in a $79.2 million charge to earnings in the second quarter of 2019. Furthermore, we have incurred, and may incur in the future, significant costs or liabilities associated with an unsuccessful attempt to enter a new market and we have entered, and may in the future enter, a new market that ultimately proves to be unprofitable or has an otherwise adverse effect on our business. We may also incur significant costs and liabilities associated with winding down or exiting an existing market. These risks could restrict our ability to provide services to customers, operate our business in these locations profitably or fund our strategic objectives, which could negatively impact our overall business, financial condition, results of operations and cash flows.

Limitations on the availability of suppliers, subcontractors and equipment manufacturers that we depend on could adversely affect our business.

We rely on suppliers to obtain necessary materials and subcontractors to perform portions of our services, and our customers rely on suppliers for materials necessary for the construction, upgrade and repair and maintenance of their infrastructure. We also rely on equipment manufacturers to provide us with the equipment required to conduct our operations, including a significant number of specialty vehicles. Limitations on the availability of suppliers, subcontractors or equipment manufacturers could negatively impact our or our customers' operations, particularly in the event we rely on a single or small number of providers. The risk of a lack of available suppliers, subcontractors or equipment manufacturers can be heightened as a result of market, regulatory or economic conditions. For example, customers in certain U.S. states and Canada, in order to receive certain funding or for other reasons, may expect or compel us to engage a specified percentage of services from suppliers or subcontractors that meet diversity-ownership requirements, which can further limit our pool of available suppliers

and subcontractors and limit our ability to secure contracts, maintain our services or grow in those areas. Availability of suppliers and manufacturers may also be limited by U.S. trade and other foreign policies that restrict business relationships with certain suppliers and manufacturers, including tariffs, duties, taxes, assessments or other limitations on the availability or sourcing of materials or components for our projects.

Additionally, successful completion of our contracts can depend on whether our subcontractors successfully fulfill their contractual obligations. If our subcontractors fail to perform their contractual obligations, fail to meet the expected completion dates or quality or safety standards or fail to comply with applicable laws, such shortcomings may subject us to claims or we may be required to incur additional costs or provide additional services to mitigate such shortcomings. As a result, regulatory or other requirements that require us to outsource a percentage of services to subcontractors, whether they are businesses meeting diversity-ownership requirements or otherwise, also limit our ability to self-perform our services, thereby potentially increasing performance risk associated with our services. Furthermore, services subcontracted to other service providers generally yield lower margins, and therefore these regulatory requirements can impact our profitability and results of operations.

There are also increasing expectations in various jurisdictions that companies monitor the environmental and social performance of their value chain, including compliance with a variety of labor practices, as well as consider a wider range of potential environmental and social matters. Compliance can be costly, require us to establish or augment programs to diligence or monitor our suppliers, or potentially design supply chains to avoid certain regions altogether. Failure to comply with such regulations can result in fines, contractual penalties, reputational damage, denial of import for materials for our projects, or otherwise adversely impact our business.

A lack of availability or an increase in the price of fuel, materials or equipment necessary for our business or our customers' projects could adversely affect our business.

Pursuant to certain contracts, including fixed price and EPC contracts where we have assumed responsibility for procuring materials for a project, we are exposed to availability issues and price increases for materials that are utilized in connection with our operations, including, among other things, copper, steel, aluminum, specialized project components (e.g., transformers, solar panels) and raw materials utilized for certain of our product solutions. In addition, the timing of our customers' ongoing projects, as well as their capital budgets and decision-making with respect to the timing of the future projects, can be negatively impacted by a lack of availability or an increase in prices of these materials. Prices and availability could be materially impacted by, among other things, supply chain and other logistical challenges (including inability of manufacturers to meet demand), global trade relationships (e.g., tariffs, duties, taxes, assessments, sourcing restrictions) and other general market and geopolitical conditions (e.g., inflation, market volatility, increased interest rates and geopolitical conflicts). The lack of availability of necessary materials could result in project delays, some of which could be attributable to us, and an increase in prices of materials could reduce our profitability on projects or negatively impact our customers, which could have an adverse effect on demand for our services or our business, financial condition, results of operations and cash flows. For example, recent sourcing restrictions have resulted in supply chain and logistical challenges with respect to solar cells and panels, including the U.S. Department of Commerce investigation into an antidumping and countervailing duties circumvention claim on these components from Southeast Asia, which negatively impacted our renewable energy services associated with solar projects during 2022 and into 2023, and certain other sourcing restrictions and challenges related to solar panels manufactured in China (e.g., the Uyghur Forced Labor Prevention Act), which may negatively impact project timing within the renewable energy market in the future. Additionally, the availability of power transformers utilized in electric power projects has been negatively impacted by the inability of manufacturers to meet current market demand, which has increased, and is expected to continue to increase, as a result of the transition to a reduced-carbon economy.

We also operate certain manufacturing facilities in the United States, and if such facilities experience a material interruption in operations it could cause delays in production and delivery of completed products to our customers or for use in connection with our services. Such delays may negatively impact our customers or the timing of their ongoing projects, which could have an adverse effect on demand for our services or our business, financial condition, results of operations and cash flows.

We are also exposed to increases in energy prices, particularly fuel prices for our large fleet of vehicles, which have fluctuated significantly since 2020 and could increase over the longer term due to market conditions or future regulatory, legislative and policy changes that result from, among other things, climate change initiatives. Furthermore, some of our fixed price contracts do not allow us to adjust our prices and certain of our other contracts, such as some long-term MSAs, allow for price adjustments within a certain range that may be insufficient for us to recover the full amount associated with increased fuel costs. As a result, increases in fuel costs could reduce our profitability with respect to such projects. Our ability to utilize certain existing vehicles within our fleet may also be limited by new emissions or other regulations, and, due to lack of production or availability, we may not be able to procure a sufficient number of vehicles meeting any such regulations. To the extent we are unable to utilize a significant portion of our existing fleet, we may be unable to perform services, which could have an adverse effect on our future financial condition, results of operations and cash flows. Additionally, to the extent we are required to

transition our fleet to alternative sources of power, including EVs, and the availability of such vehicles is limited or fluctuates, we may be unable to efficiently plan for such transition, which could result in, among other things, the retirement of certain vehicles prior to the end of their useful life. The broader and longer-term implications of these challenges, which could accelerate based on the pace of the transition to a reduced-carbon economy or otherwise, remain highly uncertain and variable and could negatively impact our overall business, financial condition, results of operations and cash flows.

Increasing scrutiny and changing expectations from various stakeholders with respect to corporate sustainability practices may impose additional costs on us or expose us to reputational or other risks.

Investors, customers and other stakeholders have focused increasingly on sustainability practices of companies, including, among other things, practices with respect to human capital resources, emissions and environmental impact and political spending. Expectations and requirements of our investors, customers and other third parties evolve rapidly and are largely out of our control, and our initiatives and disclosures in response to such expectations and requirements may result in increased costs (including but not limited to increased costs related to compliance, stakeholder engagement, contracting and insurance), changes in demand for certain services, enhanced compliance or disclosure obligations, or other adverse impacts to our business, financial condition, or results of operations. While we have programs and initiatives in place related to our sustainability practices, investors may decide to reallocate capital or to not commit capital as a result of their assessment of our practices. In addition, our customers may require that we implement certain additional procedures or standards in order to continue to do business with us. A failure to comply with investor, customer and other stakeholder expectations and standards, which are evolving and can conflict, or if we are perceived not to have responded appropriately to their growing concerns around sustainability issues, regardless of whether there is a legal requirement to do so, could also cause reputational harm to our business and could have a material adverse effect on us. For example, if a portion of our operations are perceived to result in high greenhouse gas emissions, our reputation could suffer. In addition, organizations that provide ratings information to investors on sustainability matters may assign unfavorable ratings to Quanta or our industries, which may lead to negative investor sentiment and the diversion of investment to other companies or industries, which could have a negative impact on our stock price and our costs of capital.

Moreover, while we may create and publish voluntary disclosures regarding sustainability matters from time to time, many of the statements in those voluntary disclosures are based on hypothetical expectations and estimates and assumptions that may not be representative of current or actual risks or events or forecasts of expected risks or events, including the costs associated therewith. Such expectations and assumptions are necessarily uncertain and may be prone to error or subject to misinterpretation given the long timelines involved and the lack of an established single approach to identifying, measuring and reporting on many sustainability matters. In addition, we expect there will likely be increasing levels of regulation, disclosure-related and otherwise, with respect to sustainability matters. For example, certain jurisdictions in which we operate have adopted new requirements that would require companies to provide expanded emissions-related disclosures on an annual basis. Additionally, the SEC and the State of California have published proposed rules that would require companies to provide significantly expanded climate-related disclosures in their periodic reporting. These new and proposed regulatory requirements may require us to incur significant additional costs to comply, including the implementation of significant additional internal controls processes and procedures regarding matters that have not been subject to such controls in the past, and impose increased oversight obligations on our management and Board.

Risks Related to Our Industries

Negative macroeconomic conditions and industry-specific economic and market conditions can adversely impact our business.

Stagnant or declining economic conditions, including a prolonged economic downturn or recession, as well as significant events that have an impact on financial or capital markets, can adversely impact the demand for our services and result in the delay, reduction or cancellation of certain projects. Macroeconomic conditions, including inflation, slow growth or recession, changes to fiscal and monetary policy, and tighter credit and higher interest rates could materially adversely affect demand for our services and the availability and cost of the materials and equipment that we need to deliver our services or our customers need for their projects. During periods of elevated economic uncertainty, our customers may reduce or eliminate their spending on the services we provide. In addition, volatility in the debt or equity markets, as well as prolonged higher interest rates, may negatively impact our customers' access to or willingness to raise capital and result in the reduction or elimination of spending on the services we provide. Our vendors, suppliers and subcontractors may also be, to varying degrees, adversely affected by these conditions. These conditions, which can develop rapidly, could adversely affect our revenues, results of operations, and liquidity.

A number of factors can also adversely affect the industries we serve, including, among other things, the economic impact of supply chain and other logistical issues, financing conditions, potential bankruptcies and global and U.S. trade relationships and other geopolitical conflicts and other events. A reduction in cash flow or the lack of availability of debt or equity financing for our customers on favorable terms could result in a reduction in our customers' spending for our services

and also impact the ability of our customers to pay amounts owed to us, which could have a material adverse effect on our business, financial condition, results of operations and cash flows. Consolidation, competition, capital constraints or negative economic conditions in the electric power, energy or communications industries can also result in reduced spending by, or the loss of, one or more of our customers.

Services within our Underground and Infrastructure segment are exposed to risks associated with the oil and gas industry. These risks, which are not subject to our control, include the volatility of commodity prices and production volumes, the development of and consumer demand for alternative energy sources, and legislative and regulatory actions, as well as public opinion, regarding the impact of fossil fuels on the climate and environment. Specifically, lower prices or production volumes, or perceived risk thereof, can result in decreased or delayed spending by our customers, including with respect to larger pipeline and industrial projects. For example, future restrictions imposed on oil and gas production activities, including as a result of concerns about the impact of climate change, could have a material adverse effect on the oil and gas industry as a whole. Certain of our operations within our Underground and Infrastructure segment could also experience reputational risks, such as how our values and practices regarding a low carbon transition are viewed by external and internal stakeholders, which could have a material adverse impact on our business, results of operations, financial condition and cash flows. If the profitability of our Underground and Infrastructure segment were to decline, our overall financial position, results of operations and cash flows could also be adversely affected.

Our revenues and profitability can be negatively impacted if our customers encounter financial difficulties or file bankruptcy or disputes arise with our customers.

Our contracts often require us to satisfy or achieve certain milestones in order to receive payment, or in the case of cost-reimbursable contracts, provide support for billings in advance of payment. As a result, we can incur significant costs or perform significant amounts of work prior to receipt of payment. We face difficulties collecting payment and sometimes fail to receive payment for such costs in circumstances where our customers do not proceed to project completion, terminate or cancel a contract, default on their payment obligations, or dispute the adequacy of our billing support. We have in the past brought, and may in the future bring, claims against our customers related to the payment terms of our contracts, and any such claims may harm our relationships with our customers.

Slowing economic conditions in the industries we serve can also impair the financial condition of our customers and hinder their ability to pay us on a timely basis or at all. To the extent a customer files bankruptcy, payment of amounts owed can be delayed and certain payments we receive prior to the filing of the bankruptcy petition may be avoided and returned to the customer's bankruptcy estate. Furthermore, many of our customers for larger projects are project-specific entities that do not have significant assets other than their interests in the project and could be more likely to encounter financial difficulties relating to their businesses. We ultimately may be unable to collect amounts owed to us by customers experiencing financial difficulties or in bankruptcy, and accounts receivable from such customers may become uncollectible and ultimately have to be written off, which could have an adverse effect on our future financial condition, results of operations and cash flows.

Our business is highly competitive, and competitive pressures could negatively affect our business.

We cannot be certain that we will maintain or enhance our competitive position or maintain our current customer base. Our industries are served by numerous companies, from small, owner-operated private companies to large multi-national, public companies. Relatively few barriers prevent entry into some areas of our business, and as a result, any organization that has adequate financial resources and access to technical expertise may become one of our competitors. In addition, some of our competitors have significant financial, technical and marketing resources, and may have or develop expertise, experience and resources to provide services that are superior in both price and quality to our services. Certain of our competitors may also have lower overhead cost structures, and therefore may be able to provide services at lower rates than us.

We also subcontract approximately 20% of our services, including pursuant to customer and regulatory requirements, and certain of these subcontractors may develop into a competitor to us on prime contracts with our customers. Our subcontracting requirements have also increased in recent years, primarily as a result of these requirements, which not only increases the number of viable competitors but could also negatively impact our ability to self-perform projects.

Furthermore, a substantial portion of our revenues is directly or indirectly dependent upon obtaining new contracts, which is unpredictable and often involves complex and lengthy negotiations and bidding processes that are impacted by a wide variety of factors, including, among other things, price, governmental approvals, financing contingencies, commodity prices, environmental conditions, overall market and economic conditions, and a potential customer's perception of our ability to perform the work or the technological advantages held by our competitors. The competitive environment we operate in can also affect the timing of contract awards and the commencement or progress of work under awarded contracts. For example, based on rapidly changing competition and market dynamics, we have recently experienced, and may in the future experience, more competitive pricing for smaller scale projects. Additionally, changing competitive pressures present difficulties in matching

workforce size with available contract awards. As a result of the factors described above, the competitive environment we operate in can have a material adverse effect on our business, financial condition, results of operations and cash flows.

Technological advancements and other market developments could negatively affect our business.

Technological advancements, market developments and other factors may increase our costs or alter our customers' existing operating models or the services they require, which could result in reduced demand for our services. For example, a transition to a decentralized electric power grid, which relies on more dispersed and smaller-scale renewable energy sources, could reduce the need for large infrastructure projects and significant maintenance and rehabilitation programs, thereby reducing demand for, or profitability of, our services. Our future success will depend, in part, on our ability to anticipate and adapt to these and other potential changes in a cost-effective manner and to offer services that meet customer demands and evolving industry standards. If we fail to do so or incur significant expenditures in adapting to such change, our businesses, financial condition, results of operations and cash flows could be materially and adversely affected.

Furthermore, we view our portfolio of energized services tools and techniques, as well as our other process and design technologies, as competitive strengths, which we believe differentiate our service offerings. If our intellectual property rights or work processes become obsolete, through technological advancements or otherwise, we may not be able to differentiate our service offerings and some of our competitors may be able to offer more attractive services to our customers, which could materially and adversely affect our business, financial condition, results of operations and cash flows.

Risks Related to Regulation and Compliance

Regulatory requirements applicable to our industries and changes in current and potential legislative and regulatory initiatives may adversely affect demand for our services.

Because the vast majority of our revenue is derived from a few industries, the federal, state, provincial and local regulations affecting those industries, including, among other things, environmental, safety, and permitting requirements and materials sourcing and transportation requirements, have a material effect on our business. These regulations are complex and subject to change both in substance and interpretation and often regulations across various industries and jurisdictions can differ or conflict, all of which can negatively impact our or our customers' ability to efficiently operate. In recent years, customers in our industries have faced heightened regulatory requirements and increased regulatory enforcement, as well as private legal challenges related to regulatory requirements, which have resulted in delays, reductions in scope and cancellations of projects, in particular larger pipeline and transmission projects. Furthermore, certain regulatory requirements applicable to our customers are also required of us when we contract with such customers, and our inability to meet those requirements could also result in decreased demand for our services. Increased and changing regulatory requirements applicable to us and our customers have resulted in, among other things, project delays and decreased demand for our services in the past, and may do so in the future, which can adversely affect our business, financial condition, results of operations and cash flows.

For example, sourcing restrictions have resulted in supply chain and logistical challenges with respect to solar cells and panels, including the U.S. Department of Commerce investigation into an antidumping and countervailing duties circumvention claim on these components from southeast Asia, which negatively impacted our renewable energy services associated with solar projects during 2022 and into 2023, and certain other sourcing restrictions and challenges related to solar panels manufactured in China (e.g., the Uyghur Forced Labor Prevention Act), which may negatively impact project timing within the renewable energy market in the future. Furthermore, with respect to our contracts under which we are responsible for procuring all or a portion of the materials needed for projects, including our EPC contracts, we are often required to comply with complex sourcing and transportation regulations, which can involve cross-border movement of such materials. Changes to, or our failure to comply with, these regulatory requirements can result in project delays and additional project costs, which may be substantial and not recoverable from third parties, and in some cases, we may be required to compensate the customer for such delays, including in circumstances where we have guaranteed project completion or performance by a scheduled date and incur liquidated damages if we do not meet such schedule. Additionally, our failure to comply with these regulatory requirements could result in criminal or civil fines, penalties, forfeitures or other sanctions.

Regulatory requirements focused on concerns about climate-change related issues, including any new or changed requirements concerning the reduction, production or consumption of fossil fuels, could negatively impact the hydrocarbon production volumes of our customers, which could in turn negatively impact demand for certain of our services. Additionally, new regulations addressing greenhouse gas emissions from mobile sources could also significantly increase costs for our large fleet of vehicles, render portions of our fleet of vehicles obsolete or reduce the availability of vehicles we need to perform our services.

With respect to certain services within our Renewable Energy segment, current and potential legislative or regulatory initiatives may not be implemented or extended or result in incremental increased demand for our services, including legislation or regulation that mandates percentages of power to be generated from renewable sources, requires utilities to meet reliability

standards, provides for existing or new production tax credits for renewable energy developers, or encourages installation of new electric power transmission and renewable energy generation facilities. While these actions and initiatives have positively impacted demand for our services in the past, it is not certain whether they will continue to do so in the future. For example, the interaction between the IRA and the IIJA could lead to additional complex requirements associated with, among other things, union labor or prevailing wages, domestic material production obligations, and affirmative action programs, which we and our customers must comply with in order to secure government funding for projects completed thereunder. Our or our customers' failure to successfully navigate these requirements could negatively impact our, or our customers', ability to take advantage of the opportunities under such legislation, result in additional unintended costs associated with any projects completed under such legislation or result in liabilities or governmental penalties for noncompliance.

Our unionized workforce and related obligations may adversely affect our operations.

As of December 31, 2023, approximately 32% of our employees were covered by collective bargaining agreements and the number of our employees covered by collective bargaining agreements could increase in the future for a variety of reasons, including acquisitions, unionization of a non-union operating company, project requirements (e.g. project labor agreements) and changes in law. The current political and labor environment has also generally been more conducive to unionization attempts, and we have experienced an increase in unionization attempts at certain of our operating companies, some of which have been successful, and we expect such attempts to continue in the future. For a variety of reasons, our unionized workforce could adversely impact relationships with our customers and adversely affect our business, financial condition, results of operations and cash flows. Certain of our customers also require or prefer a non-union workforce, and they may reduce the amount of work assigned to us if our non-union labor crews become unionized. Additionally, although the majority of the collective bargaining agreements prohibit strikes and work stoppages, certain of our unionized employees have participated in strikes and work stoppages in the past and strikes or work stoppages could occur in the future. Our ability to complete future acquisitions also could be adversely affected because of our operating companies' union status, including because our union agreements may be incompatible with the union agreements of a business we want to acquire or because a business we want to acquire may not want to become affiliated with our operating companies that have employees covered by collective bargaining obligations.

Our collective bargaining agreements generally require us to participate with other companies in multiemployer pension plans. To the extent a plan is underfunded, we may be subject to substantial liabilities if we withdraw or are deemed to withdraw from the plan or the plan is terminated or experiences a mass withdrawal, and we have been involved in several litigation matters associated with withdrawal liabilities in the past. Further, special funding and operational rules are generally applicable to multiemployer plans that are classified as "endangered," "seriously endangered" or "critical" status based on multiple factors (including, for example, the plan's funded percentage, cash flow position and a projected minimum funding deficiency). Plans in these classifications must adopt remedial measures, which may require additional contributions from employers (e.g., a surcharge on benefit contributions) and/or modifications to retiree benefits. Certain plans to which we contribute or may contribute in the future have these funding statuses, and we may be obligated to contribute material amounts to these plans in the future, which could negatively impact our business, financial condition, results of operations and cash flows. For additional information on our contributions to, and the funding status of, these plans, see Note 15 of the Notes to Consolidated Financial Statements in Item 8. *Financial Statements and Supplementary Data* in Part II of this Annual Report.

We could be adversely affected by our failure to comply with the laws applicable to our foreign activities.

Applicable U.S. and non-U.S. anti-corruption laws, including but not limited to the U.S. Foreign Corrupt Practices Act (FCPA), prohibit us from, among other things, corruptly making payments to non-U.S. officials for the purpose of obtaining or retaining business. We pursue certain opportunities in countries that experience government corruption, and in certain circumstances, compliance with these laws may conflict with local customs and practices. Our policies mandate compliance with all applicable anti-corruption laws and our procedures and practices are designed to ensure that our employees and intermediaries comply with these laws. However, there can be no assurance that such policies, procedures and practices will protect us from liability under the FCPA or other similar laws for actions or inadvertences by our employees or intermediaries. Liability for such actions or inadvertences could result in severe criminal or civil fines, penalties, forfeitures, disgorgements or other sanctions, which in turn could have a material adverse effect on our reputation, business, financial condition, results of operations, and cash flows. In addition, detecting, investigating and resolving actual or alleged violations can be expensive and consume significant time and attention of our senior management, in-country management, and other personnel.

Additionally, as we expand our EPC services and/or pursuant to other contracts where we have assumed responsibility to procure all or part of the materials needed for certain projects, we source more materials from outside the United States and are subject to non-U.S. laws associated with the procurement and transportation of such materials. The laws and regulations associated with such cross-border procurement activities are complex and our failure to comply with such laws or regulations may result in criminal or civil fines, penalties, sanctions or other liabilities, which could negatively impact our business, financial condition, results of operations, and cash flows.

Our failure to comply with environmental laws and regulations could result in significant liabilities and increased costs.

Our operations are subject to various environmental laws and regulations, including those dealing with the handling and disposal of waste products, PCBs, PFAS, fuel storage, water quality and air quality. These laws and regulations are complex and subject to change and in some cases, environmental laws also ascribe liability without respect to contribution to the contamination in question or the lawfulness of disposal at the time it occurred.

We perform work in many different types of underground environments. If the field location maps supplied to us are not accurate, or if objects are present in the soil that are not indicated on the field location maps, our underground work could strike objects in the soil, some of which may contain pollutants. These objects may also rupture, resulting in the discharge of pollutants. In such circumstances, we may be liable for fines and damages, and we may be unable to obtain reimbursement from any parties providing the incorrect information. We also perform work, including directional drilling, in and around environmentally sensitive areas such as rivers, lakes and wetlands. Due to the inconsistent nature of the terrain and water bodies, it is possible that such work may cause the release of subsurface materials that contain contaminants in excess of amounts permitted by law, potentially exposing us to remediation costs and fines.

Additionally, we own and lease numerous properties and facilities, including certain of which that contain above-and below-ground fuel storage tanks, which could leak and cause us to be responsible for remediation costs and fines, and certain of which that are or have been used for industrial purposes and may contain known or unknown environmental conditions that we are or may be responsible for maintaining, monitoring and/or remediating. The obligations, liabilities, fines and costs associated with these and other events and conditions can be material and could have a material adverse impact on our business, financial condition, results of operations and cash flows.

Moreover, new or changed laws and regulations, changes in interpretation of laws and regulations or the stricter enforcement of existing laws and regulations, as well as the discovery of previously unknown contamination or leaks or the imposition of new clean-up requirements, could require us to incur significant costs or become the basis for new or increased liabilities. For example, a recent change to the definitions of waters of the United States by the EPA has expanded the coverage of the Clean Water Act, which is expected to impact construction around certain waterways. In certain instances, we have obtained indemnification and other rights from third parties (including predecessors or lessors) for such obligations and liabilities; however, these indemnities may not cover all of our costs and indemnitors may not pay amounts owed to us. Further, in connection with an acquisition, we cannot be certain that we identify all potential environmental liabilities relating to any acquired business when we are negotiating an indemnification right.

Certain regulatory requirements applicable to us and certain of our subsidiaries could materially impact our business.

We are subject to various specific regulatory regimes and requirements that could result in significant compliance costs and liabilities. As a public company, we are subject to various corporate governance and financial reporting requirements, including requirements for management to report on our internal controls over financial reporting and for our independent registered public accounting firm to express an opinion on the operating effectiveness of our internal control over financial reporting. Our internal control over financial reporting was effective as of December 31, 2023; however, there can be no assurance that our internal control over financial reporting will be determined to be effective in future years. Failure to maintain effective internal controls, including the identification and remediation of significant internal control deficiencies in acquired businesses (both prior acquisitions and future acquisitions), could result in a decrease in the market value of our publicly traded securities, a reduced ability to obtain debt and equity financing, a loss of customers, fines or penalties, and/or additional expenditures to meet the requirements or remedy any deficiencies.

Additionally, one of our subsidiaries has registered as an investment adviser with the SEC under the U.S. Investment Advisers Act of 1940, as amended (the Advisers Act), which imposes substantive and material restrictions and requirements on the operations of this subsidiary, including certain fiduciary duties that apply to its relationships with its advisory clients. The SEC has broad administrative powers to institute proceedings and impose sanctions for violations of the Advisers Act, ranging from fines and censures to termination of an adviser's registration. This subsidiary is also subject to periodic SEC examinations and other requirements, including, among other things, maintaining an effective compliance program, recordkeeping and reporting requirements, disclosure requirements and complying with anti-fraud prohibitions. The failure of our subsidiary to comply with the requirements of the Advisers Act could result in fines, suspensions of individual employees or other sanctions against our subsidiary that could have a material adverse effect on us. Even if an investigation or proceeding does not result in a fine or sanction or if a fine or sanction imposed against our subsidiary or its employees were small in monetary amount, the adverse publicity relating to an investigation, proceeding or imposition of these fines or sanctions could harm our reputation and have a material adverse effect on us.

Furthermore, our wholly-owned captive insurance company is a registered insurance company with the Texas Department of Insurance, and therefore is subject to various rules and regulations and required to meet certain capital requirements, which can result in additional use of our resources.

We also collect and retain information about our customers, stockholders, vendors and employees. Legislation and regulatory requirements, as well as contractual commitments, affect how we must store, use, transfer and process the confidential information of our customers, stockholders, vendors and employees. These laws, as well as other new or changing legislative, regulatory or contractual requirements concerning data privacy and protection, could require us to expend significant additional compliance costs, and any failure to comply with such requirements can result in significant liability or harm to our reputation.

Changes in tax laws or our tax estimates or positions could adversely affect our financial results.

We are subject to extensive tax liabilities imposed by multiple jurisdictions, including income taxes, indirect taxes (excise/duty, sales/use, gross receipts, and value-added taxes), payroll taxes, franchise taxes, withholding taxes, and ad valorem taxes. New tax laws, treaties and regulations and changes in existing tax laws, treaties and regulations are continuously being enacted or proposed, all of which can result in significant changes to the tax rate on our earnings and have a material impact on our earnings and cash flows from operations. Since future changes to tax legislation and regulations are unknown, we cannot predict the ultimate impact such changes may have on our business. In addition, significant judgment is required in determining our worldwide provision for income taxes. In the ordinary course of our business, there are many transactions and calculations where the ultimate tax determination is uncertain. We are regularly under audit by tax authorities, and our tax estimates and tax positions could be materially affected by many factors, including the final outcome of tax audits and related litigation, the introduction of new tax accounting standards, legislation, regulations and related interpretations, our global mix of earnings, our ability to realize deferred tax assets and changes in uncertain tax positions. A significant increase in our tax rate or change to our tax positions can have a material adverse effect on our profitability and liquidity.

Opportunities within the government arena could subject us to increased regulation and costs and may pose additional risks relating to future funding and compliance.

Most government contracts are awarded through a regulated competitive bidding process, which can often include more cumbersome compliance requirements and be more time consuming than the bidding process for non-governmental projects. For example, the Biden Administration has proposed revisions to the Federal Acquisition Regulation which, if adopted, would require major federal suppliers to monitor and disclose certain climate-related information and, for certain suppliers, to adopt climate-related targets subject to the methodology of the Science Based Targets Initiative. This could require us to incur substantial costs, subject us to increased liability for our climate-related and other disclosures, and influence our climate and business strategy in ways other than we might prefer. Additionally, involvement with government contracts could require a significant amount of costs to be incurred before any revenues are realized. We are also subject to numerous procurement rules and other public sector regulations when we contract with certain governmental agencies, any deemed violation of which could lead to fines or penalties or a loss of business. Government agencies routinely audit and investigate government contractors and may review a contractor's performance under its contracts, cost structure and compliance with applicable laws, regulations and standards. If a government agency determines that costs were improperly allocated to specific contracts, such costs will not be reimbursed or a refund of previously reimbursed costs may be required. If a government agency alleges or proves improper activity, civil and criminal penalties could be imposed and serious reputational harm could result. Many government contracts must be appropriated each year, and without re-appropriation we would not realize all of the potential revenues from any awarded contracts. Additionally, U.S. government shutdowns or any related under-staffing of the government departments or agencies that interact with our business could result in program cancellations, disruptions and/or stop work orders, could limit the government's ability to effectively progress programs and make timely payments, and could limit our ability to perform on our existing U.S. government contracts and successfully compete for new work.

Immigration laws, including our inability to verify employment eligibility and restrictions on movement of our foreign employees, could adversely affect our business or reputation.

We employ a significant number of employees, and while we utilize processes to assist in verifying the employment eligibility of potential new employees so that we maintain compliance with applicable laws, it is possible some of our employees may be unauthorized workers. In addition, we utilize certain non-immigrant visas to allow us to temporarily transfer certain of our foreign employees to the United States, and we utilize foreign immigration laws to allow certain of our employees to temporarily transfer to foreign countries. The employment of unauthorized workers or failure to comply with the requirements of these non-immigrant visas could subject us to fines, penalties and other costs, as well as result in adverse publicity that negatively impacts our reputation and brand and may make it more difficult to hire and retain qualified employees. Furthermore, to the extent we are subject to penalties or delays that prevent the future transfer of our foreign employees to the United States, we may incur additional costs to hire and train new employees. Immigration laws have also been an area of considerable political focus in recent years, and, from time-to-time, the U.S. government considers or implements changes to federal immigration laws, regulations or enforcement programs. Changes in immigration or work authorization laws may increase our obligations for compliance and oversight, which could subject us to additional costs and

potential liability and make our hiring and employee transfer processes more cumbersome, or reduce the availability of potential employees.

Risks Related to Financing Our Business

We may not have access in the future to sufficient funding to finance desired growth and operations.

If we cannot secure future funds or financing on acceptable terms or generate sufficient cash flow, we may be unable to support our future operations or growth strategy. The timing of our funding needs and the size of our operations and strategic initiatives that require capital cannot be readily predicted and may be substantial. We also rely on financing companies to fund the leasing of certain of our equipment, and credit market conditions may restrict access to capital for the leasing of additional equipment. A lack of available capital to fund the leasing of equipment could negatively impact our future operations.

The credit agreement for our senior credit facility and the indenture for our senior notes contain certain restrictions, including financial covenants and other restrictions on our ability to borrow amounts under the credit agreement and limitations on our ability to incur additional debt or conduct certain types of preferred equity financings. Our ability to increase the current commitments under our senior credit facility is also dependent upon additional commitments from our lenders. Furthermore, if we seek additional debt or equity financings, we cannot be certain they will be available to us on acceptable terms or at all, as banks are often restrictive in their lending practices, and our ability to access capital markets for financing could be limited by, among other things, our existing capital structure, our credit ratings, the state of the economy, the health of our industries, and the liquidity of the capital markets. If we are unable to borrow under our senior credit facility or secure other financing or if our lenders become unable or unwilling to fund their commitments to us, we may not be able to access the capital needed to fund our growth and operations, which could have a material adverse impact on our business, financial condition, results of operations and cash flows. For additional information on the terms of our senior credit facility, senior notes and commercial paper facility, please read Note 10 of the Notes to Consolidated Financial Statements in Item 8. *Financial Statements and Supplementary Data* in Part II of this Annual Report.

Additionally, the market price of our common stock has fluctuated significantly in the past, and may fluctuate significantly in the future, in response to various factors, including events beyond our control, which could impact our ability to utilize capital markets to obtain funds. A variety of events may cause the market price of our common stock to fluctuate significantly, including overall market conditions or volatility, actual or perceived negative financial results or other unfavorable information relating to us or our market peers.

We have a significant amount of debt, and our significant indebtedness could adversely affect our business, financial condition and results of operations and our ability to meet our payment obligations under our other debt.

We have a significant amount of debt and debt service requirements. As of December 31, 2023, we had approximately $3.66 billion of outstanding long-term debt, net of current maturities. We also had $1.52 billion of aggregate undrawn borrowing capacity under our senior credit facility and commercial paper program as of December 31, 2023. This level of debt could have significant consequences on our future operations, including:

- making it more difficult for us to meet our payment and other obligations under our outstanding debt;
- resulting in an event of default if we fail to comply with the financial and other restrictive covenants contained in our debt agreements, which event of default could result in all of our debt becoming immediately due and payable;
- reducing the availability of our cash flows to fund working capital, capital expenditures, acquisitions or strategic investments, dividends and other general corporate purposes, and limiting our ability to obtain additional financing for these purposes;
- subjecting us to the risk of increasing interest expense on variable rate indebtedness, including borrowings under our senior credit facility and commercial paper program;
- limiting our flexibility in planning for, or reacting to, and increasing our vulnerability to changes in our business, the industries in which we operate and the general economy;
- limiting our ability to pursue business opportunities that become available to us; and
- placing us at a competitive disadvantage compared to our competitors that have less debt or are less leveraged.

Any of the above-listed factors could have an adverse effect on our business, financial condition and results of operations and our ability to meet our payment obligations on our existing indebtedness.

Servicing our debt requires a significant amount of cash, and we may not have sufficient cash flow from our operations to pay our indebtedness.

Our ability to generate cash in order to make scheduled payments on the principal of, to pay interest on or to refinance our indebtedness depends on our future performance, which is subject to economic, financial, competitive, legislative, regulatory and other factors beyond our control. In addition, our ability to borrow funds in the future to make payments on our debt will depend on the satisfaction of the covenants in our senior credit facility and our other financing and other agreements we may enter into in the future. Specifically, we will need to maintain certain financial ratios. Our business may not continue to generate sufficient cash flow from operations in the future and future borrowings may not be available to us under our senior credit facility and commercial paper facility or from other sources in an amount sufficient to service our indebtedness to make necessary capital expenditures or to fund our other liquidity needs. If we are unable to generate cash from our operations or through borrowings, we may be required to adopt one or more alternatives, such as selling assets, restructuring debt or obtaining additional equity capital on terms that may be onerous or highly dilutive. Our ability to make payments on our indebtedness or refinance our indebtedness will depend on factors including the state of the capital markets and our financial condition at such time, as well as the terms of our financing agreements. We may not be able to engage in any of these activities or engage in these activities on desirable terms, which could result in a default on our debt obligations.

Our variable rate indebtedness subjects us to interest rate risk.

Borrowings under our senior credit facility and commercial paper facility are at variable rates of interest and expose us to interest rate risk. Interest rates have increased significantly during 2022 and 2023, and further increases may occur. As a result, our debt service obligations on the variable rate indebtedness have increased and may continue to increase even if the amount we borrow remains the same, and our net income and cash flows, including cash available for servicing our indebtedness, would correspondingly decrease. See Note 10 of the Notes to Consolidated Financial Statements in Item 8. *Financial Statements and Supplementary Data* in Part II and *Interest Rate Risk* in Item 7A. Q*uantitative and Qualitative Disclosures About Market Risk* of this Annual Report for further information about our debt subject to variable interest rates.

We may be unable to compete for projects if we are not able to obtain surety bonds, letters of credit or bank guarantees.

A portion of our business depends on our ability to provide surety bonds, letters of credit, bank guarantees or other financial assurances. Current or future market conditions, including losses incurred in the construction industry or as a result of large corporate bankruptcies, as well as changes in our sureties' assessment of our operating and financial risk, could cause our surety providers and lenders to decline to issue or renew, or substantially reduce the amount of, bid or performance bonds for our work and could increase our costs associated with collateral. These actions could be taken on short notice. If our surety providers or lenders were to limit or eliminate our access to bonding, letters of credit or guarantees, our alternatives would include seeking capacity from other sureties and lenders or finding more business that does not require bonds or that allows for other forms of collateral for project performance, such as cash. We may be unable to secure these alternatives in a timely manner, on acceptable terms, or at all, which could affect our ability to bid for or work on future projects requiring financial assurances.

Under standard terms in the surety market, sureties issue or continue bonds on a project-by-project basis and can decline to issue bonds at any time or require the posting of additional collateral as a condition to issuing or renewing bonds. If we were to experience an interruption or reduction in the availability of bonding capacity as a result of these or other reasons, we may be unable to compete for or work on certain projects that require bonding.

A downgrade in our debt rating could restrict our ability to access the capital markets.

The terms of our financings are, in part, dependent on the credit ratings assigned to our debt by independent credit rating agencies. We cannot provide assurance that our current credit rating will remain in effect for any given period of time or that it will not be lowered or withdrawn entirely by a rating agency. Factors that may impact our credit rating include, among other things, our debt levels and liquidity, capital structure, financial performance, planned asset purchases or sales, near- and long-term growth opportunities, customer base and market position, geographic diversity, regulatory environment, project performance and risk profile. A downgrade in our credit rating, particularly to non-investment grade levels, would prevent us from issuing commercial paper under our current commercial paper program and result in the conversion of all our outstanding borrowings under our commercial paper facility to revolving borrowings under our senior credit facility, which are subject to a higher interest rate. Additionally, a downgrade in our credit rating could limit our ability to access the debt capital markets or refinance our existing debt or cause us to refinance or issue debt with less favorable terms and conditions. An increase in the level of our indebtedness and related interest costs may increase our vulnerability to adverse general economic and industry conditions and may affect our ability to obtain additional financing, as well as have a material adverse effect on our business, financial condition, results of operations and cash flows.

Risks Related to Our Common Stock

Our sale or issuance of additional common stock or other equity-related securities could dilute each stockholder's ownership interest or adversely affect the market price of our common stock.

We often fund a significant portion of the consideration paid in connection with our acquisitions with the issuance of additional equity securities, including contingent consideration amounts payable if acquired businesses achieve certain performance objectives during specified post-acquisition periods. We also utilize stock-based compensation as a key component of our compensation program. We expect to issue additional equity securities in the future in connection with these and other practices. Our Restated Certificate of Incorporation provides that we may issue up to 600,000,000 shares of common stock, of which 145,508,549 shares were outstanding as of December 31, 2023. Any additional issuances of common stock would have the effect of diluting our earnings per share and our existing stockholders' individual ownership percentages and lead to volatility in the market price of our common stock. We cannot predict the effect that future issuances of our common stock or other equity-related securities would have on the market price of our common stock.

There can be no assurance that we will declare or pay future dividends on our common stock.

The declaration, amount and timing of future dividends are subject to capital availability and determinations by our Board that cash dividends are in the best interest of our stockholders and are in compliance with all respective laws and applicable agreements. Our ability to declare and pay dividends will depend upon, among other factors, our financial condition, results of operations, cash flows, current and anticipated expansion plans, requirements under Delaware law and other factors that our Board may deem relevant. A reduction in or elimination of our dividend payments could have a material negative effect on our stock price**.**

Certain provisions of our corporate governing documents could make an acquisition of our company more difficult.

The following provisions of our charter documents, as currently in effect, and Delaware law could discourage potential proposals to acquire us, delay or prevent a change in control of us or limit the price that investors may be willing to pay in the future for shares of our common stock:

- our certificate of incorporation permits our Board to issue "blank check" preferred stock and to adopt amendments to our bylaws;
- our bylaws contain restrictions regarding the right of stockholders to nominate directors and to submit proposals to be considered at stockholder meetings;
- our certificate of incorporation and bylaws restrict the right of stockholders to call a special meeting of stockholders and to act by written consent; and
- we are subject to provisions of Delaware law which restrict us from engaging in any of a broad range of business transactions with an "interested stockholder" for a period of three years following the date such stockholder became classified as an interested stockholder.

ITEM 1B. *Unresolved Staff Comments*

None.

ITEM 1C. *Cybersecurity*

Cybersecurity Risk Management and Strategy

We have developed and implemented a cybersecurity risk management program intended to protect the confidentiality, integrity, and availability of our critical systems and information. Our cybersecurity risk management program includes a cybersecurity incident response plan and is integrated with our overall enterprise risk management program, sharing common methodologies, reporting channels and governance processes that apply across the enterprise risk management program to other legal, compliance, strategic, operational and financial risk areas. While we may not meet any particular standard, specification or requirement of the Center for Internet Security Critical Security Controls, we utilize such controls as a guide to help us identify, assess and manage cybersecurity risks relevant to our business.

Our cybersecurity risk management program includes, among other things:

- risk assessments designed to help identify material cybersecurity risks to our critical systems and information services;

- a team comprising information technology (IT) security, IT infrastructure, and IT compliance personnel principally responsible for directing (i) our cybersecurity risk assessment processes, (ii) our security processes and (iii) our response to cybersecurity incidents;
- the use of external cybersecurity service providers, where appropriate, to assess, test or otherwise assist with aspects of our security processes;
- cybersecurity awareness training of employees with access to our IT systems;
- a cybersecurity incident response plan and Security Operations Center to respond to cybersecurity incidents; and
- a third-party risk management process for service providers.

During the year ended December 31, 2023, we have not identified risks from known cybersecurity threats, including as a result of any prior cybersecurity incidents, that have materially affected our operations, business strategy, results of operations or financial condition. However, we expect to continue to face certain risks from ongoing cybersecurity threats that, if realized, are reasonably likely to materially affect us, including our operations, business strategy, results of operations or financial condition. See "*Risk Factors – Disruptions to our information technology systems or our failure to adequately protect critical data, sensitive information and technology systems could materially affect our business or result in harm to our reputation*."

Cybersecurity Governance

Our Board considers cybersecurity risk as part of its risk oversight function and considers cybersecurity and IT risks as key strategic risks of Quanta. The Board oversees management's implementation of our cybersecurity risk management program, receiving regular reports from management (including our Vice President of IT) on our cybersecurity risks, including briefings on our cyber risk management program and cybersecurity incidents, and reviewing cybersecurity topics impacting companies with management and external experts.

Our Vice President of IT reports to the Chief Financial Officer and leads our IT and cybersecurity functions and has primary responsibility for leading our overall cybersecurity risk management program, supervising both our internal cybersecurity personnel and our external cybersecurity service providers. Our cybersecurity function is responsible for assessing and managing our material risks from cybersecurity threats, as well as informing management about and monitoring the prevention, detection, mitigation, and remediation of cybersecurity risks and incidents through various means, which include briefings with internal security personnel, threat intelligence and other information obtained from governmental, public or private sources, including external cybersecurity service providers and alerts and reports produced by security tools deployed in the IT environment. Our Vice President of IT has significant global experience in managing and leading information systems and deploying cybersecurity technologies and holds a cybersecurity certification from a leading cybersecurity training and research institute.

ITEM 2. *Properties*

Facilities

We own and lease facilities throughout the United States, Canada, Australia and certain other foreign countries where we conduct business. These facilities are utilized for operations in all of our reportable segments and include offices, equipment yards, warehouses, storage, maintenance shops, manufacturing facilities and training and educational facilities, including the training and educational facilities located at the Quanta Advanced Training Center in La Grange, Texas, and the campuses of Northwest Lineman College, our postsecondary educational institution, which are located in California, Florida, Idaho and Texas. As of December 31, 2023, we owned 88 of our facilities and certain real property and leased the remainder. Included in the owned facilities is real property and associated office buildings and facilities located in Houston, Texas that we utilize as our corporate headquarters and real property and associated manufacturing facilities located in Canonsburg, Pennsylvania, and Raeford, North Carolina, associated with our business that specializes in manufacturing power transformers and related electrical components. We believe that our existing property and facilities are suitable and adequate for our current needs; however, we continue to evaluate real estate strategies to support our recent growth.

Equipment

We operate a fleet of owned and leased trucks and trailers, as well as support vehicles and specialty construction equipment, such as bucket trucks, digger derricks, sidebooms, dozers, backhoes, excavators, trenchers, generators, boring machines, cranes, robotic arms, wire pullers, tensioners, helicopters and other aircraft. As of December 31, 2023, the total size of our owned and leased fleet was approximately 71,000 units. Most of our fleet is serviced by our own mechanics who work at various maintenance sites and facilities. We believe that our equipment is generally well maintained and is suitable and adequate for our present operations.

ITEM 3. ***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 damage, environmental liabilities, wage and hour claims and other employment-related damages, punitive damages, consequential damages, civil penalties or other losses, or injunctive or declaratory relief, as well as interest and attorneys' fees associated with such claims. With respect to all such lawsuits, claims and proceedings, we record a reserve when we believe 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 16 of the Notes to Consolidated Financial Statements in Item 8. *Financial Statements and Supplementary Data* in Part II of this Annual Report, which is incorporated by reference in this Item 3, for additional information regarding litigation, claims and other legal proceedings.

Environmental Matters

Item 103 of Regulation S-K requires disclosure of certain environmental matters in which a governmental authority is a party to the proceedings and when such proceedings involve the potential for monetary sanctions that management reasonably believes will exceed a specified threshold. Pursuant to SEC regulations, we use a threshold of $1.0 million for such proceedings.

ITEM 4. ***Mine Safety Disclosures***

Not applicable.

PART II

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

Our common stock is listed on the New York Stock Exchange under the symbol "PWR." On February 19, 2024, there were approximately 408 holders of record of our common stock. This number does not include stockholders for whom shares of our common stock are held in "nominee" or "street name." See Note 13 of the Notes to Consolidated Financial Statements in Item 8. *Financial Statements and Supplementary Data* in Part II of this Annual Report for additional discussion of our equity securities.

Unregistered Sales of Securities

In October 2023, we completed an acquisition in which a portion of the consideration consisted of the unregistered issuance of shares of our common stock. The aggregate consideration for this acquisition included 176,168 shares of our common stock, valued at $27.4 million as of the acquisition date.

In January 2024, we completed two acquisitions, and a portion of the consideration of one of these acquisitions consisted of the unregistered issuance of shares of our common stock. The aggregate consideration for this acquisition included 221,700 shares of our common stock, valued at $44.9 million as of the acquisition date.

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 of the businesses acquired in a privately negotiated transaction not involving any public offering or solicitation.

For additional information about these acquisitions, see Note 6 of the Notes to Consolidated Financial Statements in Item 8. *Financial Statements and Supplementary Data* in Part II of this Annual Report.

Issuer Purchases of Equity Securities During the Fourth Quarter of 2023

The following table contains information about our purchases of equity securities during the three months ended December 31, 2023.

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 [1]	Maximum Number (or Approximate Dollar Value) of Shares that may yet be Purchased Under the Plans or Programs [1]
October 1 - 31, 2023				
Open Market Stock Repurchases [1]	—	$ —	—	$ 500,000,000
Tax Withholding [2]	9,478	$ 186.41	—	
November 1 - 30, 2023				
Open Market Stock Repurchases [1]	2,229	$ 156.98	2,229	$ 499,650,097
Tax Withholding [2]	19,906	$ 166.73	—	
December 1 - 31, 2023				
Open Market Stock Repurchases [1]	—	$ —	—	$ 499,650,097
Tax Withholding [2]	6,537	$ 199.49	—	
As of December 31, 2023	38,150		2,229	$ 499,650,097

(1) On May 24, 2023, we issued a press release announcing that our Board approved a stock repurchase program, effective July 1, 2023, that authorizes us to purchase, from time to time through June 30, 2026, up to $500 million of our outstanding common stock. Repurchases 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. The program does not obligate us to acquire any specific amount of common stock and may be modified or terminated by our Board at any time at its sole discretion and without notice.

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

Dividends

We have declared a quarterly dividend during each quarter beginning in the fourth quarter of 2018, and we currently expect that comparable cash dividends will continue to be paid for the foreseeable future. The declaration, payment and amount of future cash dividends will be at the discretion of our Board after taking into account various factors, including our financial condition, results of operations, cash flows from operations, current and anticipated capital requirements and expansion plans, income tax laws then in effect and the requirements of Delaware law. In addition, as discussed in Note 10 of the Notes to Consolidated Financial Statements in Item 8. *Financial Statements and Supplementary Data* in Part II of this Annual Report, the credit agreement for our senior credit facility restricts the payment of cash dividends unless certain conditions are met.

Performance Graph

The following Performance Graph and related information shall not be deemed "soliciting material" or to be "filed" with the Securities and Exchange Commission, nor shall such information be incorporated by reference into any future filing under the Securities Act of 1933 or Securities Exchange Act of 1934, each as amended, except to the extent that we specifically incorporate it by reference into such filing.

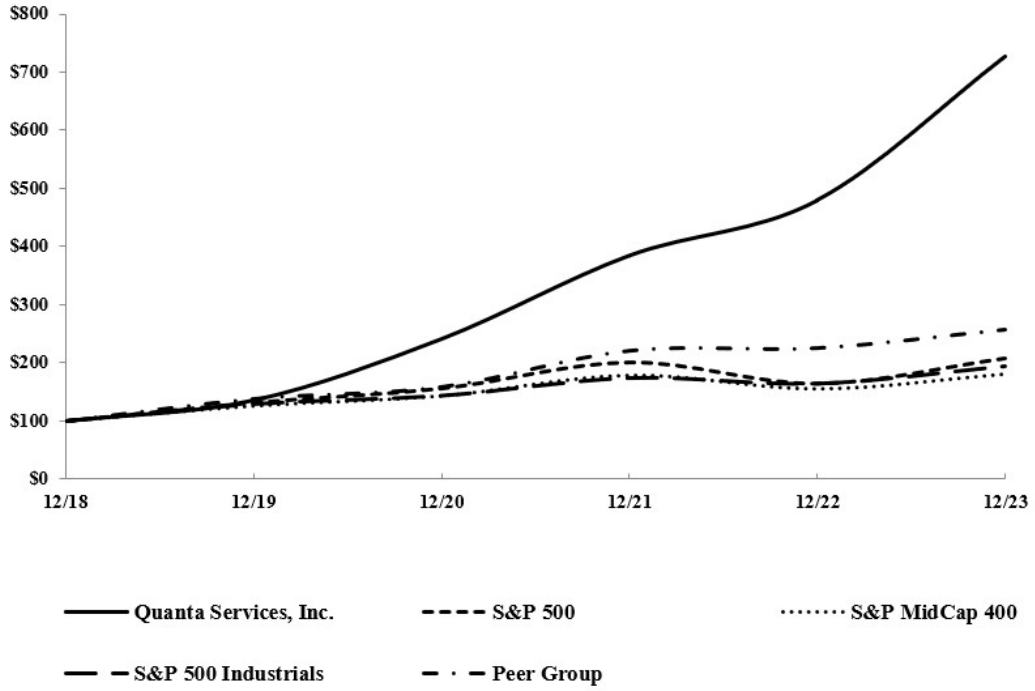
The following graph compares, for the period from December 31, 2018 to December 31, 2023, the cumulative stockholder return on our common stock with the cumulative total return of the S&P 500 Index (the S&P 500), the S&P 500 Industrials Index (the S&P 500 Industrials), the S&P MidCap 400 Index (the S&P MidCap 400) and a peer group selected by our management that includes public companies within our industries. The companies in the peer group were selected to represent a broad group of publicly held corporations with operations similar to ours, and includes AECOM, Dycom Industries, Inc., EMCOR Group Inc., Fluor Corporation, Jacobs Solutions Inc., KBR, Inc., MasTec, Inc., MYR Group Inc. and Primoris Services Corporation. Additionally we determined that the S&P 500 Industrials should be included as it is better aligned with our market capitalization and reflects more of our industry peers than the S&P MidCap 400, and the S&P MidCap 400 will be excluded from the graph in future years.

The graph below assumes an investment of $100 (with reinvestment of all dividends) in our common stock, the S&P 500, the S&P 500 Industrials and the peer group on December 31, 2018 and tracks their relative performance through December 31, 2023. The returns of each company in the peer group are weighted based on the market capitalization of that company at the

beginning of the measurement period. The stock price performance reflected in the following graph is not necessarily indicative of future stock price performance.

COMPARISON OF 5 YEAR CUMULATIVE TOTAL RETURN

Among Quanta Services, Inc., the S&P 500, the S&P MidCap 400, the S&P 500 Industrials and the Peer Group



	December 31,					
	2018	2019	2020	2021	2022	2023
Quanta Services, Inc.	$ 100.00	$ 135.84	$ 241.44	$ 385.10	$ 479.95	$ 728.11
S&P 500	$ 100.00	$ 131.49	$ 155.68	$ 200.37	$ 164.08	$ 207.21
S&P MidCap 400	$ 100.00	$ 126.20	$ 143.44	$ 178.95	$ 155.58	$ 181.15
S&P 500 Industrials	$ 100.00	$ 129.37	$ 143.68	$ 174.02	$ 164.49	$ 194.31
Peer Group	$ 100.00	$ 138.21	$ 158.75	$ 221.13	$ 225.74	$ 257.51

ITEM 6. Reserved

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

General

The following discussion and analysis of the financial condition and results of operations of Quanta Services, Inc. (together with its subsidiaries, Quanta, we, us or our) should be read in conjunction with our consolidated financial statements and related notes in Item 8. *Financial Statements and Supplementary Data* in Part II of this Annual Report. 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 *Cautionary Statement About Forward-Looking Statements and Information* above and in Item 1A. *Risk Factors* in Part I of this Annual Report.

The discussion summarizing the significant factors which affected the results of operations and financial condition for the year ended December 31, 2022, including the changes in results of operations between the years ended December 31, 2022 and 2021, can be found in Part II, Item 7. *Management's Discussion and Analysis of Financial Condition and Results of Operations* of our Annual Report on Form 10-K for the year ended December 31, 2022, which was filed with the SEC on February 23, 2023.

Overview

Our 2023 results reflect increased demand for our services, as revenue and operating income increased in all of our segments as compared to 2022.

With respect to our Electric Power Infrastructure Solutions (Electric Power) segment, utilities are continuing to invest significant capital in their electric power delivery systems through multi-year grid modernization and reliability programs, as well as system upgrades and hardening programs in response to recurring severe weather events. We have also experienced high demand for new and expanded transmission, substation and distribution infrastructure needed to reliably transport power.

With respect to our Renewable Energy Infrastructure Solutions (Renewable Energy) segment, the transition to a reduced-carbon economy is continuing to drive demand for renewable generation and related infrastructure (e.g., high-voltage electric transmission and substation infrastructure), as well as interconnection services necessary to connect and transmit renewable-generated electricity to existing electric power delivery systems. Despite these positive longer-term trends, during 2022 and into 2023, the timing of certain projects within this segment were negatively impacted by supply chain challenges that resulted in delays and shortages of, and increased costs for, materials necessary for certain projects, particularly sourcing restrictions related to solar panels necessary for the utility-scale solar industry and delays in availability of power transformers impacting the electric power and renewable energy industries. While certain challenges associated with solar panel sourcing improved during 2023, there could be other potential supply chain challenges for renewable infrastructure project components.

With respect to our Underground Utility and Infrastructure Solutions (Underground and Infrastructure) segment, during 2022 and 2023 we experienced strong demand for our services focused on utility spending, in particular our gas distribution services to natural gas utilities that are implementing modernization programs, and our downstream industrial services, as these customers continued to move forward with certain maintenance and capital spending that was deferred during the course of the COVID-19 pandemic. Additionally, although revenues associated with large pipeline projects in Canada increased in 2022 and 2023, as compared to prior years, we anticipate that revenues associated with these projects will continue to fluctuate.

During 2023, increased revenues and operating income across all our segments contributed to $1.58 billion of net cash provided by operating activities, a 39.4% increase relative to 2022, which allowed us to execute our business plan, including the strategic acquisition of several businesses, for which we utilized $651.6 million of cash, net of cash acquired, and the payment of $47.8 million in dividends associated with our common stock. Additionally, as of December 31, 2023, available commitments under our senior credit facility, combined with our cash and cash equivalents, totaled $2.81 billion.

We expect the strong demand for our services will continue. Our remaining performance obligations and backlog were $13.89 billion and $30.11 billion as of December 31, 2023, representing increases of 57.9%, and 25.0% relative to December 31, 2022. For a reconciliation of backlog to remaining performance obligations, the most comparable financial measure prepared in conformity with generally accepted accounting principles in the United States (GAAP), see *Non-GAAP Financial Measures* below.

For additional information regarding our overall business environment, see *Overview* in Part I, Item 1. *Business* of this Annual Report.

Significant Factors Impacting Results

Our revenues, profit, margins and other results of operations can be influenced by a variety of factors in any given period, including those described in Item 1. *Business* and Item 1A. *Risk Factors* in Part I of this 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 for certain projects 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.

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, post-wildfire floods and debris flows, pandemics and earthquakes. Climate change has the potential to increase the frequency and extremity of severe weather events.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 due to failure of electrical power or other infrastructure on which we have performed services. However, severe weather events can also increase our emergency restoration services, which typically yield higher margins due in part to higher equipment utilization and absorption of fixed costs.

Demand for services. We perform the majority of our services under existing contracts, including MSAs and similar agreements pursuant to which our customers are not committed to specific volumes of our services. Therefore our volume of business can be positively or negatively affected by fluctuations in the amount of work our customers assign us in a given period, which may vary by geographic region. Examples of items that may cause demand for our services to fluctuate materially from quarter to quarter include: the financial condition of our customers, their capital spending and their access to and cost of capital; acceleration of any projects or programs by customers (e.g., modernization or hardening programs); economic and political conditions on a regional, national or global scale, including availability of renewable energy tax credits; interest rates; governmental regulations affecting the sourcing and costs of materials and equipment; other changes in U.S. and global trade relationships; and project deferrals and cancellations.

Revenue mix and impact on margins. 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. Our larger or more complex projects typically include, among others, transmission projects with higher voltage capacities; pipeline projects with larger-diameter throughput capacities; large-scale renewable generation projects; and projects with increased engineering, design or construction complexities, more difficult terrain or geographical requirements, or longer distance requirements. These projects typically yield opportunities for higher margins than our recurring services under MSAs described above, as we assume a greater degree of performance risk and there is greater utilization of our resources for longer construction timeframes. However, larger projects are subject to additional risk of regulatory delay and cyclicality. 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. 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 greater number of smaller projects versus continuous production on fewer larger projects. As a result, 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 (including in connection with difficult geographic characteristics); 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, public activism, other political activity or legal challenges related to a project; and the performance of third parties. Moreover, we currently generate a significant portion of our revenues under fixed price contracts, and fixed price contracts are more common in connection with our larger and more

complex projects that typically involve greater performance risk. Under these contracts, we assume risks related to project estimates and execution, and project revenues can vary, sometimes substantially, from our original projections due to a variety of factors, including the additional complexity, timing uncertainty or extended bidding, regulatory and permitting processes associated with these projects. These variations can result in a reduction in expected profit, the incurrence of losses on a project or the issuance of change orders and/or assertion of contract claims against customers. See *Contract Estimates and Changes in Estimates* in Note 4 of the Notes to Consolidated Financial Statements in Item 8. *Financial Statements and Supplementary Data* in Part II of this Annual Report.

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 operating margins. In recent years, we have subcontracted approximately 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. While we attempt to structure our agreements with customers and suppliers to account for the impact of increased materials procurement requirements or fluctuations in the cost of materials we procure, our margins may be lower on projects where we furnish a significant amount of materials, as our markup on materials is generally lower than our markup on labor costs, and in a given period an increase in the percentage of work with greater materials procurement requirements may decrease our overall margins, including in some cases our assuming price risk. Furthermore, fluctuations in the price or availability of materials, equipment and consumables that we or our customers utilize could impact costs to complete projects.

Results of Operations

Consolidated Results

The following table sets forth selected statements of operations data, such data as a percentage of revenues for the years indicated, as well as the dollar and percentage change from the prior year (dollars in thousands).

	Year Ended December 31,				Change	
	2023		2022		$	%
Revenues	$ 20,882,206	100.0 %	$ 17,073,903	100.0 %	$ 3,808,303	22.3 %
Cost of services	17,945,120	85.9	14,544,748	85.2	3,400,372	23.4 %
Gross profit	2,937,086	14.1	2,529,155	14.8	407,931	16.1 %
Equity in earnings of integral unconsolidated affiliates	41,609	0.2	52,466	0.3	(10,857)	(20.7)%
Selling, general and administrative expenses	(1,555,137)	(7.4)	(1,336,711)	(7.8)	(218,426)	16.3 %
Amortization of intangible assets	(289,014)	(1.5)	(353,973)	(2.1)	64,959	(18.4)%
Asset impairment charges	—	—	(14,457)	(0.1)	14,457	(100.0)%
Change in fair value of contingent consideration liabilities	(6,568)	—	(4,422)	—	(2,146)	48.5 %
Operating income	1,127,976	5.4	872,058	5.1	255,918	29.3 %
Interest and other financing expenses	(186,913)	(1.0)	(124,363)	(0.7)	(62,550)	50.3 %
Interest income	10,830	0.1	2,606	—	8,224	315.6 %
Other income (expense), net	18,063	0.1	(46,415)	(0.3)	64,478	*
Income before income taxes	969,956	4.6	703,886	4.1	266,070	37.8 %
Provision for income taxes	219,267	1.0	192,243	1.1	27,024	14.1 %
Net income	750,689	3.6	511,643	3.0	239,046	46.7 %
Less: Net income attributable to non-controlling interests	6,000	—	20,454	0.1	(14,454)	(70.7)%
Net income attributable to common stock	$ 744,689	3.6 %	$ 491,189	2.9 %	$ 253,500	51.6 %

* The percentage change is not meaningful.

Revenues. Revenues increased due to a $2.39 billion increase in revenues from our Renewable Energy segment, a $756.6 million increase in revenues from our Electric Power segment, and a $659.9 million increase in revenues from our Underground and Infrastructure segment. See *Segment Results* below for additional information and discussion related to segment revenues.

Cost of services. Costs of services primarily includes wages, benefits, subcontractor costs, materials, equipment, and other direct and indirect costs, including related depreciation. The increase in cost of services generally correlates to the increase in revenues.

*Equity in earnings of integral unconsolidated affiliat*es. The decrease in equity in earnings was primarily driven by lower emergency restoration services in one of our integral affiliates.

Selling, general and administrative expenses. The increase was partially attributable to an aggregate $113.1 million increase in the following items to support business growth: compensation expense, largely associated with increased salaries and stock compensation expense due primarily to an increase in employees; bonus expense due to increased profitability; and travel and related expenses. Also contributing to the increase was a $30.7 million increase related to recently acquired businesses, including acquisition and integration costs, and a $26.5 million increase in expense related to deferred compensation liabilities. The fair market value changes in deferred compensation liabilities were largely offset by changes in the fair value of corporate-owned life insurance (COLI) assets associated with the deferred compensation plan, which are included in "Other income (expense), net" as discussed below. This increase was also attributable to an aggregate $40.7 million increase in legal and other consulting services expense, depreciation expense primarily related to our new corporate headquarters and information technology expenses.

Amortization of intangible assets. The decrease was primarily related to a $88.8 million reduction of amortization of intangible assets associated with backlog for Blattner Holding Company (Blattner), which was fully amortized by the third quarter of 2022.

Asset impairment charges. The asset impairment charges during the year ended December 31, 2022 were primarily associated with an $11.7 million charge related to a software implementation project at an acquired company, which commenced prior to our acquisition and was discontinued in the fourth quarter of 2022.

Operating income. Operating income was positively impacted by a $172.9 million increase in operating income for our Renewable Energy segment, a $54.6 million increase in operating income for our Electric Power segment and a $60.4 million increase in operating income for our Underground and Infrastructure segment, partially offset by a $32.0 million increase in corporate and non-allocated costs, which includes amortization expense. Results for each of our business segments and corporate and non-allocated costs are discussed in *Segment Results* below.

Interest and other financing expenses. The increase primarily resulted from the impact of higher interest rates on our outstanding variable rate debt during the year ended December 31, 2023 as compared to the year ended December 31, 2022.

Other income (expense), net. The net other expense for the year ended December 31, 2022 includes a loss of $91.5 million that resulted from the remeasurement of the fair value of our investment in Starry Group Holdings, Inc. (Starry) and a $13.8 million decrease in the mark-to-market valuation adjustment of the COLI assets associated with our deferred compensation plan, partially offset by a $25.9 million gain on the sale of an investment in a non-integral unconsolidated affiliate and $18.5 million of equity in earnings related to this non-integral unconsolidated affiliate. Other income for the year ended December 31, 2023 was favorably impacted by a $11.6 million increase in the mark-to-market valuation adjustment of the COLI assets associated with our deferred compensation plan.

Provision for income taxes. The effective income tax rates were 22.6% and 27.3% for the years ending December 31, 2023 and 2022. The decrease in our effective income tax rate in 2023 was primarily due to changes in the valuation allowance on deferred tax assets, predominantly from the realization of the loss on our investment in Starry, as well as changes in the fair market value of our company-owned life insurance investments and a tax benefit related to the vesting of equity incentive awards at a higher fair market value than their grant date fair market value. These decreases in the effective tax rate were partly offset by higher non-deductible per diem expenses related to the expiration, as of December 31, 2022, of a temporary provision that allowed for the full deduction of certain meal and entertainment costs. The components of our provision for income taxes including changes in our valuation allowance are quantified and described in more detail in Note 12 of the Notes to Consolidated Financial Statements in Item 8. Financial Statements and Supplementary Data in Part II of this Annual Report.

Net income attributable to non-controlling interests. The decrease in net income attributable to non-controlling interests is primarily related to the $10.4 million gain on sale of the investment in a non-integral equity unconsolidated affiliate recorded during the year ended December 31, 2022 as further described in Note 8 of the Notes to Consolidated Financial Statements in Item 8. *Financial Statements and Supplementary Data* in Part II of this Annual Report.

Comprehensive income. See Statements of Comprehensive Income in Item 8. *Financial Statements and Supplementary Data* in Part II of this Annual Report. Comprehensive income increased by $354.2 million in 2023 as compared to 2022, primarily due to a $239.0 million increase in net income and a $99.3 million increase related to foreign currency translation adjustments. The predominant functional currencies for our operations outside the U.S. are Canadian and Australian dollars. Foreign currency translation adjustment income in the year ended December 31, 2023 primarily resulted from the strengthening

of the Canadian dollar against the U.S. dollar as of December 31, 2023 when compared to December 31, 2022. Foreign currency translation loss in the year ended December 31, 2022 primarily resulted from the strengthening of the U.S. dollar against both the Australian and Canadian dollars as of December 31, 2022 when compared to December 31, 2021.

EBITDA and *adjusted EBITDA*. See *Non-GAAP Financial Measures* below for a reconciliation of EBITDA and adjusted EBITDA to net income attributable to common stock, the most comparable GAAP financial measure. EBITDA increased 21.2%, or $309.7 million, to $1.77 billion as compared to $1.46 billion for the year ended December 31, 2022, and adjusted EBITDA increased 15.6%, or $262.2 million, to $1.95 billion as compared to $1.68 billion for the year ended December 31, 2022.

Segment Results

We report our results under three reportable segments: Electric Power, Renewable Energy and Underground and Infrastructure. Reportable segment information, including revenues and operating income by type of work, is gathered from each of our operating companies. Classification of our operating company revenues by type of work for segment reporting purposes can at times require judgment on the part of management. Our operating companies 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. Integrated operations and common administrative support for operating companies require that certain allocations be made to determine segment profitability, including allocations of corporate shared and indirect operating costs, as well as general and administrative costs. Certain corporate costs are not allocated, including corporate facility costs; non-allocated corporate salaries, benefits and incentive compensation; acquisition and integration costs; non-cash stock-based compensation; amortization related to intangible assets; asset impairments 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) and operating margins for the periods indicated, as well as the dollar and percentage change from the prior period (dollars in thousands):

	Year Ended December 31,				Change	
	2023		2022		$	%
Revenues:						
Electric Power	$ 9,696,897	46.5 %	$ 8,940,276	52.4 %	$ 756,621	8.5 %
Renewable Energy	6,170,301	29.5	3,778,560	22.1	2,391,741	63.3 %
Underground and Infrastructure	5,015,008	24.0	4,355,067	25.5	659,941	15.2 %
Consolidated revenues	$ 20,882,206	100.0 %	$ 17,073,903	100.0 %	$ 3,808,303	22.3 %
Operating income (loss):						
Electric Power	$ 1,013,350	10.5 %	$ 958,798	10.7 %	$ 54,552	5.7 %
Renewable Energy	477,208	7.7 %	304,308	8.1 %	172,900	56.8 %
Underground and Infrastructure	377,977	7.5 %	317,543	7.3 %	60,434	19.0 %
Corporate and Non-Allocated Costs	(740,559)	(3.5)%	(708,591)	(4.2)%	(31,968)	4.5 %
Consolidated operating income	$ 1,127,976	5.4 %	$ 872,058	5.1 %	$ 255,918	29.3 %

Electric Power Segment Results

Revenues. The increase in revenues for the year ended December 31, 2023 was primarily due to increased spending by our utility customers and approximately $270 million in revenues attributable to acquired businesses. These increases were partially offset by approximately $60 million in lower emergency restoration services revenues.

Operating Income. The increase in operating income for the year ended December 31, 2023 was primarily due to the increase in revenues. The decrease in operating margin compared to the year ended December 31, 2022 was due to $10.9 million of lower equity in earnings from our integral unconsolidated affiliates as discussed above, as well as lower utilization of resources in Canada. The decrease in emergency restoration services revenues, which generally deliver higher operating margin, also contributed to the decrease in operating margin. These items were partially offset by the favorable impact of margins related to telecommunication projects.

Renewable Energy Segment Results

Revenues. The increase in revenues for the year ended December 31, 2023 was primarily due to increased demand and improved supply chain dynamics associated with certain components for renewable generation projects, as well as approximately $225 million in revenues attributable to acquired businesses. These increases were partially offset by approximately $35 million as a result of unfavorable foreign currency exchange rates.

Operating Income. The increase in operating income was primarily due to the increase in revenues during the year ended December 31, 2023. Operating margin during the year ended December 31, 2023 was negatively impacted by variability in overall project timing and increased unabsorbed costs related to the ramping up of resources in the first half of 2023 to support the increase in project activity experienced in the second half of 2023 and into 2024. Operating income and margin for the year ended December 31, 2022 benefited from the favorable acceleration of a transmission project and was negatively impacted by $11.7 million of asset impairment charges related to a software implementation project at an acquired company, which commenced prior to our acquisition and was discontinued in the fourth quarter of 2022.

Underground and Infrastructure Segment Results

Revenues. The increase in revenues for the year ended December 31, 2023 was primarily due to higher demand from our gas utility services customers, and to a lesser extent, increased revenues associated with large pipeline projects in Canada. These increases were partially offset by approximately $55 million as a result of unfavorable foreign currency exchange rates.

Operating Income. Operating income and operating margin increased for the year ended December 31, 2023 primarily due to the increase in revenues, which contributed to higher levels of fixed cost absorption.

Corporate and Non-Allocated Costs

The increase in corporate and non-allocated costs during the year ended December 31, 2023 was primarily due to an aggregate increase of $75.0 million in costs primarily related to compensation expense, which was primarily attributable to non-cash stock compensation expense and salaries in support of business growth, and consulting fees. Also contributing to the increase was a $26.5 million increase in expense related to deferred compensation liabilities. Partially offsetting these increases was a $65.0 million decrease in intangible asset amortization primarily associated with backlog for Blattner, which was fully amortized by the third quarter of 2022.

Non-GAAP Financial Measures

EBITDA and Adjusted EBITDA

EBITDA and adjusted EBITDA, financial measures not recognized under GAAP, when used in connection with net income attributable to common stock, are intended to provide useful information to investors and analysts as they evaluate our performance. EBITDA is defined as earnings before interest and other financing expenses, taxes, depreciation and amortization, and adjusted EBITDA is defined as EBITDA adjusted for certain other items as described below. These measures should not be considered as an alternative to net income attributable to common stock or other financial measures of performance that are derived in accordance with GAAP. Management believes that the exclusion of these items from net income attributable to common stock enables us and our investors to more effectively evaluate our operations period over period and to identify operating trends that might not be apparent due to, among other reasons, the variable nature of these items period over period. In addition, management believes these measures may be useful for investors in comparing our operating results with other companies that may be viewed as our peers.

As to certain of the items below, (i) non-cash stock-based compensation expense varies from period to period due to acquisition activity, changes in the estimated fair value of performance-based awards, forfeiture rates, accelerated vesting and amounts granted; (ii) acquisition and integration costs vary from period to period depending on the level and complexity of our acquisition activity; (iii) equity in (earnings) losses of non-integral unconsolidated affiliates varies from period to period depending on the activity and financial performance of such affiliates, the operations of which are not operationally integral to us; (iv) mark-to-market adjustments on investments vary from period to period based on fluctuations in the market price of such company's common stock; (v) gains and losses on the sale of investments vary from period to period depending on activity; (vi) asset impairment charges vary from period to period depending on economic and other factors; and (vii) change in fair value of contingent consideration liabilities varies from period to period depending on the performance in post-acquisition periods of certain acquired businesses and the effect of present value accretion on fair value calculations. Because EBITDA and adjusted EBITDA, as defined, exclude some, but not all, items that affect net income attributable to common stock, such measures may not be comparable to similarly titled measures of other companies. The most comparable GAAP financial measure, net income

attributable to common stock, and information reconciling the GAAP and non-GAAP financial measures, are included below. The following table shows dollars in thousands.

	Year Ended December 31,	
	2023	2022
Net income attributable to common stock (GAAP as reported)	$ 744,689	$ 491,189
Interest and other financing expenses	186,913	124,363
Interest income	(10,830)	(2,606)
Provision for income taxes	219,267	192,243
Depreciation expense	324,786	290,647
Amortization of intangible assets	289,014	353,973
Interest, income taxes, depreciation and amortization included in equity in earnings of integral unconsolidated affiliates	19,936	14,274
EBITDA	1,773,775	1,464,083
Non-cash stock-based compensation	126,762	105,600
Acquisition and integration costs [1]	42,837	47,431
Equity in earnings of non-integral unconsolidated affiliates	(1,263)	(20,333)
Loss from mark-to-market adjustment on investment [2]	—	91,500
Gains on sales of investments [3]	(1,496)	(22,222)
Asset impairment charges [4]	—	14,457
Change in fair value of contingent consideration liabilities	6,568	4,422
Adjusted EBITDA	$ 1,947,183	$ 1,684,938

[1] The amount for the year ended December 31, 2022 includes $35.9 million of expenses that are associated with change of control payments as a result of the acquisition of Blattner.

[2] The amount for the year ended December 31, 2022 is a loss from a decrease in fair value of our investment in Starry.

[3] The amount for the year ended December 31, 2022 is a gain as a result of the sale of a non-integral equity method investment further described in Note 8 of the Notes to Consolidated Financial Statements in Item 8. *Financial Statements and Supplementary Data* in Part II of this Annual Report, and a non-marketable equity security interest in a technology company.

[4] The amount for the year ended December 31, 2022 primarily related to a software implementation project at an acquired company, which commenced prior to our acquisition and was discontinued in the fourth quarter of 2022.

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, 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 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 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 December 31, 2023 and 2022, MSAs accounted for 45% and 52% of our estimated 12-month backlog and 55% and 65% of our 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 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 financial measure) by reportable segment, along with estimates of amounts expected to be realized within 12 months (in thousands):

	December 31, 2023		December 31, 2022	
	12 Month	Total	12 Month	Total
Electric Power				
Remaining performance obligations	$ 2,762,608	$ 4,505,830	$ 2,124,820	$ 3,033,472
Estimated orders under MSAs and short-term, non-fixed price contracts	5,597,732	10,995,198	5,415,427	10,049,435
Backlog	$ 8,360,340	$ 15,501,028	$ 7,540,247	$ 13,082,907
Renewable Energy				
Remaining performance obligations	$ 5,512,159	$ 8,005,368	$ 3,183,568	$ 4,638,115
Estimated orders under MSAs and short-term, non-fixed price contracts	118,770	119,634	57,555	84,094
Backlog	$ 5,630,929	$ 8,125,002	$ 3,241,123	$ 4,722,209
Underground and Infrastructure				
Remaining performance obligations	$ 1,017,227	$ 1,383,057	$ 1,038,543	$ 1,129,837
Estimated orders under MSAs and short-term, non-fixed price contracts	2,222,451	5,099,332	1,973,982	5,158,814
Backlog	$ 3,239,678	$ 6,482,389	$ 3,012,525	$ 6,288,651
Total				
Remaining performance obligations	$ 9,291,994	$ 13,894,255	$ 6,346,931	$ 8,801,424
Estimated orders under MSAs and short-term, non-fixed price contracts	7,938,953	16,214,164	7,446,964	15,292,343
Backlog	$ 17,230,947	$ 30,108,419	$ 13,793,895	$ 24,093,767

The increases in remaining performance obligations and backlog from December 31, 2022 to December 31, 2023 were primarily attributable to multiple new project awards.

Liquidity and Capital Resources

Overview

We plan to fund our working capital, capital expenditures, debt service, dividends and other cash requirements with our current available liquidity and cash from operations, which could be affected by general economic, financial, competitive, legislative, regulatory, business and other factors, many of which are beyond our control. Management monitors financial markets and national and global economic conditions for factors that may affect our liquidity and capital resources.

As set forth below, we have various short-term and long-term cash requirements and capital allocation priorities, and we intend to fund these requirements primarily with cash flow from operating activities, as well as debt financing as needed.

Cash Requirements and Capital Allocation

Cash Requirements. The following table summarizes, as of December 31, 2023, our cash requirements from contractual obligations that are due within the twelve months subsequent to December 31, 2023 and thereafter, excluding certain amounts discussed below (in thousands):

	Due in 2024	Due Thereafter	Total
Long-term debt, including current portion - principal	$ 527,435	$ 3,580,849	$ 4,108,284
Long-term debt - cash interest [1]	72,493	554,441	626,934
Operating lease obligations [2]	87,354	203,888	291,242
Operating lease obligations that have not yet commenced [3]	1,285	15,277	16,562
Finance lease obligations [2]	8,869	37,960	46,829
Short-term lease obligations	21,336	—	21,336
Equipment and other purchase commitments [4]	148,284	—	148,284
Capital commitment related to investments in unconsolidated affiliates [5]	1,013	60,162	61,175
Total cash requirements from contractual obligations	$ 868,069	$ 4,452,577	$ 5,320,646

(1) Amounts represent cash interest and other financing expenses associated primarily with our senior notes. Interest payments related to our senior credit facility and notes issued under our commercial paper program are not included due to their variable interest rates, and as it relates to the commercial paper program, the short-term nature of the borrowings. With respect to this variable rate debt, assuming the principal amount outstanding and interest rate in effect as of December 31, 2023 remained the same, the annual cash interest expense would be approximately $100.2 million, payable until October 8, 2026, the maturity date of our senior credit facility.

(2) Amounts represent undiscounted operating and finance lease obligations as of December 31, 2023. The corresponding amounts recorded on our December 31, 2023 consolidated balance sheet represent the present value of these amounts.

(3) Amounts represent undiscounted operating lease obligations that had not commenced as of December 31, 2023. The operating lease obligations will be recorded on our consolidated balance sheet beginning on the commencement date of each lease.

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

(5) Amounts represent capital committed for investments in unconsolidated affiliates, including $50.0 million related to a limited partnership interest in a fund that targets investments in certain portfolio companies that operate businesses related to the transition to a reduced-carbon economy. Because we are unable to determine the timing of any such investments, we have included the entire amount of our capital commitment in the “Due Thereafter” column in the above cash requirements table.

Contingent Obligations. We have various contingent obligations that could require the use of cash or impact the collection of cash in future periods; however, we are unable to accurately predict the timing and estimate the amount of such contingent obligations as of December 31, 2023. These contingent obligations generally include, among other things:

- contingent consideration liabilities, which are described further in Note 6 of the Notes to Consolidated Financial Statements in Item 8. *Financial Statements and Supplementary Data* in Part II of this Annual Report;
- undistributed earnings of foreign subsidiaries and unrecognized tax benefits, which are described further in Note 12 of the Notes to Consolidated Financial Statements in Item 8. *Financial Statements and Supplementary Data* in Part II of this Annual Report;
- collective bargaining agreements and multiemployer pension plan liabilities, as well as liabilities related to our deferred compensation and other employee benefit plans, which are described further in Notes 15 and 16 of the Notes to Consolidated Financial Statements in Item 8. *Financial Statements and Supplementary Data* in Part II of this Annual Report; and
- obligations relating to our joint ventures, lawsuits and other legal proceedings, uncollectible accounts receivable, insurance liabilities, obligations relating to letters of credit, bonds and parent guarantees, obligations relating to employment agreements, indemnities and assumed liabilities, and residual value guarantees, which are described further in Notes 4, 10, 11 and 16 of the Notes to Consolidated Financial Statements in Item 8. *Financial Statements and Supplementary Data* in Part II of this Annual Report.

Capital Allocation. Our capital deployment priorities that require the use of cash include: (i) working capital to fund ongoing operating needs, (ii) capital expenditures to meet anticipated demand for our services, (iii) acquisitions and investments to facilitate the long-term growth and sustainability of our business, and (iv) return of capital to stockholders, including through the payment of dividends and repurchases of our outstanding common stock. Our industry is capital intensive, and we expect substantial capital expenditures and commitments for equipment purchases and equipment lease and rental arrangements to be needed into the foreseeable future in order to meet anticipated demand for our services. We expect capital expenditures for property and equipment purchases for the year ended December 31, 2024 to be approximately $450 million. We also expect to continue to allocate significant capital to strategic acquisitions and investments, as well as to pay dividends and to repurchase our outstanding common stock and/or debt securities. During 2023, we completed the acquisition of five businesses in which a portion of the consideration, net of cash acquired, consisted of $651.6 million in cash funded with a combination of cash and cash equivalents and borrowings from our commercial paper program. In January of 2024, we completed the acquisition of two businesses in which a portion of the consideration consisted of $378.7 million in cash paid on the acquisition dates funded with a combination of cash and cash equivalents and borrowings from our commercial paper program. For additional information regarding these acquisitions, refer to Note 6 of the Notes to Consolidated Financial Statements in Item 8. *Financial Statements and Supplementary Data* in Part II of this Annual Report.

Significant Sources of Cash

We anticipate that our future cash flows from operating activities, cash and cash equivalents on hand, existing borrowing capacity under our senior credit facility and ability to access capital markets for additional capital will provide sufficient funds to enable us to meet our cash requirements described above for the next twelve months and over the longer term.

Cash flow from operating activities is primarily influenced by demand for our services and operating margins but is also influenced by the timing of 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 are required to be paid before the associated receivables are billed and collected. Additionally, operating cash flows may be negatively impacted as a result of unpaid and delayed change orders and claims. Changes in project timing due to delays or accelerations and other economic, regulatory, market and political factors that may affect customer spending could also impact cash flow from operating activities. Further information with respect to our cash flow from operating activities is set forth below and in Note 18 of the Notes to Consolidated Financial Statements in Item 8. *Financial Statements and Supplementary Data* in Part II of this Annual Report.

Our available commitments under our senior credit facility and cash and cash equivalents as of December 31, 2023 were as follows (in thousands):

	December 31, 2023
Total capacity available for revolving loans, credit support for commercial paper program and letters of credit	$ 2,640,000
Less:	
Borrowings of revolving loans	135,887
Commercial paper program notes outstanding [1]	705,900
Letters of credit outstanding	274,206
Available commitments for revolving loans, credit support for commercial paper program and letters of credit	1,524,007
Plus:	
Cash and cash equivalents [2]	1,290,248
Total available commitments under senior credit facility and cash and cash equivalents	$ 2,814,255

[1] Amount represents unsecured notes issued under our commercial paper program, which has a maximum aggregate amount of $1.50 billion of notes outstanding at any time. Available commitments for revolving loans under our senior credit facility must be maintained to provide credit support for notes issued under our commercial paper program, and therefore such notes effectively reduce the available borrowing capacity under our senior credit facility.

[2] Further information with respect to our cash and cash equivalents is set forth below and in Note 17 of the Notes to Consolidated Financial Statements in Item 8. *Financial Statements and Supplementary Data* in Part II of this Annual Report. This amount includes $256.5 million in jurisdictions outside of the U.S., principally in Canada and Australia. There are currently no legal or economic restrictions that would materially impede our ability to repatriate such cash.

We consider our investment policies related to cash and cash equivalents to be conservative, as we maintain a diverse

portfolio of what we believe to be high-quality cash and cash equivalent investments with short-term maturities. Additionally, subject to the conditions specified in the credit agreement for our senior credit facility, we have the option to increase the capacity of our senior credit facility, in the form of an increase in the revolving commitments, 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. Further information with respect to our debt obligations is set forth in Note 10 of the Notes to Consolidated Financial Statements in Item 8. *Financial Statements and Supplementary Data* in Part II of this Annual Report.

We may also seek to access the capital markets from time to time to raise additional capital, increase liquidity as necessary, refinance or extend the term of our existing indebtedness, fund acquisitions or otherwise fund our capital needs. While our financial strategy and consistent performance have allowed us to maintain investment grade ratings, our ability to access capital markets in the future depends on a number of factors, including our financial performance and financial position, our credit ratings, industry conditions, general economic conditions, our backlog, capital expenditure commitments, market conditions and market perceptions of us and our industry.

Sources and Uses of Cash, Cash Equivalents and Restricted Cash During the Years Ended December 31, 2023 and 2022

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

	Year Ended December 31,	
	2023	2022
Net cash provided by operating activities	$ 1,575,952	$ 1,130,312
Net cash used in investing activities	$ (989,650)	$ (617,191)
Net cash provided by (used in) financing activities	$ 268,500	$ (311,071)

Operating Activities

Net cash provided by operating activities of $1.58 billion and $1.13 billion in 2023 and 2022 primarily reflected earnings adjusted for non-cash items and cash used by the main components of working capital: "Accounts and notes receivable," "Contract assets," "Prepaid expenses and other current assets," "Accounts payable and accrued expenses," and "Contract liabilities." Net cash provided by operating activities during the years ended December 31, 2023 and 2022 was negatively impacted by incremental working capital requirements and the timing of the associated billings related to the large renewable transmission project in Canada as discussed further in Note 4 of the Notes to Consolidated Financial Statements in Item 8. *Financial Statements and Supplementary Data* in Part II of this Annual Report.

Certain payments negatively impacted net cash provided by operating activities in the year ended 2022, including $45.4 million related to change of control liabilities owed to employees of Blattner and payable in connection with our acquisition of Blattner; and $54.4 million for payments associated with deferred employer payroll taxes, which were due during the year ended December 31, 2020 but deferred pursuant to the Coronavirus Aid, Relief, and Economic Security Act (CARES Act). Partially offsetting these items was the receipt of $100.5 million pursuant to coverage under an insurance policy related to an outcome in a legal proceeding, as further described in *Legal Proceedings - Peru Project Dispute* in Note 16 of the Notes to Consolidated Financial Statements in Item 8. *Financial Statements and Supplementary Data* in Part II of this Annual Report.

As discussed above, cash flow provided by operating activities is primarily influenced by demand for our services and operating margins but is also influenced by working capital needs. 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 and when we incur costs for work that is the subject of unpaid change orders and claims. 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, as well as change orders and claims. Additionally, working capital needs are generally higher during the summer and fall 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. 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, including market conditions or the impact of certain unforeseen events (e.g., regulatory and other actions that impact the supply chain for certain materials).

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, and divided by average revenues per day during the quarter. DSO at December 31, 2023 was 68 days, which was lower than DSO of 75 days at December 31, 2022 and our five-year historical average DSO of 84 days. This decrease in DSO as compared to December 31, 2022 was partially due to an increase in contract liabilities related to favorable billing terms on certain large projects, increased revenues and improved collection of receivables in the fourth quarter of 2023. Although the decrease in DSO had a positive impact on cash flow from operating activities, increased unapproved change orders included in contract assets from the aforementioned large renewable transmission project in Canada continue to have a negative impact on DSO and cash flow from operating activities. Also negatively impacting cash flow from operating activities for 2023 was our prepayment of amounts to suppliers for certain project materials that require a long lead time.

Days payables outstanding (DPO) represents the average number of days it takes to repay accounts payable, which management believes is an important metric for assessing liquidity. A decrease in DPO has a negative impact on cash flow from operating activities, while an increase in DPO has a favorable impact on cash flow from operating activities. DPO is calculated by using accounts payable divided by average cost of services per day during the quarter. Net cash provided by operating activities during the year ended December 31, 2023 was positively impacted by increased DPO, which was primarily the result of increased accounts payable activity on certain large renewable projects.

Investing Activities

Net cash used in investing activities in the year ended 2023 included $651.6 million related to acquisitions and $434.8 million of capital expenditures. Partially offsetting these items were $69.3 million of proceeds from the sale of, and insurance settlements related to, property and equipment and $42.3 million of cash received from the sale of investments.

Net cash used in investing activities in 2022 included $427.6 million of capital expenditures; $195.1 million related to acquisitions, primarily associated with a net working capital adjustment in connection with our acquisition of Blattner; and $78.1 million of cash paid primarily for equity method and non-marketable securities. Partially offsetting these items were $64.1 million of proceeds from the sale of, and insurance settlements related to, property and equipment and $20.6 million of cash received from the sale of investments.

Our industry is capital intensive, and we expect substantial capital expenditures and commitments for equipment purchases and equipment lease and rental arrangements to be needed for the foreseeable future in order to meet anticipated demand for our services. 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. We also have various other capital commitments that are detailed in *Cash Requirements and Capital Allocation* above.

Financing Activities

Net cash provided by financing activities in the year ended December 31, 2023 included $408.7 million of net borrowings under our senior credit facility and commercial paper program, partially offset by $119.8 million of payments to satisfy tax withholding obligations associated with stock-based compensation and $47.8 million of dividends.

Net cash used in financing activities in the year ended December 31, 2022 included $127.8 million of common stock repurchases, $82.6 million of payments to satisfy tax withholding obligations associated with stock-based compensation; $41.1 million of dividends; and $23.4 million of net payments under our senior credit facility and commercial paper program.

We expect to continue to utilize cash for similar financing activities in the future, including repayments of our outstanding debt, payment of cash dividends and repurchases of our common stock and/or debt securities.

Critical Accounting Estimates

The discussion and analysis of our financial condition and results of operations are based on our consolidated financial statements, which have been prepared in accordance with GAAP. The preparation of these 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 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 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 Notes 2 and 4 of the Notes to Consolidated Financial

Statements in Item 8. *Financial Statements and Supplementary Data* in Part II of this Annual Report and should be read in conjunction with the accounting policies identified below that we believe affect our more significant estimates used in the preparation of our consolidated financial statements.

Revenue Recognition - Contract Estimates and Changes in Estimates

Refer to *Contract Estimates and Changes in Estimates* in Note 4 of the Notes to Consolidated Financial Statements in Item 8. *Financial Statements and Supplementary Data* in Part II of this Annual Report for a description of a variety of factors that can cause changes in estimates and how changes in estimates on certain contracts may result in the issuance of change orders or claims under contracts for our projects. The quantitative impacts of changes in estimates and change orders and claims are also included therein.

Due to the significant judgments utilized in the revenue and cost estimation process, if subsequent actual results and/or updated assumptions or estimates were to change from those utilized as of December 31, 2023, it could result in a material impact to our results of operations. As described in Note 4 of the Notes to Consolidated Financial Statements in Item 8. *Financial Statements and Supplementary Data* in Part II of this Annual Report, under fixed price contracts, as well as unit-price contracts with more than an insignificant amount of partially completed units, revenue is recognized as performance obligations are satisfied over time. Approximately 56.5% of our revenues recognized during the year ended December 31, 2023 were associated with this revenue recognition method. There were no material changes in estimates impacting revenues or gross profit during the years ended December 31, 2023, 2022 and 2021 other than a 5.7% favorable impact to gross profit that resulted from net positive changes in estimates across a large number of projects in the year ended December 31, 2021, primarily as a result of favorable performance and successful mitigation of risks and contingencies as the projects progressed to completion.

Collectibility of Accounts Receivable and Contract Assets

Refer to *Accounts Receivable, Allowance for Credit Losses and Concentrations of Credit Risk* in Note 4 of the Notes to Consolidated Financial Statements in Item 8. *Financial Statements and Supplementary Data* in Part II of this Annual Report for a description of how we determine our allowance for credit losses, which is based on an estimate of expected credit losses for financial instruments, primarily accounts receivable (including unbilled receivables) and contract assets, as well as activity in allowance for credit losses.

Should anticipated collections fail to materialize, or if future economic conditions deteriorate, we could experience an increase in our allowance for credit losses. If our historical loss ratio had been 5 basis points higher or lower as of December 31, 2023, our provision for credit loss would have increased or decreased $2.6 million during the year ended December 31, 2023.

Acquisitions

Contingent Consideration. Refer to *Contingent Consideration* in Note 6 of the Notes to Consolidated Financial Statements in Item 8. *Financial Statements and Supplementary Data* in Part II of this Annual Report for a description of how contingent consideration liabilities are determined and the related assumptions and uncertainties utilized for our estimates, as well as the balances and account activity. The maximum amount payable related to these liabilities is also included therein.

Valuation of Long-Lived Assets. Refer to Notes 2 and 6 of the Notes to Consolidated Financial Statements in Item 8. *Financial Statements and Supplementary Data* in Part II of this Annual Report for a description of valuation of long-lived assets related to acquisitions (other intangible assets and property, plant and equipment), including assumptions and uncertainties related to our estimates, as well as amounts related to recent acquisitions. If we determine there is a change in the valuation of long-lived assets during the measurement period, the change in estimate would result in a change in the amount of goodwill.

Goodwill, Other Intangible Assets and Property, Plant and Equipment

In connection with our annual goodwill assessments in 2023 and 2022, management performed a qualitative impairment assessment of our reporting units, which indicated that the fair value of our reporting units was greater than their carrying value including goodwill. Accordingly, a quantitative goodwill impairment test was not required, and no goodwill impairment was recognized in 2023 or 2022. Additionally, there were no material impairments related to other intangible assets or property, plant equipment in 2023 or 2022. Changes in facts and circumstances, judgments and assumptions used to determine these fair values, including with respect to market conditions and the economy, could result in impairment charges in the future that could be material to our financial statements.

Insurance

Refer to Notes 2 and 16 of the Notes to Consolidated Financial Statements in Item 8. *Financial Statements and Supplementary Data* in Part II of this Annual Report for a description of our insurance coverage, accounting policies related to insurance, accruals and related recoveries, as well as uncertainties of the related estimates. Our estimates of insurance liabilities related to employer's liability, workers' compensation, auto liability and general liability require us to make assumptions related to potential losses regarding our determination of amounts considered probable and estimable. We, along with our third-party actuary and third-party administrator, consider a number of factors when estimating our retained liability, including claims experience, demographic factors, severity factors and other actuarial assumptions. We periodically review our estimates and assumptions with our third-party actuary to assist us in determining the adequacy of our retained liability. As of December 31, 2023, the amount accrued for employer's liability, workers' compensation, auto liability and general liability totaled $327.3 million.

Although we believe that we have reasonably estimated our insurance liability, it is possible that actual results could differ from recorded retained liabilities. Our insurance liability is based on a reasonable estimate provided by our third-party actuaries based on a statistical model that considers the cumulative probability distribution of all possible loss estimates.

Income Taxes

Refer to Notes 2 and 12 of the Notes to Consolidated Financial Statements in Item 8. *Financial Statements and Supplementary Data* in Part II of this Annual Report for a description of our accounting policies related to income taxes, the identification and measurement of deferred tax assets and liabilities, the measurement of valuation allowances on deferred tax assets, benefits from uncertain tax positions and the amount of unrecognized tax benefits that are reasonably possible of being adjusted within 12 months due to the expiration of a statute of limitations and/or resolution of examinations with taxing authorities.

The evaluation of the recoverability of the deferred tax asset requires us to weigh all positive and negative evidence, including projected future taxable income and whether we will be able to utilize state and foreign net operating loss carryforwards, to determine whether it is more likely than not that all or some portion of the deferred tax assets will not be realized. Revisions to our forecasts, declining macroeconomic conditions or other factors could result in changes to our assessment of the realization of these deferred income tax assets.

The evaluation of uncertain tax positions involves significant estimates and judgments. Although we believe that our estimates and judgments are reasonable, we are occasionally challenged by various taxing authorities regarding the amount of taxes due. To the extent we prevail in matters for which a liability has been established, are required to pay amounts in excess of the established liability or experience a change in judgment, the change in the liability could increase or decrease income tax expense in the period of such determination.

ITEM 7A. *Quantitative and Qualitative Disclosures About Market Risk*

Our primary exposure to market risk relates to unfavorable changes with respect to interest rates and currency exchange rates.

Interest Rate Risk. We are exposed to interest rate risk with respect to our fixed-rate and variable-rate debt. Fluctuations in interest rates impact the fair value of fixed-rate debt and expose us to the risk that we may need to refinance debt at higher rates at each instrument's respective maturity date. Fluctuations in interest rates impact interest expense from our variable-rate debt. At December 31, 2023, 63% of our debt portfolio, on a gross basis, incurred interest at a fixed-rate and the remaining 37% of the portfolio incurred interest at a variable-rate.

As of December 31, 2023, our fixed-rate debt was $2.63 billion, which consisted primarily of our senior notes outstanding. The fair value of Quanta's senior notes was $2.15 billion at December 31, 2023. A 10% change in the market price would cause a change in fair value of $214.5 million.

As of December 31, 2023, our variable-rate debt consisted of $867.1 million outstanding under our senior credit facility and $705.9 million outstanding under our commercial paper program. The weighted average interest rate on our borrowings under our senior credit facility for the year ended December 31, 2023 was 6.6%, and the weighted average interest rate on borrowings under our commercial paper program was 5.8%. Based on these borrowings outstanding as of December 31, 2023, we estimate that a 50 basis point increase or decrease in interest rates would impact annual interest expense by approximately $7.9 million.

For additional information about our debt obligations, refer to Note 10 of the Notes to Consolidated Financial Statements in Item 8. *Financial Statements and Supplementary Data* in Part II of this Annual Report.

Foreign Currency Risk. We perform our services in some foreign countries, primarily Canada and Australia, and as a result, are exposed to changes in foreign currency exchange rates. Our reporting currency is the U.S. dollar. Our foreign entities typically use the local currency as their functional currency. Translation adjustments are deferred in accumulated other comprehensive income.

Some of our consolidated entities enter into transactions that are not denominated in their functional currency. This results in exposure to foreign currency risk for financial instruments, including, but not limited to, third-party and intercompany receivables and payables and intercompany loans.

Our policy is to maintain a balanced position in foreign currencies to minimize exchange gains and losses arising from changes in exchange rates. We maintain risk management control practices to monitor the foreign currency risk attributable to our intercompany and third-party outstanding foreign currency balances. These practices involve the centralization of our exposure to underlying currencies that are not subject to central bank and/or country specific restrictions. By centralizing most of our foreign currency exposure into one subsidiary, we are able to take advantage of natural offsets thereby reducing the overall impact of changes in foreign currency rates on our earnings.

Historically, we have not had significant exposure to foreign currency risk. Other income (expense), net, in the consolidated statements of income in Item 8. *Financial Statements and Supplementary Data* in Part II of this Annual Report reflects net foreign currency losses of $2.6 million in the year ended December 31, 2023 and net foreign currency gains of $0.7 million in the year ended December 31, 2022.

Other Risks. For a discussion about our concentration of credit risk; cash and cash equivalents; and investments in COLI assets, refer to Notes 4, 15, 16 and 17 of the Notes to Consolidated Financial Statements in Item 8. *Financial Statements and Supplementary Data* in Part II of this Annual Report for additional information.

ITEM 8. ***Financial Statements and Supplementary Data***

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REPORT OF MANAGEMENT

Management's Report on Financial Information and Procedures

The accompanying financial statements of Quanta Services, Inc. and its subsidiaries were prepared by management. These financial statements were prepared in accordance with accounting principles generally accepted in the United States, applying certain estimates and judgments as required.

Our management, including our Chief Executive Officer and Chief Financial Officer, does not expect that our disclosure controls 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 that breakdowns can occur because of simple errors or mistakes. Controls can also 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.

Management's Report on Internal Control Over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting as defined in Rule 13a-15(f) under the Securities Exchange Act of 1934. Our internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of our consolidated financial statements for external purposes in accordance with U.S. generally accepted accounting principles. Internal control over financial reporting includes those policies and procedures that (i) pertain to the maintenance of records that in reasonable detail accurately and fairly reflect the transactions and dispositions of the assets of the company; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with U.S. generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of the company's assets that could have a material effect on the financial statements.

Under the supervision and with the participation of our management, including our Chief Executive Officer and Chief Financial Officer, we have conducted an evaluation of the effectiveness of our internal control over financial reporting based upon the criteria established in *Internal Control — Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission. Based on this evaluation, our management has concluded that our internal control over financial reporting was effective as of December 31, 2023 to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external reporting purposes in accordance with U.S. generally accepted accounting principles.

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

The effectiveness of Quanta Services, Inc.'s internal control over financial reporting as of December 31, 2023 has been audited by PricewaterhouseCoopers LLP, an independent registered public accounting firm, as stated in its report which appears herein.

Management's assessment of the effectiveness of our internal control over financial reporting as of December 31, 2023 excluded the five businesses we acquired in 2023. Such exclusion was in accordance with guidance from the U.S. Securities and Exchange Commission that an assessment of recently acquired businesses may be omitted in management's report on internal control over financial reporting, provided the acquisition took place within twelve months of management's evaluation. These acquisitions comprised approximately 2.7% and 2.3% of our consolidated assets and revenues as of and for the year ended December 31, 2023.

Report of Independent Registered Public Accounting Firm

To the Board of Directors and Stockholders of Quanta Services, Inc.

Opinions on the Financial Statements and Internal Control over Financial Reporting

We have audited the accompanying consolidated balance sheets of Quanta Services, Inc. and its subsidiaries (the "Company") as of December 31, 2023 and 2022, and the related consolidated statements of operations, of comprehensive income (loss), of equity and of cash flows for each of the three years in the period ended December 31, 2023, including the related notes (collectively referred to as the "consolidated financial statements"). We also have audited the Company's internal control over financial reporting as of December 31, 2023, based on criteria established in Internal Control - Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of the Company as of December 31, 2023 and 2022, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2023 in conformity with accounting principles generally accepted in the United States of America. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2023, based on criteria established in Internal Control - Integrated Framework (2013) issued by the COSO.

Basis for Opinions

The Company's management is responsible for these consolidated financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management's Report on Internal Control Over Financial Reporting. Our responsibility is to express opinions on the Company's consolidated financial statements and on the Company's internal control over financial reporting based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud, and whether effective internal control over financial reporting was maintained in all material respects.

Our audits of the consolidated financial statements included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

As described in Management's Report on Internal Control over Financial Reporting, management has excluded five businesses from its assessment of internal control over financial reporting as of December 31, 2023 because they were acquired by the Company in purchase business combinations during 2023. We have also excluded these five acquired businesses from our audit of internal control over financial reporting. These acquired businesses, each of which is a wholly-owned subsidiary, comprised, in the aggregate, total assets and total revenues excluded from management's assessment and our audit of internal control over financial reporting represent appropriately 2.7% and 2.3%, respectively, of the related consolidated financial statement amounts as of and for the year ended December 31, 2023.

Definition and Limitations of Internal Control over Financial Reporting

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

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

Critical Audit Matters

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

Revenue Recognition - Determination of Total Estimated Contract Costs and Revenue Related to Estimated Change Orders and Claims for Contracts Recognized Over Time

As described in Note 4 to the consolidated financial statements, the Company recognizes certain 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 more than an insignificant amount of partially completed units and fixed price contracts, the Company recognizes revenue as performance obligations are satisfied over time, with the percentage of completion generally measured as the percentage of costs incurred to total estimated costs for such performance obligation. During the year ended December 31, 2023, approximately 56.5% of the Company's revenues recognized were associated with this revenue recognition method. 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. 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 management's cost estimates or covered by the contracts. 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. Management 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. The Company 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 reasonably estimated. As of December 31, 2023, the Company had recognized revenues of $778.9 million related to unapproved change orders and claims included as contract price adjustments that were in the process of being negotiated in the normal course of business.

The principal considerations for our determination that performing procedures relating to revenue recognition for contracts recognized over time is a critical audit matter are (i) the significant judgment by management when determining the total estimated contract costs and revenue related to estimated change orders and claims and (ii) the high degree of auditor judgment, subjectivity, and effort in performing procedures and evaluating audit evidence relating to management's estimate of the total estimated contract costs and revenue related to estimated change orders and claims.

Addressing the matter involved performing procedures and evaluating audit evidence in connection with forming our overall opinion on the consolidated financial statements. These procedures included testing the effectiveness of controls relating to the revenue recognition process, including controls related to the determination of total estimated contract costs and revenue related to estimated change orders and claims. These procedures also included, among others, for a sample of contracts (i) testing management's process for determining the total estimated contract costs, which included evaluating the contracts and other documents that support those estimates, and testing the underlying contract costs; (ii) evaluating management's ability to reasonably estimate total contract costs by performing a comparison of the total estimated contract costs as compared with prior period estimates, including evaluating the timely identification of circumstances that may warrant a modification to the total estimated contract costs; (iii) testing management's process for determining the revenue related to estimated change orders and claims, which included evaluating management's assessment of whether it is probable that the contract price will be adjusted, and testing the amount of any such adjustment for the change order or claim; and (iv) evaluating management's methodologies and the consistency of management's methodologies over the lives of contracts.

/s/ PricewaterhouseCoopers LLP
Houston, Texas
February 22, 2024

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

QUANTA SERVICES, INC. AND SUBSIDIARIES

CONSOLIDATED BALANCE SHEETS
(In thousands, except share information)

	December 31,	
	2023	2022
ASSETS		
Current Assets:		
Cash and cash equivalents	$ 1,290,248	$ 428,505
Accounts receivable, net	4,410,829	3,674,525
Contract assets	1,413,057	1,080,206
Inventories	175,658	103,265
Prepaid expenses and other current assets	387,105	249,569
Total current assets	7,676,897	5,536,070
Property and equipment, net	2,336,943	2,030,464
Operating lease right-of-use assets	249,443	229,691
Other assets, net	565,625	622,736
Other intangible assets, net	1,362,412	1,458,631
Goodwill	4,045,905	3,586,745
Total assets	$ 16,237,225	$ 13,464,337
LIABILITIES AND EQUITY		
Current Liabilities:		
Current maturities of long-term debt	$ 535,202	$ 37,495
Current portion of operating lease liabilities	77,995	74,052
Accounts payable and accrued expenses	3,061,242	2,153,129
Contract liabilities	1,538,677	1,141,518
Total current liabilities	5,213,116	3,406,194
Long-term debt, net of current maturities	3,663,504	3,692,432
Operating lease liabilities, net of current portion	186,996	171,512
Deferred income taxes	254,004	227,861
Insurance and other non-current liabilities	636,250	567,519
Total liabilities	9,953,870	8,065,518
Commitments and Contingencies		
Equity:		
Common stock, $0.00001 par value, 600,000,000 shares authorized, 173,949,011 and 170,638,525 shares issued, and 145,508,549 and 142,930,598 shares outstanding	2	2
Additional paid-in capital	3,002,652	2,718,988
Retained earnings	4,858,066	4,163,212
Accumulated other comprehensive loss	(282,945)	(310,677)
Treasury stock, 28,440,462 and 27,707,927 common shares	(1,305,534)	(1,188,061)
Total stockholders' equity	6,272,241	5,383,464
Non-controlling interests	11,114	15,355
Total equity	6,283,355	5,398,819
Total liabilities and equity	$ 16,237,225	$ 13,464,337

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

QUANTA SERVICES, INC. AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF OPERATIONS
(In thousands, except per share information)

	Year Ended December 31,		
	2023	2022	2021
Revenues	$ 20,882,206	$ 17,073,903	$ 12,980,213
Cost of services	17,945,120	14,544,748	11,026,954
Gross profit	2,937,086	2,529,155	1,953,259
Equity in earnings of integral unconsolidated affiliates	41,609	52,466	44,061
Selling, general and administrative expenses	(1,555,137)	(1,336,711)	(1,155,956)
Amortization of intangible assets	(289,014)	(353,973)	(165,366)
Asset impairment charges	—	(14,457)	(5,743)
Change in fair value of contingent consideration liabilities	(6,568)	(4,422)	(6,734)
Operating income	1,127,976	872,058	663,521
Interest and other financing expenses	(186,913)	(124,363)	(68,899)
Interest income	10,830	2,606	3,194
Other income (expense), net	18,063	(46,415)	25,085
Income before income taxes	969,956	703,886	622,901
Provision for income taxes	219,267	192,243	130,918
Net income	750,689	511,643	491,983
Less: Net income attributable to non-controlling interests	6,000	20,454	6,027
Net income attributable to common stock	$ 744,689	$ 491,189	$ 485,956
Earnings per share attributable to common stock:			
Basic	$ 5.13	$ 3.42	$ 3.45
Diluted	$ 5.00	$ 3.32	$ 3.34
Shares used in computing earnings per share:			
Weighted average basic shares outstanding	145,222	143,488	140,824
Weighted average diluted shares outstanding	148,823	147,992	145,373

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

QUANTA SERVICES, INC. AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME (LOSS)
(In thousands)

	Year Ended December 31,		
	2023	2022	2021
Net income	$ 750,689	$ 511,643	$ 491,983
Other comprehensive income (loss), net of taxes:			
Foreign currency translation adjustment income (loss)	26,707	(72,632)	(5,877)
Other income (loss)	1,025	(356)	1,185
Other comprehensive income (loss), net of taxes	27,732	(72,988)	(4,692)
Comprehensive income	778,421	438,655	487,291
Less: Comprehensive income attributable to non-controlling interests	6,000	20,454	6,027
Comprehensive income attributable to common stock	$ 772,421	$ 418,201	$ 481,264

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

QUANTA SERVICES, INC. AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF CASH FLOWS
(In thousands)

	Year Ended December 31,		
	2023	2022	2021
Cash Flows from Operating Activities:			
Net income	$ 750,689	$ 511,643	$ 491,983
Adjustments to reconcile net income to net cash provided by operating activities:			
Depreciation	324,786	290,647	255,529
Amortization of intangible assets	289,014	353,973	165,366
Equity in earnings of unconsolidated affiliates, net of distributions	24,209	(19,238)	(28,682)
Loss from mark-to-market adjustment on investment	—	91,500	—
Gains on sales of investments	(3,524)	(32,572)	—
Increase in provision for credit losses	5,927	350	34,890
Deferred income tax expense	3,816	42,053	26,071
Non-cash stock-based compensation	126,762	105,600	88,259
Other non-cash adjustments, net	(8,344)	16,071	6,656
Changes in assets and liabilities, net of non-cash transactions:			
Accounts and notes receivable	(615,668)	(349,485)	(248,452)
Contract assets	(303,064)	(311,175)	(331,946)
Prepaid expenses and other current assets	(90,329)	(15,615)	(6,503)
Accounts payable and accrued expenses and other non-current liabilities	771,854	144,219	95,829
Contract liabilities	293,106	336,113	47,163
Other assets and liabilities, net	6,718	(33,772)	(13,773)
Net cash provided by operating activities	1,575,952	1,130,312	582,390
Cash Flows from Investing Activities:			
Capital expenditures	(434,803)	(427,630)	(385,852)
Proceeds from sale of and insurance settlements related to property and equipment	69,347	64,123	49,721
Cash paid for acquisitions, net of cash, cash equivalents and restricted cash acquired	(651,623)	(195,087)	(2,451,703)
Investments in unconsolidated affiliates and other	(7,537)	(78,084)	(139,021)
Proceeds from the sale or settlement of certain investments	42,277	20,639	29,109
Other, net	(7,311)	(1,152)	(867)
Net cash used in investing activities	(989,650)	(617,191)	(2,898,613)
Cash Flows from Financing Activities:			
Borrowings under credit facility and commercial paper program	18,178,910	9,300,142	5,316,002
Payments under credit facility and commercial paper program	(17,770,246)	(9,323,507)	(4,265,478)
Proceeds from notes offerings	—	—	1,487,450
Payments related to tax withholding for stock-based compensation	(119,793)	(82,590)	(64,956)
Payments of dividends	(47,752)	(41,058)	(34,022)
Repurchase of common stock	(350)	(127,762)	(66,687)
Other, net	27,731	(36,296)	(11,432)
Net cash provided by (used in) financing activities	268,500	(311,071)	2,360,877
Effect of foreign exchange rate changes on cash, cash equivalents and restricted cash	7,025	(723)	425
Net increase in cash, cash equivalents and restricted cash	861,827	201,327	45,079
Cash, cash equivalents and restricted cash, beginning of year	433,214	231,887	186,808
Cash, cash equivalents and restricted cash, end of year	$ 1,295,041	$ 433,214	$ 231,887

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

CONSOLIDATED STATEMENTS OF EQUITY
(In thousands, except share information)

	Common Stock		Additional		Accumulated		Total	Non-	
	Shares Outstanding	Amount	Paid-In Capital	Retained Earnings	Other Comprehensive Income (Loss)	Treasury Stock	Stockholders' Equity	Controlling Interests	Total Equity
Balance at December 31, 2020	138,300,191	$ 2	$ 2,170,026	$ 3,264,967	$ (232,997)	$ (857,817)	$ 4,344,181	$ 4,791	$ 4,348,972
Other comprehensive loss	—	—	—	—	(4,692)	—	(4,692)	—	(4,692)
Acquisitions	3,514,048	—	362,344	—	—	—	362,344	—	362,344
Stock-based compensation activity	1,540,259	—	83,040	—	—	(58,460)	24,580	—	24,580
Common stock repurchases	(720,564)	—	—	—	—	(63,988)	(63,988)	—	(63,988)
Dividends declared ($0.25 per share)	—	—	—	(36,080)	—	—	(36,080)	—	(36,080)
Distributions to non-controlling interests	—	—	—	—	—	—	—	(6,357)	(6,357)
Other	—	—	—	—	—	—	—	159	159
Net income	—	—	—	485,956	—	—	485,956	6,027	491,983
Balance at December 31, 2021	142,633,934	2	2,615,410	3,714,843	(237,689)	(980,265)	5,112,301	4,620	5,116,921
Other comprehensive loss	—	—	—	—	(72,988)	—	(72,988)	—	(72,988)
Stock-based compensation activity	1,357,661	—	103,578	—	—	(80,049)	23,529	—	23,529
Common stock repurchases	(1,060,997)	—	—	—	—	(127,747)	(127,747)	—	(127,747)
Dividends declared ($0.29 per share)	—	—	—	(42,820)	—	—	(42,820)	—	(42,820)
Distributions to non-controlling interests	—	—	—	—	—	—	—	(9,946)	(9,946)
Other	—	—	—	—	—	—	—	227	227
Net income	—	—	—	491,189	—	—	491,189	20,454	511,643
Balance at December 31, 2022	142,930,598	2	2,718,988	4,163,212	(310,677)	(1,188,061)	5,383,464	15,355	5,398,819
Other comprehensive income	—	—	—	—	27,732	—	27,732	—	27,732
Acquisitions	1,238,576	—	158,922	—	—	—	158,922	—	158,922
Stock-based compensation activity	1,341,604	—	124,742	—	—	(117,123)	7,619	—	7,619
Common stock repurchases	(2,229)	—	—	—	—	(350)	(350)	—	(350)
Dividends declared ($0.33 per share)	—	—	—	(49,835)	—	—	(49,835)	—	(49,835)
Distributions to non-controlling interests, net	—	—	—	—	—	—	—	(10,241)	(10,241)
Net income	—	—	—	744,689	—	—	744,689	6,000	750,689
Balance at December 31, 2023	145,508,549	$ 2	$ 3,002,652	$ 4,858,066	$ (282,945)	$ (1,305,534)	$ 6,272,241	$ 11,114	$ 6,283,355

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

QUANTA SERVICES, INC. AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

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1. DESCRIPTION OF BUSINESS:

Quanta Services, Inc. (together with its subsidiaries, Quanta) is a leading provider of comprehensive infrastructure solutions for the electric and gas utility, renewable energy, communications, pipeline and energy industries in the United States, Canada, Australia and select other international markets. We provide engineering, procurement, construction, upgrade and repair and maintenance services for infrastructure within each of these industries, including electric power transmission and distribution networks; substation facilities; wind and solar generation and transmission and battery storage facilities; communications and cable multi-system operator networks; gas utility systems; pipeline transmission systems and facilities; and downstream industrial facilities.

2. BASIS OF PRESENTATION AND ACCOUNTING POLICIES:

Principles of Consolidation

The 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 companies. The 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 accounting policies. Unless the context requires otherwise, references to Quanta include Quanta Services, Inc. and its consolidated subsidiaries.

Quanta holds interests in various joint venture entities that provide infrastructure-related 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 are variable interest entities (VIE). 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 equity interest in the VIE held by a third party is accounted for as a non-controlling interest. See Note 13 for additional information on non-controlling interests and Note 16 for additional information on joint venture liabilities.

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 revenue recognition for construction contracts, including contractual change orders and claims; allowance for credit losses; valuation of inventory; useful lives of assets; fair value assumptions in analyzing goodwill, other intangibles and long-lived asset impairments; fair value assumptions in analyzing equity and other investment impairments; purchase price consideration and allocations; acquisition-related contingent consideration liabilities; contingent liabilities associated with, among other things, legal proceedings and claims, parent guarantees and indemnity obligations; estimated insurance claims and recoveries; stock-based compensation; classification of operating company revenues by type of work for segment reporting purposes; provision for income taxes; and uncertain tax positions.

Revenue Recognition

See Note 4 for Quanta's accounting policy related to revenue recognition and related balance sheet accounts.

Cash and Cash Equivalents

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. Quanta's cash equivalents are categorized as Level 1 assets, as all values are based on unadjusted quoted prices for identical assets in an active market.

Inventories

Inventories consist primarily of parts and supplies held for use in the ordinary course of business, which are valued at the lower of cost or net realizable value. Cost is determined by using either the first-in, first-out (FIFO) method or the average costing method. Inventories also include certain job specific materials not yet installed, which are valued using the specific identification method.

Property and Equipment

Property and equipment are stated at cost, and depreciation is computed using the straight-line method, net of estimated salvage values, over the estimated useful lives of the assets. Leasehold improvements are capitalized and amortized over the lesser of the life of the lease or the estimated useful life of the asset.

Expenditures for repairs and maintenance are charged to expense when incurred. Expenditures for major renewals and betterments, which extend the useful lives of existing equipment, are capitalized and depreciated over the remaining useful lives of the assets. Upon retirement or disposition of property and equipment, the cost and related accumulated depreciation are removed from the accounts and any resulting gain or loss is reflected in selling, general and administrative expenses.

Management reviews long-lived assets for impairment whenever events or changes in circumstances indicate that the carrying amount may not be realizable. When an evaluation is required, the estimated future undiscounted cash flows associated with the asset group are compared to the asset group's carrying amount to determine if an impairment is necessary. The effect of any impairment involves expensing the difference between the fair value of the asset group and its carrying amount in the period incurred.

Goodwill

Goodwill 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. 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.

Goodwill is tested for impairment annually in the fourth quarter of the fiscal year, or more frequently if events or circumstances arise which indicate that the fair value of a reporting unit with goodwill is below its carrying amount. Quanta assesses qualitative factors to determine whether it is more likely than not that the fair value of a reporting unit is less than its carrying value. Qualitative factors assessed for each reporting unit include, among other things, deterioration in macroeconomic conditions; declining financial performance; deterioration in the operational environment; an expectation of selling or disposing of a portion of a reporting unit; 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. If the carrying amount of a reporting unit exceeds its fair value, an impairment loss is recorded to "Asset impairment charges" in the consolidated statements of operations.

Quanta generally determines the fair value of its reporting units using a weighted combination of the income approach (discounted cash flow method) and market multiple valuation techniques (market guideline transaction method and market guideline public company method).

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.

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 historical and projected results. 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.

Other Intangible Assets

Quanta's identifiable intangible assets include customer relationships; backlog; trade names; non-compete agreements; curriculum; patented rights, developed technology, process certifications and other, all of which are subject to amortization, as well as an engineering license, which is not subject to amortization.

Definite-lived intangible assets are amortized 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. Quanta evaluates identifiable intangible assets with the associated long-lived asset group for impairment whenever impairment indicators are present. If the carrying amount of an identifiable intangible asset exceeds its fair value, an impairment loss is recorded to "Asset impairment charges" in the consolidated statements of operations.

Leases

Leases with terms longer than 12 months are recorded on the consolidated balance sheets as lease assets and lease liabilities. If at inception of a contract a lease is identified, Quanta recognizes a lease asset and corresponding liability based on the present value of the future minimum lease payments over the lease term as of the commencement date. Lease assets also include any initial direct costs incurred less any lease incentives received.

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; 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. Lease expense for leases with an initial term of 12 months or less is recognized on a straight-line basis over the lease term.

The terms of Quanta's lease arrangements vary, and certain leases include one or more of the following: a renewal option, 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. Additionally, certain of Quanta's real estate and equipment arrangements contain both lease and non-lease components (e.g., maintenance services). Quanta made a policy election that allows an entity to not separate lease components from their associated non-lease components under arrangements with both components. Accordingly, Quanta accounts for both lease and non-lease components of such arrangements under the lease accounting guidance.

Determinations with respect to lease term, 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, 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

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. Quanta also enters into strategic partnerships with customers and infrastructure investors to provide fully integrated infrastructure solutions 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. In cases where Quanta determines that it is not the primary beneficiary but 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. See Note 8 for additional information on Quanta's investments and Note 16 for additional information on joint venture liabilities.

Equity Method Investments

Investments in affiliated entities in which Quanta does not have a controlling financial interest, but over which Quanta has the ability to exercise significant influence, usually because Quanta holds a voting interest of between 20% and 50% in the affiliated entity, are accounted for using the equity method. Under the equity method of accounting, investments are stated

initially at cost and are adjusted for subsequent additional investments and Quanta's proportionate share of profit or loss and distributions. Certain of Quanta's equity method investments are equity interests in private equity funds. These underlying private equity funds are carried at fair value. Quanta's profit or loss is determined by its share of the change in fair value.

Quanta's equity method investments are reported in "Other assets, net" in the accompanying consolidated balance sheets. Quanta's share of net income or losses of these investments is reported as "Equity in earnings of integral unconsolidated affiliates" within operating income when the investee is integral to the operations of Quanta, and is reported as "Other income (expense), net" when the investee is not considered integral to the business. Additionally, Quanta utilizes the cumulative earnings approach to determine whether distributions received from equity method investees are returns on investment and classified as operating cash inflows or returns of investment and reported as investing cash flows.

Quanta recognizes impairments on equity method investments if there are sufficient indicators that the fair value of the investment is less than its carrying value and considered other-than-temporary. Any impairment losses related to integral unconsolidated affiliates are included in "Equity in earnings of integral unconsolidated affiliates," while any impairments related to non-integral unconsolidated affiliates are included in "Other income (expense), net" in the accompanying consolidated statement of operations.

Marketable and Non-Marketable Equity Securities

Investments in entities over which Quanta does not have the ability to exercise significant influence are either considered marketable securities or non-marketable equity securities. The carrying value of any marketable and non-marketable equity securities is reported in "Other assets, net" in the accompanying consolidated balance sheets.

Marketable equity securities are equity securities with a readily determinable fair value (RDFV) that are measured and recorded at fair value on a recurring basis with changes in fair value, whether realized or unrealized, recorded in "Other income (expense), net" in the accompanying consolidated statements of operations. Since the RDFV of marketable equity securities is determined utilizing quoted market prices, the level of input used for these fair value measurements is the highest level (Level 1).

Non-marketable equity securities are equity securities without a RDFV that are measured and recorded using a measurement alternative that measures the securities 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. Non-marketable equity securities are measured on a nonrecurring basis and recorded at fair value only if an impairment or observable price adjustment is recognized in the reporting period. Quanta recognizes impairments on non-marketable equity securities if there are sufficient indicators that the fair value of the investment is less than its carrying value. Changes in fair value and any impairments of non-marketable equity securities are reported in "Other income (expense), net" in the accompanying consolidated statements of operations.

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. Quanta adjusts its tax contingencies accrual and income tax provision in the period in which matters are effectively settled with tax authorities at amounts different from Quanta's established accrual, when the statute of limitations expires for the relevant taxing authority to examine the tax position or when more information becomes available. 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.

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.

Deferred Financing Costs

Capitalized deferred financing costs related to Quanta's senior credit facility (other than deferred financing costs related to the term loan, which are recorded along with deferred financing costs related to the senior notes in a contra account to long-term debt) are included in "Other assets, net" in the accompanying consolidated balance sheets and are amortized to "Interest and other financing expenses" on a straight-line basis over the terms of the respective agreements giving rise to the costs, which Quanta believes approximates the effective interest rate method.

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. 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, among other things, employer's liability, workers' compensation, auto liability, aviation and general liability claims. Quanta manages and maintains a portion of its casualty risk indirectly 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, as well as with respect to certain other amounts. In connection with Quanta's casualty insurance programs, Quanta is required to issue letters of credit to secure its obligations. Quanta also maintains employee health care benefit plans for most employees not subject to collective bargaining agreements.

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.

Stock-Based Compensation

Restricted Stock Units to be Settled in Stock

Quanta recognizes compensation expense for restricted stock units (RSUs) to be settled in common stock based on the grant date fair value of the awards, which is the number of RSUs granted multiplied by the closing price of Quanta's common stock on the date of grant, net of estimated forfeitures. The resulting compensation expense for time-based RSU awards is recognized on a straight-line basis over the requisite service period, which is generally the vesting period. The non-cash stock compensation expense related to RSUs to be settled in common stock is included in "Selling, general and administrative expenses."

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 or over a period of five to ten years following the date of grant. Holders of RSUs to be settled in common stock awarded under the Quanta Services, Inc. 2019 Omnibus Equity Incentive Plan (the Omnibus Plan) 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 RSUs vest, such that the dividend equivalent payments are subject to forfeiture until vesting of the applicable RSUs.

Payments made by Quanta to satisfy employee tax withholding obligations associated with stock-based compensation are classified as financing cash flows.

Performance Stock Units to be Settled in Stock

Quanta recognizes compensation expense for performance stock units (PSUs) to be settled in common stock based on the fair value of the awards, net of estimated forfeitures. The resulting compensation expense for PSU awards is recognized on a straight-line basis over the requisite service period, which is generally the vesting period. Non-cash stock compensation expense related to PSUs to be settled in common stock is included in "Selling, general and administrative expenses."

PSUs provide for the issuance of shares of common stock upon vesting, which occurs following a three-year performance period based on achievement of 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 or a broad equity market index. 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. 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 that ultimately vests; however, payment of such amounts is not made until the PSUs vest, such that the dividend equivalent payments are subject to forfeiture until vesting of the applicable PSUs.

The grant date fair value of the PSUs is 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 relative total shareholder return, by multiplying the number of units granted by a stock price estimated by utilizing a Monte Carlo simulation valuation methodology. Quanta recognizes compensation expense for PSUs, net of estimated forfeitures, 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 grant date fair value of the total number of shares of common stock that Quanta anticipates will be issued based on such achievement for the completed portion of the three-year period. The compensation expense related to outstanding PSUs can vary from period to period based on changes in forecasted achievement of established performance metrics, the total number of shares of common stock that Quanta anticipates will be issued upon vesting of such PSUs and changes in forfeiture estimates.

Payments made by Quanta to satisfy employee tax withholding obligations associated with stock-based compensation are classified as financing cash flows.

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 company 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 companies 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 that 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 consolidated statements of operations.

Fair Value Measurements

Quanta categorizes assets and liabilities, measured at fair value, into one of three different levels depending on the observability of the inputs employed in the measurement. Level 1 inputs are quoted prices for identical instruments in active markets. Level 2 inputs are quoted prices for similar instruments in active markets; quoted prices for identical or similar instruments in markets that are not active; and model-derived valuations in which all significant inputs or significant value-drivers are observable. Level 3 inputs are model-derived valuations in which one or more significant inputs or significant value-drivers are unobservable. Fair value measurements are classified according to the lowest level input or value-driver that is significant to the valuation.

Inputs, valuation techniques to estimate the fair value and levels are disclosed within the notes to these consolidated financial statements.

3. NEW ACCOUNTING PRONOUNCEMENTS:

Recently Adopted Guidance

In October 2021, the Financial Accounting Standards Board (FASB) issued an update that requires recognition and measurement of contract assets and contract liabilities acquired in a business combination in accordance with FASB ASC 606 (Revenue from Contracts with Customers). At the acquisition date, an acquirer should account for the related contract revenue in accordance with FASB ASC 606. This update is effective for interim and annual periods beginning after December 15, 2022, with amendments generally applied prospectively. Quanta adopted this update effective January 1, 2023, and it did not have a material impact on Quanta's consolidated financial statements.

New Accounting Pronouncements Not Yet Adopted

In June 2022, the FASB issued an update that clarifies the guidance in FASB ASC 820 (Fair Value Measurement) for equity securities subject to contractual sale restrictions. The update prohibits entities from taking into account contractual restrictions on the sale of equity securities when estimating fair value and introduces required disclosures for such transactions. This update is effective for interim and annual periods beginning after December 15, 2023. This guidance will increase the fair market value of the consideration paid in equity securities in a business combination, and therefore it may increase the amount allocated to goodwill. Quanta adopted this update effective January 1, 2024, and it did not have a material impact on Quanta's consolidated financial statements.

In November 2023, the FASB issued an update that, among other things, requires public entities to disclose significant segment expenses that are regularly provided to the chief operating decision maker (CODM) and included within each reported measure of segment profit or loss, provide an amount for other segment items by reportable segment and provide all segment disclosures required on an annual basis in interim periods. Additionally, the update requires entities to disclose the title and position of the CODM and an explanation of how the CODM uses the reported measures(s) of segment profit or loss in assessing segment performance and deciding how to allocate resources. This update is effective for fiscal years beginning after December 15, 2023, and interim periods within fiscal years beginning after December 15, 2024. Early adoption is permitted, and retrospective application is required. Quanta is currently assessing the effect of this update.

In December 2023, the FASB issued an update that expands disclosures for tax rate reconciliation tables, primarily by requiring disaggregation of income taxes paid by jurisdiction, as well as specific categories and greater disaggregation within the rate reconciliation. This update is effective for fiscal years beginning after December 15, 2024 and interim periods within fiscal years beginning after December 15, 2025. Early adoption and retrospective application are permitted. Quanta is currently assessing the effect of this update.

4. REVENUE RECOGNITION AND RELATED BALANCE SHEET ACCOUNTS:

Contracts

Quanta's services include the design, new construction, upgrade and repair and maintenance of infrastructure primarily in the utility, renewable energy, communications and pipeline and energy industries. These services are generally provided pursuant to master service agreements (MSAs), repair and maintenance contracts, and fixed price and non-fixed price construction contracts. These contracts are classified into three categories based on the methods by which 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.

As of December 31, 2023 and 2022, the aggregate transaction price allocated to unsatisfied or partially satisfied performance obligations was approximately $13.89 billion and $8.80 billion, with 66.9% and 72.1% expected to be recognized in the subsequent twelve months. These amounts represent management's estimates 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 as of such dates. For purposes of calculating remaining performance obligations, Quanta includes all estimated revenues attributable to consolidated joint ventures and 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 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 recognizes certain 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 of 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. There were no significant capitalized costs during the years ended December 31, 2023, 2022 and 2021.

Quanta provides limited warranties to customers for work performed under its contracts that typically extend for a limited duration following substantial completion of its work on a project. Such warranties are not sold separately and do not provide customers with a service other than the assurance of compliance with agreed-upon specifications. Accordingly, these types of warranties are not considered to be separate performance obligations, but any costs incurred by Quanta in connection with these warranties are included in contract costs. During the years ended December 31, 2023, 2022 and 2021, Quanta has not been subject to a significant number of material warranty claims in connection with its services.

Contract Estimates and Changes in 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. Some of the factors that can result in positive changes in estimates on projects include successful execution through project risks, reduction of estimated project costs or increases of estimated revenues. Some of the factors that can result in negative changes in estimates include concealed or unknown site conditions; changes to or disputes with customers regarding the scope of services; changes in estimates related to the length of time to complete a performance obligation; changes or delays with respect to permitting and regulatory requirements and materials; changes in the cost of equipment, commodities, materials or skilled labor; unanticipated costs or claims due to delays or failure to perform by customers or third parties; customer failure to provide required materials or equipment; errors in engineering, specifications or designs; project modifications; adverse weather conditions, natural disasters, and other emergencies; and performance and quality issues causing delay (including payment of liquidated damages) or requiring rework or replacement. 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.

Additionally, 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 reasonably 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 December 31, 2023 and 2022, Quanta had recognized revenues of $778.9 million and $549.3 million related to unapproved change orders and claims included as contract price adjustments primarily in "Contract assets" in the accompanying consolidated balance sheets. These change orders and claims were in the process of being negotiated in the normal course of business and represent management's estimates of additional contract revenues that have been earned and are probable of collection.

The largest component of the revenues recognized related to unapproved change orders and claims as of December 31, 2023 and of the increase relative to December 31, 2022 is associated with a large renewable transmission project in Canada. During 2021 and 2022, decreased productivity and additional costs arose from delays, administrative requirements and labor issues due to the COVID-19 pandemic, including incremental governmental requirements and worksite restrictions. During the year ended December 31, 2023, additional costs arose from residual impacts associated with the aforementioned items, work resequencing and acceleration, access delays, and logistical challenges along with other issues outside of Quanta's control.

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 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 currently estimated revenue is less than the previous estimate. The impact of a change in contract 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. Changes in estimates can also result in contract losses, which are recognized in full when they are determined to be probable and can be reasonably estimated.

Revenues were positively impacted by 0.4%, 0.7% and 1.0% during the years ended December 31, 2023, 2022 and 2021 as a result of changes in estimates associated with performance obligations on fixed price contracts partially satisfied prior to December 31, 2022, 2021 and 2020.

Operating results for the year ended December 31, 2023 were impacted by less than 5% of gross profit as a result of aggregate changes in contract estimates related to projects that were in progress as of December 31, 2022. However, gross profit was negatively impacted by $20.9 million as a result of access delays, logistical challenges and other issues outside of Quanta's control that increased costs associated with the large renewable transmission project in Canada referenced above.

Operating results for the year ended December 31, 2022 were impacted by less than 5% of gross profit as a result of aggregate changes in contract estimates related to projects that were in progress as of the corresponding prior year end. There were no material changes in estimates on any individual project.

Operating results for the year ended December 31, 2021 were favorably impacted by $111.5 million or 5.7% of gross profit as a result of aggregate changes in contract estimates related to projects that were in progress as of the year ended December 31, 2020. The net 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.

Revenues by Category

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

	Year Ended December 31,					
	2023		2022		2021	
By contract type:						
Fixed price contracts	$ 10,251,037	49.1 %	$ 7,282,537	42.7 %	$ 4,849,038	37.4 %
Unit-price contracts	6,586,982	31.5	5,927,335	34.7	5,029,100	38.7
Cost-plus contracts	4,044,187	19.4	3,864,031	22.6	3,102,075	23.9
Total revenues	$ 20,882,206	100.0 %	$ 17,073,903	100.0 %	$ 12,980,213	100.0 %

	Year Ended December 31,					
	2023		2022		2021	
By primary geographic location:						
United States	$ 17,910,892	85.8 %	$ 14,390,237	84.3 %	$ 11,068,493	85.3 %
Canada	2,045,999	9.8	2,020,853	11.8	1,557,117	12.0
Australia	612,497	2.9	428,321	2.5	221,038	1.7
Others	312,818	1.5	234,492	1.4	133,565	1.0
Total revenues	$ 20,882,206	100.0 %	$ 17,073,903	100.0 %	$ 12,980,213	100.0 %

As described above, under fixed price contracts, as well as unit-price contracts with more than an insignificant amount of partially completed units, revenue is recognized as performance obligations are satisfied over time, with the percentage of completion generally measured as the percentage of costs incurred to total estimated costs for such performance obligation. Approximately 56.5%, 51.6% and 45.9% of Quanta's revenues recognized during the years ended December 31, 2023, 2022 and 2021 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 and unit-price contracts with more than an insignificant amount of partially completed units, 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 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. 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 to have 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):

	December 31, 2023	December 31, 2022	December 31, 2021
Contract assets	$ 1,413,057	$ 1,080,206	$ 803,453
Contract liabilities	$ 1,538,677	$ 1,141,518	$ 802,872

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; variability in billing and payment terms, such as up-front or advance billings, interim or milestone billings, or deferred billings; and recognized unapproved change orders and contract claims. The increase in contract assets from December 31, 2022 to December 31, 2023 was primarily due to additional unapproved change orders and claims related to the large renewable transmission project in Canada referenced above, as well as on other projects on which the timing of billings lagged behind the completion of work. The increase in contract assets from December 31, 2021

to December 31, 2022 was primarily due to unapproved change orders and claims related to the same large renewable transmission project in Canada referenced above and increased working capital requirements, including the timing of billings. The increase in contract liabilities from December 31, 2022 to December 31, 2023 was primarily due to the timing of billing in relation to costs incurred on renewable projects and contract liabilities acquired as part of a 2023 acquisition. The increase in contract liabilities from December 31, 2021 to December 31, 2022 was primarily due to the timing of billing in relation to costs incurred on a renewable transmission project that resulted from project acceleration by the customer and the timing of billing in relation to costs incurred on several solar and wind projects after receipt of full notices to proceed from the customers.

During the years ended December 31, 2023, 2022 and 2021, Quanta recognized revenue of approximately $1.04 billion, $695.1 million and $433.3 million related to contract liabilities outstanding as of the end of the prior year.

Accounts Receivable, Allowance for Credit Losses and Concentrations of Credit Risk

Quanta determines its allowance for credit losses based on an estimate of expected credit losses for financial instruments, primarily accounts receivable and contract assets. 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 two pools for the purpose of calculating its historical credit loss experience.

Quanta's historical loss ratio and its determination of its risk pools, which are used to calculate expected credit losses, 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 economic and market changes, changes to regulatory or technological environments affecting customers and the consistency between current and forecasted economic conditions and historical economic conditions used to derive historical loss ratios. At the end of each quarter, management reassesses these and other relevant factors, including the impact of uncertainty and challenges in the overall economy and in Quanta's industries and markets, (e.g., inflationary pressure, supply chain and other logistical challenges and increased interest rates).

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, absent certain specific considerations, generally does not consider such amounts delinquent in its credit loss analysis unless the accounts receivable are at least 120 days outstanding. In addition, management monitors the credit quality of its receivables by, among other things, obtaining credit ratings for 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.

Accounts receivable are written-off against the allowance for credit losses if they are deemed uncollectible.

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

	Year Ended December 31,		
	2023	2022	2021
Balance at beginning of year	$ 15,644	$ 49,749	$ 16,546
Increase in provision for credit losses	5,927	350	34,890
Write-offs charged against the allowance net of recoveries of amounts previously written off	(7,609)	(34,455)	(1,687)
Balance at end of year	$ 13,962	$ 15,644	$ 49,749

The above activity relates to the largest pool Quanta utilizes for assessing credit loss. The second pool represents approximately 14% of Quanta's consolidated financial instruments as of December 31, 2023 and did not have any allowance for credit loss or experience any credit loss during the periods presented. Quanta's customers generally have high credit ratings. In addition, the customers in the second pool typically pre-approve invoices and often receive project financing.

Provision for credit losses is included in "Selling, general and administrative expenses" in the consolidated statements of operations. During the year ended December 31, 2022, Quanta determined that $31.7 million of receivables that were fully reserved in previous periods were uncollectible, and as such wrote off the receivables against their related allowances. The receivables were from Limetree Bay Refining, LLC, which filed for bankruptcy in July 2021, and an affiliate, customers within Quanta's Underground Utility and Infrastructure Solutions (Underground and Infrastructure) segment. Provisions for such receivables were recognized during 2021.

Quanta is subject to concentrations of credit risk related primarily to its receivable position with customers, which includes amounts related to billed and unbilled accounts receivable and contract assets for services Quanta has performed for customers. Quanta grants credit under normal payment terms, generally without collateral. One customer within the Renewable Energy Infrastructure Solutions (Renewable Energy) segment associated with the large renewable transmission project in Canada described above represented 10% of Quanta's consolidated receivable position as of both December 31, 2023 and 2022. No customer represented 10% or more of Quanta's consolidated revenues for the years ended December 31, 2023, 2022 or 2021.

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 one year. Retainage balances with expected settlement dates within one year of December 31, 2023 and 2022 were $610.0 million and $397.6 million, which are included in "Accounts receivable." Retainage balances with expected settlement dates beyond one year were $78.7 million and $136.2 million as of December 31, 2023 and 2022 and are included in "Other assets, net."

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 when amounts arise from routine lags in billing. These balances do not include revenues recognized for work performed under fixed-price contracts and unit-price contracts with more than an insignificant amount of partially completed units, as these amounts are recorded as "Contract assets." As of December 31, 2023, 2022 and 2021, unbilled receivables included in "Accounts receivable" were $743.6 million, $823.9 million and $679.0 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 $58.6 million, $59.6 million and $51.8 million as of December 31, 2023, 2022 and 2021.

5. SEGMENT INFORMATION:

Quanta reports its results under three reportable segments: Electric Power Infrastructure Solutions (Electric Power), Renewable Energy and Underground and Infrastructure.

Electric Power. Quanta's Electric Power segment provides comprehensive services for the electric power and communications markets. Services include, but are not limited to, the design, procurement, new construction, upgrade and repair and maintenance services for electric power transmission and distribution infrastructure, both overhead and underground, and substation facilities, along with other engineering and technical services, including services that support the implementation of upgrades by utilities to modernize and harden the electric power grid in order to ensure its safety and enhance reliability and to accommodate increased residential and commercial use of electric vehicles. In addition, this segment provides emergency restoration services, including the repair of infrastructure damaged by fire and inclement weather and the installation of "smart grid" technologies on electric power networks. This segment also provides comprehensive design and construction solutions to wireline and wireless communications companies, cable multi-system operators and other customers within the communications industry, as well as other related services. Additionally, this segment manufactures power transformers and components for the electric utility, municipal power and industrial markets.

Renewable Energy. Quanta's Renewable Energy segment provides comprehensive infrastructure solutions to customers that are involved in the renewable energy industry. Services include, but are not limited to, engineering, procurement, new construction, repowering and repair and maintenance services for renewable generation facilities, such as utility-scale wind, solar and hydropower generation facilities and battery storage facilities, and engineering and construction services for transmission and other electrical infrastructure needed to interconnect and transmit electricity from renewable energy generation and battery storage facilities.

Underground and Infrastructure. Quanta's Underground and Infrastructure segment provides comprehensive infrastructure solutions to customers involved in the transportation, distribution, storage, development and processing of natural gas, oil and other products. Services include, but are not limited to design, engineering, procurement, new construction, upgrade and repair and maintenance services for natural gas systems for gas utility customers; and pipeline protection, integrity testing, rehabilitation and replacement services. Additionally, Quanta serves the midstream and downstream industrial energy markets through catalyst replacement services, high-pressure and critical-path turnaround services, instrumentation and electrical services, piping, fabrication and storage tank services.

Corporate and Non-allocated Costs include corporate facility costs; non-allocated corporate salaries, benefits and incentive compensation; acquisition and integration 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.

Quanta's segment results are derived from the types of services provided across its operating companies in each of its end user markets. Quanta's entrepreneurial business model allows multiple operating companies to serve the same or similar customers and to provide a range of services across end user markets. Reportable segment information, including revenues and operating income by type of work, is gathered from each operating company. Classification of operating company revenues by type of work for segment reporting purposes can require judgment on the part of management. Quanta's operating companies 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, integrated operations and common administrative support for Quanta's operating companies require that allocations be made to determine segment profitability, including allocations of certain corporate shared and indirect operating costs as well as general and administrative costs.

The following table sets forth segment revenues and segment operating income (loss) for the years ended December 31, 2023, 2022 and 2021. Operating margin is calculated by dividing operating income (loss) by revenues. The following table shows dollars in thousands:

	Year Ended December 31,					
	2023		2022		2021	
Revenues:						
Electric Power	$ 9,696,897	46.5 %	$ 8,940,276	52.4 %	$ 7,624,240	58.7 %
Renewable Energy	6,170,301	29.5 %	3,778,560	22.1 %	1,825,259	14.1 %
Underground and Infrastructure	5,015,008	24.0 %	4,355,067	25.5 %	3,530,714	27.2 %
Consolidated revenues	$ 20,882,206	100.0 %	$ 17,073,903	100.0 %	$ 12,980,213	100.0 %
Operating income (loss):						
Electric Power [1]	$ 1,013,350	10.5 %	$ 958,798	10.7 %	$ 865,409	11.4 %
Renewable Energy [2]	477,208	7.7 %	304,308	8.1 %	181,908	10.0 %
Underground and Infrastructure	377,977	7.5 %	317,543	7.3 %	150,147	4.3 %
Corporate and Non-Allocated Costs [3]	(740,559)	(3.5)%	(708,591)	(4.2)%	(533,943)	(4.1)%
Consolidated operating income	$ 1,127,976	5.4 %	$ 872,058	5.1 %	$ 663,521	5.1 %

(1) Includes equity in earnings of integral unconsolidated affiliates of $41.6 million, $52.5 million and $44.1 million for the years ended December 31, 2023, 2022 and 2021, primarily related to Quanta's equity interest in LUMA Energy, LLC (LUMA).

(2) Quanta recorded $11.7 million of asset impairment charges related to a software implementation project at an acquired company, which commenced prior to Quanta's acquisition and was discontinued in the fourth quarter of 2022. The fair value of this software was zero at December 31, 2022.

(3) Includes amortization expense of $289.0 million, $354.0 million and $165.4 million and non-cash stock-based compensation of $126.8 million, $105.6 million and $88.3 million for the years ended December 31, 2023, 2022 and 2021.

Depreciation Expense

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. Certain of Quanta's fixed assets are used on an

interchangeable basis across its reportable segments. The following table sets forth depreciation expense by segment for the years ended December 31, 2023, 2022, and 2021. The table shows dollars in thousands:

	Year Ended December 31,		
	2023	2022	2021
Depreciation:			
Electric Power	$ 168,486	$ 149,151	$ 141,093
Renewable Energy	54,369	40,535	14,020
Underground and Infrastructure	77,524	83,117	83,720
Corporate and Non-Allocated Costs	24,407	17,844	16,696
Consolidated depreciation	$ 324,786	$ 290,647	$ 255,529

6. ACQUISITIONS:

The results of operations of acquired businesses have been included in Quanta's consolidated financial statements since their respective acquisition dates.

In January 2024, Quanta acquired two businesses located in the United States including: a business that provides specialty environmental solutions to industrial and petrochemical companies (which will be primarily included in the Underground and Infrastructure segment) and a business that specializes in testing, manufacturing and distributing safety equipment and supplies (which will be primarily included in the Electric Power and Renewable Energy segments). The consideration for these transactions consisted of approximately $379.9 million paid or payable in cash on the dates of the acquisitions and 221,700 shares of Quanta common stock issued in consideration for one of the acquired businesses, which had a fair value of $44.9 million as of the date of the acquisition. Additionally, the former owners of one of these businesses are eligible to receive a potential payment of contingent consideration to the extent the acquired business achieves certain financial and operating performance targets over a three-year period. The final amount of consideration for these acquisitions remains subject to certain post-closing adjustments, including with respect to net working capital. Quanta is in the process of performing procedures to determine the fair value of assets acquired and liabilities assumed related to these acquisitions.

During the year ended December 31, 2023, Quanta acquired five businesses located in the United States including: a business that provides services related to high-voltage transmission lines, overhead and underground distribution, emergency restoration and industrial and commercial wiring and lighting (primarily included in the Electric Power segment); a business that procures parts, assembles kits for sale, manages logistics and installs solar tracking equipment for utility and development customers (primarily included in the Renewable Energy segment); a business that provides concrete construction services (primarily included in the Electric Power and Renewable Energy segments); a business specializing in power studies, maintenance testing and commissioning primarily for utility and commercial customers (included in the Electric Power segment) and a business that manufactures power transformers for the electric utility, renewable energy, municipal power and industrial markets (included in the Electric Power and Renewable Energy segments). The consideration for these transactions consisted of approximately $782.4 million paid or payable in cash (subject to certain adjustments) and 1,238,576 shares of Quanta common stock, which had a fair value of $158.9 million as of the dates of the acquisitions.

In July 2022, Quanta acquired a business located in the United States that provides construction contracting services to utilities, specializing in trenching and underground pipeline and electrical conduit installation. Consideration for this acquisition included $22.3 million paid or payable in cash. Additionally, the former owners of this business are eligible to receive a potential payment of contingent consideration to the extent the acquired business achieves certain financial performance targets over a five-year period. The results of the acquired business are included in the Electric Power segment.

On October 13, 2021, Quanta completed the acquisition of Blattner, a large and leading utility-scale renewable energy infrastructure solutions provider that is located in and primarily operates in North America. Blattner provides comprehensive solutions to customers in the renewable energy industry, which generally include front-end engineering, procurement, project management and construction services for wind, solar and energy storage projects. Consideration for this acquisition included $2.43 billion paid in cash and 3,326,955 shares of Quanta common stock, which had a fair value of $345.4 million as of the date of the acquisition. Additionally, the former owners of Blattner are eligible to receive potential payment of up to $300.0 million of contingent consideration, payable to the extent the acquired business achieves certain financial performance targets. The contingent consideration payment is calculated based on a cumulative three-year performance period ending on December 31, 2024 and could also be subject to Quanta management discretion. As of December 31, 2023, the fair value of the contingent consideration liability was $139.9 million. Blattner's results are included in the Renewable Energy segment.

During the year ended December 31, 2021, Quanta also acquired the following businesses: three businesses located in the United States that provide electric power construction and related services; a communications services business located in the United States that performs data center connection services; a business located in the United States that designs, develops and holds a certification for the manufacture of personal protective breathing equipment and related monitoring devices primarily used in the refining and petrochemical industries, including in connection with catalyst services; a business that provides turnaround and catalyst change-out services to the refining and petrochemical industries primarily in the United States and Canada; a business located in Canada that provides front-end land services for infrastructure development projects in Canada and the United States; a business located in the United States that primarily provides horizontal directional drilling services; and a communications services business located in the United States. The aggregate consideration for these acquisitions was $328.2 million paid or payable in cash and 187,093 shares of Quanta common stock, which had an aggregate fair value of $16.9 million as of the applicable acquisition dates. The results of the manufacturing business and the turnaround and catalyst change-out business are primarily included in the Underground and Infrastructure segment and the results of the remaining businesses are primarily included in the Electric Power segment.

Additionally, the former owners of certain acquired businesses are eligible to receive potential payments of contingent consideration to the extent the acquired businesses achieve certain financial performance targets over specified post-acquisition periods.

Purchase Price Allocation

Purchase price 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 purchase price allocations related to businesses acquired in 2023, and further adjustments to the purchase price allocations may occur, with possible updates primarily related to intangible asset values, property and equipment values, certain contingent liabilities, tax estimates, and the finalization of closing working capital adjustments. The following table summarizes the estimated fair value of total consideration transferred or estimated to be transferred and the fair value of

assets acquired and liabilities assumed as of their respective acquisition dates, as of December 31, 2023 for acquisitions completed in the year ended December 31, 2023 and 2022 (in thousands).

	Year Ended December 31,	
	2023	2022
Consideration:		
Cash paid or payable	$ 782,351	$ 22,328
Value of Quanta common stock issued	158,922	—
Contingent consideration	6,850	2,600
Fair value of total consideration transferred or estimated to be transferred	$ 948,123	$ 24,928
Cash and cash equivalents	$ 123,891	$ 101
Accounts receivable	92,799	1,755
Contract assets	17,200	—
Inventories	74,872	—
Prepaid expenses and other current assets	5,830	72
Property and equipment	200,988	2,266
Operating lease assets	16,264	—
Other assets	4,553	—
Identifiable intangible assets	191,115	13,109
Accounts payable and accrued liabilities	(89,227)	(1,408)
Contract liabilities	(102,752)	(3,530)
Operating lease liabilities, current	(3,080)	—
Deferred tax liabilities, net	(21,489)	—
Operating lease liabilities, non-current	(13,790)	—
Other long-term liabilities	(2,682)	—
Total identifiable net assets	494,492	12,365
Goodwill	453,631	12,563
Fair value of net assets acquired	$ 948,123	$ 24,928

As of December 31, 2023, approximately $394.6 million, $12.6 million, and $1.49 billion of goodwill is expected to be deductible for income tax purposes related to acquisitions completed in 2023, 2022 and 2021.

The following table summarizes the estimated fair values of identifiable intangible assets for the acquisitions completed in 2023 and 2022 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).

	Year Ended December 31,			
	2023		2022	
	Estimated Fair Value	Weighted Average Amortization Period in Years	Estimated Fair Value	Weighted Average Amortization Period in Years
Customer relationships	$ 108,780	4.9	$ 11,565	6.0
Backlog	53,064	2.0	557	0.5
Trade names	22,297	15.0	850	15.0
Non-compete agreements	6,974	5.0	137	5.0
Total intangible assets subject to amortization	$ 191,115	5.3	$ 13,109	6.4

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 includes the discount rates and customer attrition rates used to determine the fair value of customer relationship intangible assets for businesses acquired during the year ended December 31, 2023 and 2022 as of the respective acquisition dates:

	Year Ended December 31,		
	2023		2022
	Range	Weighted Average	Rate
Discount rates	14% to 19%	17%	22%
Customer attrition rates	10% to 30%	19%	20%

Quanta values backlog for acquired businesses as of the acquisition date based upon the contractual nature of the backlog, discounted to present value. The values of trade names 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. 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 level of inputs used for these identifiable intangible asset fair value measurements is Level 3.

Contingent Consideration

As described above, certain business acquisitions have contingent consideration liabilities associated with the transactions. The aggregate fair value of these outstanding contingent consideration liabilities and their classification in the accompanying consolidated balance sheets is as follows (in thousands):

	December 31, 2023	December 31, 2022
Accounts payable and accrued expenses	$ —	$ 5,000
Insurance and other non-current liabilities	157,073	143,517
Total contingent consideration liabilities	$ 157,073	$ 148,517

Quanta's aggregate contingent consideration liabilities can change due to additional business acquisitions, settlement of outstanding liabilities, accretion in present value and changes in the estimated fair value of amounts, the performance of acquired businesses in post-acquisition periods, and in certain cases, management discretion. These changes are reflected in "Change in fair value of contingent consideration liabilities" in the accompanying consolidated statements of operations.

The fair value determinations of contingent consideration liabilities incorporate significant inputs not observable in the market, including revenue forecasts, operating margins, discount rates and the probability of achieving certain performance targets during designated post-acquisition periods. Accordingly, the level of inputs used for these fair value measurements is Level 3.

The majority of Quanta's outstanding contingent consideration liabilities are subject to a maximum payment amount, and the aggregate maximum payment amount of these liabilities totaled $336.8 million as of December 31, 2023. During the years ended December 31, 2023, 2022 and 2021, Quanta settled certain contingent consideration liabilities with cash payments of $5.0 million, $1.6 million and $0.3 million.

Pro Forma Results of Operations

The following unaudited supplemental pro forma results of operations for Quanta, which incorporate the acquisitions completed in 2023, 2022 and 2021, have been provided for illustrative purposes only and may not 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 (in thousands).

	Year Ended December 31,		
	2023	2022	2021
Revenues	$ 20,995,116	$ 17,702,495	$ 15,527,934
Net income attributable to common stock	$ 738,620	$ 486,342	$ 619,304

The pro forma combined results of operations for the years ended December 31, 2023 and 2022 were prepared by adjusting the historical results of Quanta to include the historical results of the businesses acquired in 2023 as if such acquisitions had occurred January 1, 2022. The pro forma combined results of operations for the year ended December 31, 2022 and 2021 were prepared by further adjusting the historical results of Quanta to include the historical results of the business acquired in 2022 as if such acquisition had occurred January 1, 2021. The pro forma combined results of operations for the year ended December 31, 2021 were prepared by further adjusting the historical results of Quanta to include the historical results of the businesses acquired in 2021 as if such acquisitions occurred January 1, 2020.

These pro forma combined historical results were adjusted for the following: a reduction of interest and other financing expenses as a result of the repayment of outstanding indebtedness of the acquired businesses; an increase in interest and other financing expenses as a result of the cash consideration paid and debt incurred by Quanta for the purpose of financing the acquisition of Blattner; an increase in amortization expense due to the intangible assets recorded; elimination of inter-company sales; 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 elimination of certain transaction costs incurred by Blattner and directly related to the acquisition of the business by Quanta. The pro forma combined results of operations do not include any adjustments to eliminate the impact of acquisition-related costs incurred by Quanta or any cost savings or other synergies that resulted or may result from the acquisitions.

Results of Operations

Revenues of $475.2 million and a loss before income taxes of $15.9 million, which includes $34.7 million of amortization expense and $31.8 million of acquisition-related costs, related to the acquisitions completed in 2023 are included in Quanta's consolidated results of operations for the year ended December 31, 2023. Revenues of $15.5 million and income before income taxes of $2.0 million, which included $1.4 million of amortization expense and $0.6 million of acquisition-related costs, related to the acquisition completed in 2022 are included in Quanta's consolidated results of operations for the year ended December 31, 2022. Revenues of $499.6 million and a loss before income taxes of $71.6 million, which included $80.3 million of amortization expense and $41.5 million of acquisition-related costs, related to the acquisitions completed in 2021 are included in Quanta's consolidated results of operations for the year ended December 31, 2021.

7. GOODWILL AND OTHER INTANGIBLE ASSETS:

Goodwill

The changes in the carrying amount of goodwill of each of Quanta's reportable segments were as follows (in thousands):

	Electric Power Segment	Renewable Energy Segment	Underground and Infrastructure Segment	Total
Balance at December 31, 2021: [1]	$ 1,387,418	$ 1,461,192	$ 680,276	$ 3,528,886
Goodwill related to acquisition completed in 2022	12,225	—	—	12,225
Purchase price allocation adjustments [2]	962	64,874	580	66,416
Foreign currency translation adjustments	(4,464)	(7,917)	(8,401)	(20,782)
Balance at December 31, 2022:[1]	1,396,141	1,518,149	672,455	3,586,745
Goodwill related to the acquisitions completed in 2023	189,777	263,854	—	453,631
Purchase price allocation adjustments	338	—	—	338
Foreign currency translation adjustments	1,243	2,185	1,763	5,191
Balance at December 31, 2023:[1]	$ 1,587,499	$ 1,784,188	$ 674,218	$ 4,045,905

[1] Included in the Underground and Infrastructure segment for the years ended December 31, 2023, 2022, and 2021 was accumulated impairment of $96.1 million, $96.1 million and $96.9 million.

[2] Goodwill included in the Renewable Energy segment increased by $64.9 million during the year ended December 31, 2022 as a result of certain post-closing consideration adjustments associated with Quanta's acquisition of Blattner.

In connection with the 2023 and 2022 annual goodwill assessments, management performed a qualitative impairment assessment of Quanta's reporting units, which indicated that the fair value of its reporting units was greater than their carrying value including goodwill. Accordingly, a quantitative goodwill impairment test was not required, and no goodwill impairment was recognized in 2023 or 2022.

Other Intangible Assets

Quanta's identifiable 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 December 31, 2023				As of December 31, 2022		
	Remaining Weighted Average Amortization Period in Years	Intangible Assets	Accumulated Amortization	Intangible Assets, Net	Intangible Assets	Accumulated Amortization	Intangible Assets, Net
Customer relationships	4.5	$ 1,852,249	$ (842,184)	$ 1,010,065	$ 1,741,679	$ (600,841)	$ 1,140,838
Backlog	2.1	336,149	(297,868)	38,281	282,483	(282,397)	86
Trade names	12.7	378,428	(87,572)	290,856	355,855	(63,190)	292,665
Non-compete agreements	5.0	59,464	(48,687)	10,777	52,356	(44,570)	7,786
Patented rights, developed technology, process certifications and other	1.1	32,985	(29,605)	3,380	32,969	(26,281)	6,688
Curriculum	4.6	14,794	(8,741)	6,053	13,488	(5,920)	7,568
Total intangible assets subject to amortization	6.2	2,674,069	(1,314,657)	1,359,412	2,478,830	(1,023,199)	1,455,631
Engineering license		3,000	—	3,000	3,000	—	3,000
Total intangible assets		$ 2,677,069	$ (1,314,657)	$ 1,362,412	$ 2,481,830	$ (1,023,199)	$ 1,458,631

Amortization expense for intangible assets was $289.0 million, $354.0 million and $165.4 million for the years ended December 31, 2023, 2022 and 2021.

The estimated future aggregate amortization expense of intangible assets subject to amortization as of December 31, 2023 is set forth below (in thousands):

Year Ending December 31:	
2024	$ 283,627
2025	268,052
2026	246,111
2027	220,349
2028	160,270
Thereafter	181,003
Total	$ 1,359,412

8. INVESTMENTS IN AFFILIATES AND OTHER ENTITIES:

Equity Investments

The following table presents Quanta's equity investments by type (in thousands):

	December 31, 2023	December 31, 2022
Equity method investments - integral unconsolidated affiliates	$ 96,124	$ 101,251
Equity method investments - non-integral unconsolidated affiliates	28,105	55,833
Marketable equity securities [1]	—	—
Non-marketable equity securities	53,868	54,134
Total equity investments	$ 178,097	$ 211,218

[1] As of December 31, 2022, the fair value of Quanta's investment in equity securities of Starry Group Holdings, Inc. (Starry) was zero, which was accounted for as an investment in marketable securities and included a loss of $91.5 million. During the year ended December 31, 2023, a plan of reorganization in Starry's bankruptcy proceeding pursuant to Chapter 11 of the U.S.

Bankruptcy Code, as amended, went into effect and, as a result, the equity securities of Starry held by Quanta were cancelled.

Equity Method Investments

During the three months ended December 31, 2022, Quanta entered into an agreement to sell one of its non-integral equity method investments. The transaction was subject to certain customary closing conditions that were satisfied in early 2023. As a result, a $25.9 million gain was recognized in the fourth quarter of 2022, $10.4 million of which was attributable to non-controlling interests. During the year ended December 31, 2023, Quanta received cash of $58.5 million related to the sale of this investment, $9.8 million of which was distributed to non-controlling interests.

As of December 31, 2023 and 2022, Quanta had receivables of $96.4 million and $96.9 million from its integral unconsolidated affiliates and payables of $24.5 million and $9.3 million to its integral affiliates. Quanta recognizes revenues from services provided to its integral unconsolidated affiliates, primarily for services provided to LUMA at cost. Quanta recognized revenues from such services to its integral unconsolidated affiliates of $215.0 million, $154.7 million and $74.1 million during the years ended December 31, 2023, 2022 and 2021. In addition, during the years ended December 31, 2023, 2022 and 2021, Quanta recognized costs of sales of $201.3 million, $134.5 million and $116.2 million for services provided by other integral unconsolidated affiliates.

Total equity in earnings from integral unconsolidated affiliates was $41.6 million, $52.5 million, and $44.1 million for the years ended December 31, 2023, 2022 and 2021. Total equity in earnings from non-integral unconsolidated affiliates was earnings of $1.3 million, $20.3 million and $2.1 million for the years ended December 31, 2023, 2022 and 2021. As of December 31, 2023, Quanta had $18.7 million of undistributed earnings related to unconsolidated affiliates.

The difference between Quanta's carrying value and the underlying equity in the net assets of its equity investments is assigned to the assets and liabilities of the investment, giving rise to a basis difference, which was $31.4 million and $37.8 million as of December 31, 2023 and 2022. The amortization of the basis difference included in "Equity in earnings of integral unconsolidated affiliates" in the accompanying consolidated statements of operations for the years ended December 31, 2023, 2022 and 2021, was $6.2 million, $1.9 million and $0.5 million.

9. PER SHARE INFORMATION:

The amounts used to compute basic and diluted earnings per share attributable to common stock consisted of the following (in thousands):

	Year Ended December 31,		
	2023	2022	2021
Amounts attributable to common stock:			
Net income attributable to common stock	$ 744,689	$ 491,189	$ 485,956
Weighted average shares:			
Weighted average shares outstanding for basic earnings per share attributable to common stock	145,222	143,488	140,824
Effect of dilutive unvested non-participating stock-based awards	3,601	4,504	4,549
Weighted average shares outstanding for diluted earnings per share attributable to common stock	148,823	147,992	145,373

10. DEBT OBLIGATIONS:

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

	December 31,	
	2023	2022
0.950% Senior Notes due October 2024	$ 500,000	$ 500,000
2.900% Senior Notes due October 2030	1,000,000	1,000,000
2.350% Senior Notes due January 2032	500,000	500,000
3.050% Senior Notes due October 2041	500,000	500,000
Borrowings under senior credit facility (including Term Loan)	867,137	786,910
Borrowings under commercial paper program	705,900	373,000
Lease financing transactions	102,955	83,592
Other long-term debt	6,279	9,315
Finance leases	39,577	3,542
Unamortized discount and financing costs	(23,142)	(26,432)
Total long-term debt obligations	4,198,706	3,729,927
Less — Current maturities of long-term debt	535,202	37,495
Total long-term debt obligations, net of current maturities	$ 3,663,504	$ 3,692,432

As of December 31, 2023, principal payments required to be made during the next five years are set forth in the table below. The payments required under finance leases are provided in Note 11.

2024	$ 527,435
2025	$ 47,250
2026	$ 1,523,540
2027	$ 5,761
2028	$ 2,914

Senior Notes

On September 23, 2021, Quanta issued $1.50 billion aggregate principal amount of senior notes consisting of: $500.0 million aggregate principal amount of 0.950% senior notes due October 2024 (the 2024 notes); $500.0 million aggregate principal amount of 2.350% senior notes due January 2032 (the 2032 notes); and $500.0 million aggregate principal amount of 3.050% senior notes due October 2041 (the 2041 notes). The cumulative proceeds received from the public offering of the 2024 notes, the 2032 notes and the 2041 notes were $1.48 billion, net of the original issue discount, underwriting discounts and deferred financing costs, which were used, along with drawings under Quanta's senior credit facility, as amended, to acquire Blattner. On September 22, 2020, Quanta issued $1.00 billion aggregate principal amount of 2.900% senior notes due October 2030 (the 2030 notes, and together with the 2024 notes, the 2032 notes and the 2041 notes, collectively, the Senior Notes) and received proceeds of $986.7 million from the offering, net of the original issue discount, underwriting discounts and deferred financing costs, and used such proceeds, together with cash on hand, to voluntarily prepay the $1.21 billion of term loans then-outstanding under Quanta's credit agreement for its senior credit facility.

The interest amounts due on Quanta's Senior Notes on each payment date are set forth below (dollars in thousands):

Title of the Notes	Interest Amount	Payment Dates	Commencement Date
0.950% Senior Notes due October 2024	$ 2,375	April 1 and October 1	April 1, 2022
2.900% Senior Notes due October 2030	$ 14,500	April 1 and October 1	April 1, 2021
2.350% Senior Notes due January 2032	$ 5,875	January 15 and July 15	July 15, 2022
3.050% Senior Notes due October 2041	$ 7,625	April 1 and October 1	April 1, 2022

In each case as further specified by the terms of the Senior Notes and the indenture and supplemental indentures governing the Senior Notes (collectively, the indenture), Quanta may redeem all or a portion of (i) the 2024 notes at a price equal to 100% of the principal amount plus accrued and unpaid interest; (ii) the 2030 notes at any time prior to July 1, 2030 at a price equal to 100% of the principal amount plus a make-whole premium and accrued and unpaid interest, and at any time on or

after July 1, 2030 at a price equal to 100% of the principal amount plus accrued and unpaid interest; (iii) the 2032 notes at any time prior to October 15, 2031 at a price equal to 100% of the principal amount plus a make-whole premium and accrued and unpaid interest, and at any time on or after October 15, 2031 at a price equal to 100% of the principal amount plus accrued and unpaid interest; and (iv) the 2041 notes at any time prior to April 1, 2041 at a price equal to 100% of the principal amount plus a make-whole premium and accrued and unpaid interest, and at any time on or after April 1, 2041 at a price equal to 100% of the principal amount plus accrued and unpaid interest. Upon the occurrence of a Change of Control Triggering Event (as defined in the indenture), unless Quanta has exercised its right to redeem the applicable series of Senior Notes in full by giving irrevocable notice to the trustee, each holder of such Senior Notes will have the right to require Quanta to purchase all or a portion of such holder's Senior Notes of such series at a purchase price equal to 101% of the principal amount thereof plus accrued and unpaid interest.

The indenture contains covenants that, among other things, limit Quanta's ability to incur liens securing certain indebtedness, to engage in certain sale and leaseback transactions with respect to certain properties and to sell all or substantially all of Quanta's assets or merge or consolidate with or into other companies. The indenture also contains customary events of default.

The fair value of Quanta's Senior Notes was $2.15 billion as of December 31, 2023, compared to a carrying value of $2.48 billion net of unamortized bond discount, underwriting discounts and deferred financing costs of $20.5 million. The fair value of the Senior Notes is based on the quoted market prices for the same issue, and the Senior Notes are categorized as Level 1 liabilities.

Senior Credit Facility

The credit agreement for Quanta's senior credit facility (as amended, the credit agreement) provides for a $750.0 million term loan facility and aggregate revolving commitments of $2.64 billion, with a maturity date of October 8, 2026. 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 commitments, 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. Borrowings under the senior credit facility and the applicable interest rates were as follows (dollars in thousands):

	Year Ended December 31,		
	2023	2022	2021
Maximum amount outstanding	$ 1,004,677	$ 1,684,783	$ 1,463,667
Average daily amount outstanding	$ 929,201	$ 1,250,493	$ 591,114
Weighted-average interest rate	6.62 %	3.03 %	1.87 %

On August 23, 2022 Quanta entered into an amendment to the credit agreement, which among other things, permits proceeds of revolving loans to be used to provide credit support for Quanta's commercial paper program, as described further below; established Term Secured Overnight Financing Rate (Term SOFR) (as defined in the credit agreement) as the benchmark rate for the senior credit facility (including both the term loan facility and the revolving credit facility) in replacement of London Interbank Offered Rate (LIBOR) (as defined therein prior to giving effect to the amendment) as further described below, effective as of the date of the amendment; and revised certain other terms and provisions.

The credit agreement contains certain covenants, including, as of the end of any fiscal quarter of Quanta, (i) a maximum Consolidated Leverage Ratio (as defined in the credit agreement) of 3.5 to 1.0 (except that in connection with certain permitted acquisitions in excess of $200.0 million, such ratio is 4.0 to 1.0 for the fiscal quarter in which the acquisition is completed and the four subsequent fiscal quarters) and (ii) a minimum Consolidated Interest Coverage Ratio (as defined in the credit agreement) of 3.0 to 1.0. As of December 31, 2023, Quanta was in compliance with all of the financial covenants under the credit agreement.

The Consolidated Leverage Ratio is the ratio of Quanta's total funded debt to Consolidated EBITDA (as defined in the credit agreement). For purposes of calculating the Consolidated Leverage Ratio, total funded debt 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 behalf of Quanta during such period).

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. These limits include a limit on surety-backed letters of credit issued separate from the senior credit facility, which are not to exceed $300.0 million at any one time outstanding. 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 senior 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 other debt instruments exceeding $300.0 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 and terminate the commitments under the credit agreement.

Term Loan. As of December 31, 2023, Quanta had $731.3 million outstanding under its term loan facility. The carrying amount of the term loan under Quanta's senior credit facility approximates fair value due to its variable interest rate.

The term loan requires quarterly principal payments on the first business day of each January, April, July and October in the amount of $4.7 million per quarter through 2024, $9.4 million per quarter in 2025 and $18.8 million per quarter in 2026. The aggregate remaining principal amount outstanding must be paid by the maturity date of the senior credit facility. Quanta may voluntarily prepay the term loan borrowings from time to time, in whole or in part, without premium or penalty.

Beginning August 23, 2022, amounts borrowed under the term loan facility bear interest, at Quanta's option, at a rate equal to either (a) the Term SOFR plus 1.000% to 1.625%, or (b) the Base Rate (as defined below) plus 0.000% to 0.625%, each as determined based on either Quanta's Consolidated Leverage Ratio (as described above) or Quanta's Debt Rating (as defined in the credit agreement), whichever is more favorable to Quanta. The Base Rate equals the highest of (i) the Federal Funds Rate (as defined in the credit agreement) plus 0.5%, (ii) Bank of America N.A.'s prime rate, (iii) the Term SOFR plus 1.00%, and (iv) 1.00% subject to applicable interest rate floors.

Prior to August 23, 2022, amounts borrowed under the term loan facility bore interest, at Quanta's option, at a rate equal to either (a) the LIBOR Rate plus 1.000% to 1.625%, or (b) the Base Rate (as defined below) plus 0.000% to 0.625%, each as determined based on either Quanta's Consolidated Leverage Ratio (as described above) or Quanta's Debt Rating (as described above), whichever was more favorable to Quanta. The Base Rate equaled the highest of (i) the Federal Funds Rate (as described above) plus 0.5%, (ii) Bank of America N.A.'s prime rate and (iii) the LIBOR Rate plus 1.00%.

Revolving Loans. As of December 31, 2023, Quanta had $135.8 million of outstanding revolving loans under the senior credit facility, all of which were denominated in Canadian dollars. The carrying amounts of the revolving borrowings under Quanta's senior credit facility approximate fair value, as all revolving borrowings have a variable interest rate.

As of December 31, 2023, Quanta also had $274.2 million of letters of credit issued under the senior credit facility, of which $97.1 million were denominated in U.S. dollars and $177.1 million were denominated in currencies other than the U.S. dollar, primarily Australian and Canadian dollars. Additionally, available commitments for revolving loans under the senior credit facility must be maintained in order to provide credit support for notes issued under Quanta's commercial paper program, and therefore such notes effectively reduce the available borrowing capacity under the senior credit facility.

As of December 31, 2023, $1.52 billion remained available under the senior credit facility for new revolving loans, letters of credit and support of the commercial paper program.

Beginning August 23, 2022, amounts borrowed in U.S. dollars under the revolving credit facility bear interest, at Quanta's option, at a rate equal to either (a) the Term SOFR plus 1.125% to 1.750%, or (b) the Base Rate plus 0.125% to 0.750%, each as determined based on either Quanta's Consolidated Leverage Ratio or its Debt Rating, whichever is more favorable to Quanta. Revolving loans borrowed in any currency other than U.S. dollars bear interest at a rate equal to the Alternative Currency Daily Rate or the Alternative Currency Term Rate (each as defined in the credit agreement), as applicable, plus 1.125% to 1.750%, as determined based on either Quanta's Consolidated Leverage Ratio or Quanta's Debt Rating, whichever is more favorable to Quanta. Additionally, standby or commercial letters of credit issued under the credit agreement are subject to a letter of credit fee of 1.125% to 1.750%; 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 1.125%; and Quanta is subject to a commitment fee of 0.100% to 0.275% on any unused availability under the revolving credit facility, in each case as determined based on either the Quanta's Consolidated Leverage Ratio or its Debt Rating, whichever is more favorable to Quanta.

Between October 8, 2021 and August 23, 2022, the interest rates were the same as above except that the benchmark rate utilized was the LIBOR Rate rather than the Term SOFR.

Prior to October 8, 2021, revolving loans borrowed in U.S. dollars bore 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 prior 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 bore 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 were 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 described above) issued under the credit agreement in support of certain contractual obligations were subject to a letter of credit fee of 0.675% to 1.150%, based on Quanta's Consolidated Leverage Ratio. The prior calculation for base rate equaled 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%. Quanta was also subject to a commitment fee of 0.275% to 0.425% from September 22, 2020 through October 7, 2021, based on its Consolidated Leverage Ratio, on any unused availability under the senior credit facility. Prior to the amendment on September 22, 2020, Quanta was subject to a commitment fee of 0.200% to 0.400%.

Commercial Paper Program

On August 23, 2022, Quanta entered into its commercial paper program that allows it to issue unsecured commercial paper notes. Effective October 6, 2023, Quanta increased the maximum aggregate amount of its existing unsecured commercial paper program to $1.50 billion of notes outstanding at any time. Prior to the increase, the maximum aggregate amount of the program was $1 billion.

The notes are sold under customary market terms in the U.S. commercial paper market at a discount from par or at par and bear interest at rates determined at the time of issuance. The maturities of the notes may vary, but may not exceed 397 days from the date of issuance. Quanta began issuing notes under this program on September 2, 2022 and had $705.9 million of outstanding notes as of December 31, 2023, with a weighted average interest rate of 6.0%. The carrying amounts of the notes issued under Quanta's commercial paper program approximate fair value, as all notes currently have a short maturity.

Borrowings under the commercial paper program and the applicable interest rates were as follows (dollars in thousands):

	Year Ended December 31,	
	2023	2022 [1]
Maximum amount outstanding	$ 938,400	$ 707,300
Average daily amount outstanding	$ 644,942	$ 462,359
Weighted-average interest rate	5.82 %	4.47 %

[1] The amounts in this column represent activity from August 23, 2022, the date Quanta's commercial paper program commenced, through December 31, 2022.

Additional Letters of Credit

As of December 31, 2023, Quanta had $433.3 million of surety-backed letters of credit issued outside of its senior credit facility, which were denominated in U.S. dollars.

11. LEASES:

Quanta primarily leases land, buildings, vehicles, construction equipment and office equipment. As of December 31, 2023, the majority of Quanta's leases had remaining lease terms of less than eleven 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 consolidated statements of operations are as follows (in thousands):

		Year Ended December 31,		
Lease and lease financing cost	**Classification**	**2023**	**2022**	**2021**
Finance lease cost:				
Amortization of lease assets	Depreciation [1]	$ 4,944	$ 1,540	$ 1,097
Interest on lease liabilities	Interest and other financing expenses	1,463	108	90
Lease financing transactions:[2]				
Depreciation	Depreciation [1]	7,698	5,303	3,423
Interest	Interest and other financing expenses	12,992	8,405	5,472
Operating lease cost	Cost of services and Selling, general and administrative expenses	93,133	93,539	104,668
Short-term and variable lease cost [3]	Cost of services and Selling, general and administrative expenses	1,106,454	953,721	716,722
Total lease and lease financing transactions cost		$ 1,226,684	$ 1,062,616	$ 831,472

[1] Depreciation is included within “Cost of services” and “Selling, general and administrative expenses” in the accompanying consolidated statements of operations.

[2] 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 these purchase options are exercised by a third-party lessor on behalf of Quanta, the transaction is deemed to be a financing transaction for accounting purposes, which results in the recognition of an asset equal to the purchase price and a corresponding liability.

[3] Short-term lease cost includes both leases and rentals with initial terms of one year or less. Variable lease cost is insignificant.

Quanta has entered into arrangements with certain related parties to lease real and personal property and facilities. Typically, the parties are employees of Quanta who are also the former owners of businesses acquired by Quanta, and the real property and facilities continue to be utilized by Quanta subsequent to the acquisitions. 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 ten years, subject to renewal options. Related party lease expense was $16.5 million, $14.7 million and $13.9 million for the years ended December 31, 2023, 2022 and 2021.

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

Lease type	Classification	December 31, 2023	December 31, 2022
Assets:			
Operating lease right-of-use assets	Operating lease right-of-use assets	$ 249,443	$ 229,691
Finance lease assets	Property and equipment, net of accumulated depreciation	35,770	3,238
Lease financing transaction assets	Property and equipment, net of accumulated depreciation	102,955	83,591
Total lease and lease financing assets		$ 388,168	$ 316,520
Liabilities:			
Current:			
Operating	Current portion of operating lease liabilities	$ 77,995	$ 74,052
Finance	Current maturities of long-term debt and short-term debt	7,767	1,433
Lease financing transaction liabilities	Current maturities of long-term debt and short-term debt	7,345	15,034
Non-current:			
Operating	Operating lease liabilities, net of current portion	186,996	171,512
Finance	Long-term debt, net of current maturities	31,810	2,109
Lease financing transaction liabilities	Long-term debt, net of current maturities	95,610	68,557
Total lease and lease financing liabilities		$ 407,523	$ 332,697

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

	As of December 31, 2023		
	Operating Leases	Finance Leases	Total
2024	$ 87,354	$ 8,869	$ 96,223
2025	70,047	8,527	78,574
2026	52,359	8,277	60,636
2027	35,844	7,735	43,579
2028	20,782	7,418	28,200
Thereafter	24,856	6,003	30,859
Total future minimum payments related to operating leases, finance leases and lease financing transactions	291,242	46,829	338,071
Less imputed interest	(26,251)	(7,252)	(33,503)
Total	$ 264,991	$ 39,577	$ 304,568

Future minimum lease payments for short-term leases were $21.3 million as of December 31, 2023. As of December 31, 2023, Quanta also had minimum lease payments related to operating lease obligations of $16.6 million for leases that had not yet commenced and that are expected to commence in 2024 and have lease terms of one to ten years. Additionally, as described above, 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. The future payments related to these lease financing transactions totaled $73.5 million and comprise principal and interest payments. The principal payments required to be made during the next five years are included in the debt maturity table in Note 10.

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

	As of December 31,	
	2023	2022
Weighted average remaining lease term (in years):		
Operating leases	4.34	4.39
Finance leases	5.69	2.93
Weighted average discount rate:		
Operating leases	4.3 %	3.5 %
Finance leases	6.3 %	3.1 %

Quanta has also guaranteed the residual value under certain of its equipment operating leases and real estate finance leases, agreeing to pay any difference between the residual value and the fair market value of the underlying asset at the date of lease termination. Historically, the fair value of the assets at the time of lease termination generally has approximated or exceeded the residual value guarantees, and therefore such guarantees are not expected to result in significant payments.

12. INCOME TAXES:

The components of income before income taxes were as follows (in thousands):

	Year Ended December 31,		
	2023	2022	2021
Income before income taxes:			
Domestic	$ 823,691	$ 532,051	$ 534,302
Foreign	146,265	171,835	88,599
Total	$ 969,956	$ 703,886	$ 622,901

The components of the provision for income taxes were as follows (in thousands):

	Year Ended December 31,		
	2023	2022	2021
Current:			
Federal	$ 132,727	$ 97,673	$ 65,273
State	42,783	29,439	32,930
Foreign	39,941	23,078	6,644
Total current tax provision	215,451	150,190	104,847
Deferred:			
Federal	16,055	29,657	27,762
State	(556)	4,225	(2,418)
Foreign	(11,683)	8,171	727
Total deferred tax provision (benefit)	3,816	42,053	26,071
Total provision for income taxes	$ 219,267	$ 192,243	$ 130,918

Income taxes related to other income (loss) within other comprehensive income (loss) was an expense of $0.4 million, a benefit of $0.2 million and an expense of $0.4 million for the years ended December 31, 2023, 2022 and 2021. There was no tax on foreign currency translation adjustment within other comprehensive income (loss) for the years ended December 31,

2023, 2022 and 2021.

The actual income tax provision differed from the income tax provision computed by applying the U.S. federal statutory corporate rate to income before provision for income taxes as follows (in thousands):

	Year Ended December 31,		
	2023	2022	2021
Provision at the statutory rate	$ 203,691	$ 147,816	$ 130,809
Increases (decreases) resulting from:			
State taxes	41,920	28,320	27,204
Employee per diems, meals and entertainment	27,039	6,086	3,569
Tax contingency reserves, net	6,882	7,939	844
Foreign taxes	2,927	(638)	(9,359)
Company-owned life insurance	(2,262)	2,917	(6,969)
Taxes on certain equity method investments and non-controlling interests	(9,519)	(12,886)	(8,825)
Valuation allowance on deferred tax assets	(20,177)	23,366	6,107
Stock-based compensation	(35,007)	(24,066)	(21,271)
Other	3,773	13,389	8,809
Total provision for income taxes	$ 219,267	$ 192,243	$ 130,918

Deferred income taxes result from temporary differences in the recognition of income and expenses for financial reporting purposes and tax purposes. The tax effects of these temporary differences, representing deferred tax assets and liabilities, result principally from the following (in thousands):

	December 31,	
	2023	2022
Deferred income tax liabilities:		
Property and equipment	$ (350,204)	$ (286,950)
Goodwill	(167,275)	(129,491)
Leased assets	(106,325)	(84,870)
Retainage	(16,590)	(28,773)
Other	(2,318)	—
Total deferred income tax liabilities	(642,712)	(530,084)
Deferred income tax assets:		
Lease liabilities	103,308	84,189
Other intangible assets	100,478	73,654
Accruals and reserves	69,081	48,168
Stock and incentive compensation	62,590	55,413
Net operating loss carryforwards	62,523	56,556
Tax credits	28,802	34,413
Equity method investments and non-controlling interests	8,357	5,878
Deferred tax benefits on unrecognized tax positions	6,327	8,899
Other	—	5,849
Subtotal	441,466	373,019
Valuation allowance	(40,013)	(58,461)
Total deferred income tax assets	401,453	314,558
Total net deferred income tax liabilities	$ (241,259)	$ (215,526)

The net deferred income tax assets and liabilities comprised the following in the accompanying consolidated balance sheets (in thousands):

	December 31,	
	2023	2022
Deferred income taxes:		
Assets	$ 12,745	$ 12,335
Liabilities	(254,004)	(227,861)
Total net deferred income tax liabilities	$ (241,259)	$ (215,526)

The valuation allowances for deferred income tax assets at December 31, 2023, 2022 and 2021 were $40.0 million, $58.5 million and $41.3 million. These valuation allowances relate to state and foreign net operating loss carryforwards and foreign tax credits. The valuation allowances were established primarily as a result of uncertainty in Quanta's outlook as to the amount and character of future taxable income in particular tax jurisdictions. Quanta believes it is more likely than not that it will realize the benefit of its deferred tax assets net of existing valuation allowances.

The net changes in the total valuation allowance for each of the years ended December 31, 2023, 2022 and 2021 were a decrease of $18.5 million, an increase of $17.2 million and a decrease of $1.9 million. The change in valuation allowance during the year ended December 31, 2023 resulted in a $20.2 million decrease in tax expense, primarily due to the release of the $22.7 million valuation allowance on Quanta's investment in Starry, and a $2.9 million reduction due to utilization of certain foreign net operating losses. These decreases were partially offset by $5.6 million of new valuation allowances primarily placed on foreign net operating losses during the year. The total valuation allowance also increased by $1.7 million in currency translation adjustments on previously provided valuation allowances. During the year ended December 31, 2022, Quanta recognized $91.5 million of unrealized losses on its investment in Starry and recorded a valuation allowance against such unrealized losses. During the three months ended March 31, 2023, Starry filed for bankruptcy under Chapter 11 of the U.S. Bankruptcy Code, as amended. On August 31, 2023, the equity securities held by Quanta were cancelled pursuant to an approved plan of reorganization in such bankruptcy proceeding. As a result, Quanta's cumulative $91.5 million loss on its investment in Starry was realized during the year ended December 31, 2023. This realized loss can be utilized to offset gains from tax years 2020 through 2023, and can be carried forward to offset future capital gains realized in tax years 2024 through 2028. Quanta has identified sufficient sources of capital loss carry backs and forecasted capital gain income in these periods such that the full $22.7 million valuation allowance on the Starry capital loss was released during the year ended December 31, 2023.

The change in valuation allowance during the year ended December 31, 2022 resulted in a $23.3 million increase in tax expense due primarily to $22.7 million in new valuation allowances recorded on unrealized losses on Quanta's investment in Starry as further described above and in Note 8. The total valuation allowance increased by $17.2 million from December 31, 2021 to December 31, 2022 primarily as a result of the $22.7 million valuation allowance related to Starry mentioned above, partially offset by a reduction of $4.8 million due to the removal of deferred tax assets that were no longer available to be carried forward to future years for which a valuation allowance had been provided in prior years, as well as currency translation adjustments on previously provided valuation allowances.

The change in valuation allowance during the year ended December 31, 2021 resulted in a $6.1 million increase in tax expense due to approximately $8.5 million of new valuation allowances primarily recorded on foreign net operating losses, which was partially offset by a $2.4 million valuation allowance release recorded due to the completion of certain internal restructuring efforts that increased management's visibility into future utilization of certain state net operation losses.

At December 31, 2023, Quanta had state and foreign net operating loss carryforwards, the tax effect of which was $63.9 million. These carryforwards will expire as follows: 2024, $0.1 million; 2025, $5.7 million; 2026, $1.1 million; 2027, $1.1 million; and $55.9 million after 2028. A valuation allowance of $30.4 million has been recorded against certain foreign and state net operating loss carryforwards.

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

A reconciliation of unrecognized tax benefit balances is as follows (in thousands):

	December 31,		
	2023	2022	2021
Balance at beginning of year	$ 41,639	$ 37,737	$ 33,219
Additions based on tax positions related to the current year	10,304	11,699	6,881
Additions for tax positions of prior years	—	230	2,339
Reductions for tax positions of prior years	—	(407)	—
Reductions for audit settlements	—	(2,207)	—
Reductions resulting from a lapse of the applicable statute of limitations periods	(6,807)	(5,413)	(4,702)
Balance at end of year	$ 45,136	$ 41,639	$ 37,737

The balances of unrecognized tax benefits, the amount of related interest and penalties and what Quanta believes to be the range of reasonably possible changes in the next 12 months are as follows (in thousands):

	December 31, 2023
Unrecognized tax benefits	$ 45,136
Portion that, if recognized, would reduce tax expense and effective tax rate	$ 42,650
Accrued interest on unrecognized tax benefits	$ 4,903
Accrued penalties on unrecognized tax benefits	$ 1,085
Reasonably possible reduction to the balance of unrecognized tax benefits in succeeding 12 months	$0 to $8,932
Portion that, if recognized, would reduce tax expense and effective tax rate	$0 to $8,660

Quanta classifies interest and penalties within the provision for income taxes. Quanta recognized interest expense of $0.5 million, interest expense of $0.5 million and interest income of $0.8 million in the provision for income taxes for the years ended December 31, 2023, 2022 and 2021.

Quanta's consolidated federal income tax returns for tax years 2017, 2018, 2020, and 2021 remain open to examination by the IRS, as the applicable statute of limitations periods have not yet expired. Additionally, various state and foreign tax returns filed by Quanta and certain subsidiaries for multiple periods remain under examination by various U.S. state and foreign tax authorities. Quanta does not consider any U.S. state in which it does business to be a major tax jurisdiction.

13. EQUITY:

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 with respect to RSUs and PSUs that are settled in common stock are typically satisfied by Quanta making tax payments and withholding the number of shares of common stock having a value equal to the tax withholding obligation that is due on the date of vesting or settlement (as applicable). With respect to these liabilities, Quanta withheld 0.7 million shares of Quanta common stock during the year ended December 31, 2023, which had a market value of $119.1 million, 0.7 million shares of Quanta common stock during the year ended December 31, 2022, which had a market value of $82.9 million, and 0.8 million shares of Quanta common stock during the year ended December 31, 2021, which had a market value of $65.3 million. These shares and the related costs to acquire them were accounted for as adjustments to the balance of treasury stock.

Stock repurchases

On May 23, 2023, Quanta's Board of Directors approved a stock repurchase program that authorizes Quanta to purchase, from time to time through June 30, 2026, up to $500 million of its outstanding common stock. The stock repurchase program became effective on July 1, 2023, upon expiration of Quanta's previous stock repurchase program. As of December 31, 2023,

$499.7 million remained available under this repurchase program. Quanta repurchased the following shares of common stock in the open market under the stock repurchase programs (in thousands):

Year ended:	Shares		Amount
December 31, 2023	2	$	350
December 31, 2022	1,061	$	127,747
December 31, 2021	721	$	63,988

Quanta's policy is to record a stock repurchase as of the trade date of the transaction; however, the payment of cash related to the repurchase is made on the settlement date of the transaction. During the years ended December 31, 2023, 2022 and 2021, cash payments related to stock repurchases were $0.4 million, $127.8 million and $66.7 million. Repurchases 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 credit facility, and other factors. Quanta is not obligated to acquire any specific amount of common stock, and the 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

The carrying amounts of investments held by the non-controlling interests were $11.1 million and $15.4 million at December 31, 2023 and 2022 and are included in "Non-controlling interests" in the consolidated balance sheets. The carrying amount of these investments held by Quanta was $21.2 million and $29.3 million at December 31, 2023 and 2022. See Notes 2 and 16 for further disclosures related to Quanta's joint venture arrangements.

Dividends

Quanta declared and paid the following cash dividends and cash dividend equivalents during 2023, 2022 and 2021 (in thousands, except per share amounts):

Declaration Date	Record Date	Payment Date	Dividend Per Share		Dividends Declared	
December 5, 2023	January 2, 2024	January 12, 2024	$	0.09	$	13,412
August 30, 2023	October 2, 2023	October 13, 2023	$	0.08	$	12,430
May 23, 2023	July 3, 2023	July 14, 2023	$	0.08	$	11,893
March 29, 2023	April 10, 2023	April 18, 2023	$	0.08	$	12,100
December 13, 2022	January 3, 2023	January 13, 2023	$	0.08	$	11,756
August 31, 2022	October 3, 2022	October 14, 2022	$	0.07	$	10,322
May 27, 2022	July 1, 2022	July 15, 2022	$	0.07	$	10,283
March 31, 2022	April 11, 2022	April 18, 2022	$	0.07	$	10,459
December 1, 2021	January 4, 2022	January 14, 2022	$	0.07	$	10,363
August 27, 2021	October 1, 2021	October 15, 2021	$	0.06	$	8,638
May 27, 2021	July 1, 2021	July 15, 2021	$	0.06	$	8,650
March 25, 2021	April 6, 2021	April 15, 2021	$	0.06	$	8,429
December 11, 2020	January 4, 2021	January 15, 2021	$	0.06	$	8,933

A significant majority of the dividends declared were paid on the corresponding payment dates, which are generally within two months of the declaration date. Holders of certain stock awards generally received cash dividend equivalent payments equal to the cash dividends payable on account of the underlying Quanta common stock. Holders of other stock awards receive cash dividend equivalent payments only to the extent such awards 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 Quanta's deferred compensation plan are recorded as liabilities in such plans until the deferred awards are settled.

14. STOCK-BASED COMPENSATION:

Stock Incentive Plans

The Omnibus Plan was approved by Quanta's stockholders in May 2019 and 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 Omnibus Plan. In May 2022, Quanta's stockholders approved an amendment to the Omnibus Plan to increase the shares available for issuance. Subject to certain adjustments, the maximum number of shares available for issuance under the Omnibus Plan is 9.6 million, plus any shares underlying share-settling awards previously awarded pursuant to a prior equity incentive plan that are ultimately forfeited, canceled, expired or settled in cash subsequent to stockholder approval of the Omnibus Plan. As of December 31, 2023, there were approximately 2.5 million shares available for issuance under the Omnibus Plan. All awards subsequent to stockholder approval of the Omnibus Plan have been and will be made pursuant to the Omnibus Plan and applicable award agreements.

RSUs to be Settled in Common Stock

A summary of the activity for RSUs to be settled in common stock for the years ended December 31, 2023, 2022 and 2021 is as follows (RSUs in thousands):

	2023		2022		2021	
	RSUs	Weighted Average Grant Date Fair Value (Per Unit)	RSUs	Weighted Average Grant Date Fair Value (Per Unit)	RSUs	Weighted Average Grant Date Fair Value (Per Unit)
Unvested at January 1	3,263	$78.74	3,880	$61.64	3,869	$37.57
Granted	684	$161.81	860	$113.07	1,642	$94.83
Vested	(1,268)	$68.06	(1,319)	$50.60	(1,476)	$37.03
Forfeited	(131)	$116.29	(158)	$84.94	(155)	$48.52
Unvested at December 31	2,548	$104.76	3,263	$78.74	3,880	$61.64

The approximate fair value of RSUs that vested during the years ended December 31, 2023, 2022 and 2021 was $208.0 million, $152.5 million and $125.7 million, respectively.

During the years ended December 31, 2023, 2022 and 2021, Quanta recognized $94.5 million, $84.0 million and $67.3 million of non-cash stock compensation expense related to RSUs to be settled in common stock. As of December 31, 2023, there was $148.1 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 3.25 years.

PSUs to be Settled in Common Stock

A summary of the activity for PSUs to be settled in common stock for the years ended December 31, 2023, 2022 and 2021 is as follows (PSUs in thousands):

	2023		2022		2021	
	PSUs	Weighted Average Grant Date Fair Value (Per Unit)	PSUs	Weighted Average Grant Date Fair Value (Per Unit)	PSUs	Weighted Average Grant Date Fair Value (Per Unit)
Unvested at January 1	733	$65.39	931	$47.27	1,047	$37.65
Granted	177	$174.50	153	$119.74	174	$90.44
Vested	(413)	$35.12	(334)	$40.15	(268)	$38.28
Forfeited	(6)	$101.66	(17)	$58.79	(22)	$41.86
Unvested at December 31	491	$129.70	733	$65.39	931	$47.27

The Monte Carlo simulation valuation methodology applied the following key inputs:

	2023	2022	2021
Valuation date price based on March 9, 2023, March 2, 2022 and March 25, 2021 closing stock prices of Quanta common stock	$160.55	$110.24	$83.48
Expected volatility	35 %	39 %	36 %
Risk-free interest rate	4.62 %	1.64 %	0.26 %
Term in years	2.81	2.83	2.77

During the years ended December 31, 2023, 2022 and 2021, Quanta recognized $32.3 million, $21.6 million and $21.0 million of non-cash stock compensation expense related to PSUs to be settled in common stock.

As of December 31, 2023, there was an estimated $28.7 million of total unrecognized compensation expense related to unearned and unvested PSUs. This amount is based on forecasted attainment of performance metrics and estimated forfeitures of unearned and unvested PSUs. The compensation expense related to outstanding PSUs can 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. This cost is expected to be recognized over a weighted average period of 1.70 years.

During the years ended December 31, 2023, 2022 and 2021, 0.7 million, 0.7 million and 0.5 million shares of common stock were issued in connection with PSUs. The approximate fair values of PSUs earned during the years ended December 31, 2023, 2022 and 2021 were $115.5 million, $72.4 million and $45.2 million, respectively.

15. EMPLOYEE BENEFIT PLANS:

Unions' Multiemployer Pension Plans

Quanta contributes to a number of multiemployer defined benefit pension plans under the terms of collective bargaining agreements with various unions that represent certain of Quanta's employees. Approximately 32% of Quanta's employees as of December 31, 2023 were covered by collective bargaining agreements. Quanta's multiemployer pension plan contribution rates generally are specified in the collective bargaining agreements (usually on a monthly or annual basis), and contributions are made to the plans on a "pay-as-you-go" basis based on its union employee payrolls. Quanta may also have additional liabilities imposed by law as a result of its participation in multiemployer defined benefit pension plans. 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.

The Pension Protection Act of 2006 (PPA) also added special funding and operational rules generally applicable to plan years beginning after 2007 for multiemployer plans in the United States that are classified as "endangered," "seriously endangered" or "critical" status based on multiple factors (including, for example, the plan's funded percentage, cash flow position and whether a projected minimum funding deficiency exists). Plans in these classifications must adopt remedial measures to improve their funded status through a funding improvement or rehabilitation plan, as applicable, which may require additional contributions from employers (which may take the form of 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 of additional funds, 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.

The following table summarizes plan information relating to Quanta's participation in multiemployer defined benefit pension plans, including company contributions for the last three years, the status of the plans under the PPA and whether the plans are subject to a funding improvement or rehabilitation plan or contribution surcharges. The most recent PPA zone status available in 2023 and 2022 relates to the plans' fiscal year-ends in 2022 and 2021. Forms 5500 were not yet available for the plan years ending in 2023. The PPA zone status is based on information that Quanta received from the respective plans' administrators, as well as publicly available information on the U.S. Department of Labor website, and is certified by each plan's actuary. Although multiple factors or tests may result in red zone or yellow zone status, plans in the red zone generally are less than 65 percent funded, plans in the yellow zone generally are less than 80 percent funded, and plans in the green zone generally are at least 80 percent funded. Under the PPA, red zone plans are classified as "critical" status, yellow zone plans are classified as "endangered" status and green zone plans are classified as neither "endangered" nor "critical" status. The "Subject to Financial Improvement/ Rehabilitation Plan" column indicates plans for which a financial improvement plan or a

rehabilitation plan is either pending or has been implemented. The last column lists the expiration dates of Quanta's collective-bargaining agreements to which the plans are subject. Total contributions to these plans correspond to the number of union employees employed at any given time and the plans in which they participate and vary depending upon the location and number of ongoing projects at a given time and the need for union resources in connection with such projects. Information has been presented separately for individually significant plans, based on PPA funding status classification, and in the aggregate for all other plans.

Fund	Employee Identification Number/ Pension Plan Number	PPA Zone Status		Subject to Financial Improve- ment/ Reha- bilitation Plan	Contributions (in thousands)			Sur-charge Imposed	Expiration Date of Collective Bargaining Agreement
		2023	2022		2023	2022	2021		
National Electrical Benefit Fund	53-0181657	Green	Green	No	$ 47,126	$ 47,390	$ 38,195	No	Varies through November 2027
Excavators Union Local 731 Pension Fund	13-1809825	Green	Green	No	11,411	20,733	16,202	No	April 2026
Central Pension Fund of the IUOE & Participating Employers	36-6052390	Green	Green	No	7,396	11,989	11,237	No	Varies through May 2027
Eighth District Electrical Pension Fund	84-6100393	Green	Green	No	6,169	5,119	1,599	No	Varies through September 2026
Laborers Pension Trust Fund for Northern California	94-6277608	Green	Green	No	3,342	4,849	4,479	No	Varies through June 2026
Operating Engineers Local 324 Pension Fund	38-1900637	Red	Red	Yes	3,193	2,951	2,789	No	Varies through April 2026
Pipeline Industry Pension Fund	73-6146433	Green	Green	No	2,733	2,477	5,081	No	Varies through June 2024
Construction Laborers Pension Trust Fund for Southern California	43-6159056	Green	Green	No	2,729	1,355	893	No	June 2026
Locals 302 & 612 of the IUOE - Employers Construction Industry Retirement Fund	91-6028571	Green	Green	No	2,707	1,675	2,084	No	Varies through May 2026
Central Laborers Pension Fund	37-6052379	Yellow	Yellow	Yes	2,342	739	470	No	June 2024
Local 697 I.B.E.W. and Electrical Industry Pension Plan	51-6133048	Green	Green	No	2,227	2,509	2,229	No	May 2025
Pension Trust Fund for Operating Engineers	94-6090764	Yellow	Yellow	No	2,176	1,898	1,755	No	Varies through June 2025
IBEW Local 1249 Pension Plan	15-6035161	Green	Green	No	1,931	4,558	2,667	No	Varies through May 2025
Operating Engineers Pension Trust	95-6032478	Yellow	Yellow	No	1,473	1,360	1,143	Yes	Varies through April 2026
Employer - Teamsters Local Nos 175 & 505 Pension Trust Fund	55-6021850	Red	Red	Yes	1,027	52	151	No	June 2024
Laborers National Pension Fund	75-1280827	Red	Red	Yes	746	667	1,049	Yes	June 2026
Laborers District Council of W PA Pension Fund	25-6135576	Yellow	Yellow	Yes	488	110	1,375	No	June 2026
All other plans - U.S.					38,033	37,723	36,804		
All other plans - Canada [1]					12,515	19,245	2,794		
Total contributions					$ 149,764	$ 167,399	$ 132,996		

[1] Multiemployer defined benefit pension plans in Canada are not subject to the reporting requirements under the PPA. Accordingly, certain information was not publicly available.

Quanta's contributions to the following individually significant plans were five percent or more of the total contributions to these plans for the periods indicated based on the Forms 5500 for these plans for the years ended December 31, 2022 and 2021. Forms 5500 were not yet available for these plans for the year ended December 31, 2023.

Pension Fund	Plan Years in which Quanta Contributions Were Five Percent or More of Total Plan Contributions
National Electrical Benefit Fund	2022 and 2021
Excavators Union Local 731 Pension Fund	2022 and 2021
Eighth District Electrical Pension Fund	2022
Pipeline Industry Pension Fund	2022 and 2021
Local 697 I.B.E.W. and Electrical Industry Pension Plan	2022 and 2021
IBEW Local 1249 Pension Plan	2022
Local Union No 9 I.B.E.W and Outside Contractors Pension Fund [1]	2022 and 2021
I.B.E.W. Local 456 Pension Plan [1]	2022 and 2021
Teamster National Pipe Line Pension Plan [1]	2022 and 2021

[1] This plan is included in the "All other plans - U.S." category in the prior table.

In addition to the contributions made to multiemployer defined benefit pension plans noted above, Quanta also contributed to multiemployer defined contribution or other benefit plans on behalf of certain union employees. Contributions to union multiemployer defined contribution or other benefit plans by Quanta were $254.7 million, $234.3 million and $213.4 million for the years ended December 31, 2023, 2022 and 2021. Total contributions made to all of these multiemployer plans correspond to the number of union employees employed at any given time and the plans in which they participate and vary depending upon the location and number of ongoing projects at a given time and the need for union resources in connection with such projects.

Quanta 401(k) Plan

Quanta maintains a 401(k) plan pursuant to which employees who are not provided retirement benefits through a collective bargaining agreement may make contributions through payroll deductions. Quanta makes matching cash contributions of 100% of each employee's contribution up to 3% of that employee's salary and 50% of each employee's contribution between 3% and 6% of such employee's salary, up to the maximum amount permitted by law. Contributions to the 401(k) plan by Quanta were $75.9 million, $61.7 million and $50.7 million for the years ended December 31, 2023, 2022 and 2021.

Deferred Compensation Plans

Quanta maintains non-qualified deferred compensation plans under which eligible directors and key employees may defer their receipt of certain cash compensation and/or the settlement of certain stock-based awards. These plans are unfunded and unsecured compensation arrangements. Individuals participating in these plans may allocate deferred cash amounts among a group of notional accounts that mirror the gains and losses of various investment alternatives. Generally, participants receive distributions of deferred balances based on predetermined payout schedules or other events.

The plan covering key employees provides for employer matching contributions for certain officers and employees whose benefits under the 401(k) plan are limited by federal tax law. Quanta may also make discretionary employer contributions to such plan. Matching contributions vest immediately, and discretionary employer contributions may be subject to a vesting schedule determined at the time of the contribution, provided that vesting accelerates upon a change in control or the participant's death or retirement. All matching and discretionary employer contributions, whether vested or not, are forfeited upon a participant's termination of employment for cause or upon the participant engaging in competition with Quanta or any of its affiliates.

Quanta made matching contributions to the eligible participants' accounts under the deferred compensation plans of $1.8 million, $1.5 million and $1.4 million during the years ended December 31, 2023, 2022 and 2021 and did not make discretionary contributions during those years. As of December 31, 2023 and 2022, the liability related to deferred cash compensation under these plans, including amounts contributed by Quanta, was $88.9 million and $67.4 million, the majority of which was included in "Insurance and other non-current liabilities" in the accompanying consolidated balance sheets. Additionally, as of December 31, 2023 and 2022, the settlement and issuance of 174,079 and 252,026 shares of common stock underlying certain stock-based awards had been deferred under these plans, and such issuances are scheduled to occur in future periods.

To provide for future obligations related to deferred cash compensation under these plans, Quanta has invested in corporate-owned life insurance (COLI) policies covering certain participants in the deferred compensation plans, the underlying investments of which are intended to be aligned with the investment alternatives elected by plan participants. The COLI assets are recorded at their cash surrender value, which is considered their fair market value, and as of December 31, 2023 and 2022, the fair market values were $83.4 million and $64.0 million and were included in "Other assets, net" in the accompanying consolidated balance sheets. The level of inputs for these fair value measurements is Level 2.

Changes in the fair market value of Quanta's COLI assets and deferred compensation liabilities largely offset and are recorded in the accompanying statements of operations as follows (in thousands):

		Year Ended December 31,		
Classification	**Change in fair market value of**	**2023**	**2022**	**2021**
(Loss) gain included in Selling, general and administrative expenses	Deferred compensation liabilities	$ (13,325)	$ 13,192	$ (10,428)
Other income (expense), net	COLI assets	$ 11,587	$ (13,757)	$ 8,566

16. COMMITMENTS AND CONTINGENCIES:

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, property damage, breach of contract, negligence or gross negligence, environmental liabilities, wage and hour and other employment-related damages, punitive damages, consequential 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.

The assessment of whether a loss is probable or reasonably possible, and whether the loss or a range of loss is estimable, often involves a series of complex judgments about future events. 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 and taking into account, among other things, negotiations with claimants, discovery, settlements and payments, judicial rulings, arbitration and mediation decisions, advice of internal and external legal counsel, and other information and events pertaining to a particular matter. Costs incurred for litigation are expensed as incurred. 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. However, 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 liquidated damages under the contracts.

As of the date of the contract terminations, Redes had incurred costs of approximately $157 million related to the design and construction of the project and had received approximately $100 million of payments (inclusive of the approximately $87 million advance payments).

In May 2019, Redes filed for arbitration before the Court of International Arbitration of the International Chamber of Commerce (ICC) against PRONATEL and the MTC. In the arbitration, Redes claimed that PRONATEL: breached and wrongfully terminated the contracts; wrongfully executed the advance payment bonds and the performance bonds; and was not entitled to the alleged amount of liquidated damages, and sought compensation for various damages arising from PRONATEL's actions in the initially claimed amount of approximately $190 million. In August 2022, Redes received the decision of the arbitration tribunal, which unanimously found in favor of Redes in connection with its claims and ordered, among other things, (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) payment of lost income in connection with Redes' future operation and maintenance of the networks; and (iv) payment of other related costs and damages to Redes as a result of the breach and improper termination of the contracts (including costs related to the execution of the bonds, costs related to the transfer of the networks and legal and expert fees). Accordingly, the arbitration tribunal awarded Redes approximately $177 million. In addition, per the terms of the arbitration decision, interest will accrue on the amount owed up to the date of payment.

The decision of the arbitration tribunal is final, with limited grounds on which PRONATEL and the MTC may seek to annul the decision in Peruvian courts. In December 2022, Redes filed an enforcement proceeding with respect to each project contract to secure recovery of the arbitration award, and PRONATEL and the MTC filed an annulment proceeding with respect to each project contract. The enforcement and annulment proceedings were filed with different commercial courts in Lima, Peru. In April 2023 and August 2023, Redes received favorable rulings in each of the annulment proceedings rejecting the grounds for annulment; however, PRONATEL and the MTC are pursuing, and are expected to continue to pursue, certain remaining legal challenges to such rulings. Final decisions with respect to the enforcement proceedings are expected in 2024. Additionally, in December 2022, following the favorable arbitration ruling, Quanta received $100.5 million pursuant to coverage under an insurance policy for the improper collection by PRONATEL and the MTC of the advance payment and performance bonds, and in January 2023 Quanta received $6.7 million pursuant to coverage under an insurance policy for nonpayment by PRONATEL and the MTC of amounts owed for work completed by Redes. Quanta is continuing to pursue collection of the ICC arbitration award and any amount collected would result in repayment of an equal amount to the insurers up to the amount received from the insurers.

Quanta also reserves the right to seek full compensation for the loss of its investment under applicable legal regimes, including investment treaties and customary international law, as well as to seek resolution through direct discussions with PRONATEL or the MTC. In connection with these rights, in May 2020 Quanta's Dutch subsidiary delivered to the Peruvian government an official notice of dispute arising from the termination of the contracts and related acts by PRONATEL (which are attributable to Peru) under the Agreement on the Encouragement and Reciprocal Protection of Investments between the Kingdom of the Netherlands and the Republic of Peru (Investment Treaty). The Investment Treaty protects Quanta's subsidiary's indirect ownership stake in Redes and the project, and provides for rights and remedies distinct from the ICC arbitration. In December 2020, Quanta's Dutch subsidiary filed a request for the institution of an arbitration proceeding against Peru with the International Centre for Settlement of Investment Disputes (ICSID) related to Peru's breach of the Investment Treaty, which was registered by ICSID in January 2021. In the ICSID arbitration, Quanta's Dutch subsidiary claims, without limitation, that Peru: (i) treated the subsidiary's investment in Redes and the project unfairly and inequitably; and (ii) effectively expropriated the subsidiary's investment in Redes and the project. In addition, Quanta's Dutch subsidiary is seeking full compensation for all damages arising from Peru's actions, including but not limited to (i) the fair market value of the investment and/or lost profits; (ii) attorneys' fees and arbitration costs; (iii) other related costs and damages and (iv) pre- and post-award interest. The ICSID arbitration hearing on the merits occurred in the second quarter of 2023 and a decision is currently expected in the first half of 2024.

Quanta believes Redes is entitled to all amounts awarded by the ICC arbitration tribunal, and that its Dutch subsidiary is entitled to other amounts associated with the pending ICSID arbitration proceeding. Quanta and Redes intend to vigorously pursue recovery of the amounts awarded by the ICC arbitration tribunal and take additional legal actions deemed necessary to enforce the ICC arbitration decision. However, due to the inherent uncertainty involved with, among other things, the challenges to the annulment decisions, enforcement and related proceedings, the ultimate timing and conclusion with respect to collection of the amounts of the ICC arbitration award remains unknown.

As a result of the contract terminations and the inherent uncertainty involved in arbitration proceedings and recovery of amounts owed, 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. Quanta also initially recorded a contract receivable of approximately $120 million related to the project during the three months ended June 30, 2019, which includes the amounts collected by PRONATEL through exercise of the advance payment bonds and performance bonds. As of December 31, 2023, the total amount of the receivable was not changed and is included in "Other assets, net" in the accompanying consolidated balance sheet. Additionally, with respect to the amounts received pursuant to coverage under the insurance policies described above, $107.2 million is included in "Insurance and other non-current liabilities" in the accompanying consolidated balance sheet as of December 31, 2023.

After considering, as discussed above, that the ultimate timing and conclusion with respect to collection of the full amounts associated with the ICC arbitration award remains unknown, Quanta has not recognized a gain in the current period. To the extent amounts in excess of the current receivable are determined to be realizable, a gain would be recorded in the period such determination is made. However, if Quanta is ultimately not successful with respect to collection of the ICC arbitration award or with respect to its claims in the pending ICSID arbitration proceeding, 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.

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. During 2019 and 2020, the parties filed additional summary judgment and other motions, and a bench trial on liability and damages was held. Liability and damages for TNS were initially determined by the trial court to be approximately $9.5 million. Separately, in 2022, the court issued a ruling awarding attorneys' fees and costs to plaintiffs in the amount of approximately $17.3 million. TNS appealed the trial court's rulings, and in October 2023, the California Court of Appeal issued an opinion overruling significant portions of the trial court's summary judgment rulings and remanding the case to the trial court for further proceedings. Specifically, the appellate court vacated the trial court's summary judgment ruling as to meal and rest periods, which comprises the majority of the damages awarded, and affirmed the trial court's ruling with respect to overtime wages. In January 2024, the appellate court decision was upheld by the California Supreme Court. Quanta intends to continue to contest its liability and the damage calculations asserted by the plaintiff class to the trial court on remand. Quanta believes the decision by the appellate court also requires the attorneys' fees and costs claimed by plaintiffs to be reevaluated in accordance with the final disposition of the matter.

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. However, Quanta currently believes that, due to solvency issues, any contribution from the staffing companies may not be substantial.

The final amount of liability and attorneys' fees payable in connection with this matter remains the subject of pending litigation and will ultimately depend on various factors, including the outcome of further proceedings by the trial court with respect to liability, damages, attorneys' fees and expenses, and interest, as well as the solvency of the staffing agencies. Quanta has not incurred, and does not believe, at this time, that it is probable this matter will result in a material loss and the range of reasonably possible loss is not currently estimable due to the uncertainties associated with, among other things, such further proceedings.

Silverado Wildfire Matter

During 2022 and 2023, two of Quanta's subsidiaries received tenders of defense and demands for preservation of evidence from Southern California Edison Company (SCE) related to lawsuits filed from April 2021 through December 2023 against SCE and T-Mobile USA, Inc. (T-Mobile) in the Superior Court of California, County of Orange. The lawsuits generally assert property damage and related claims on behalf of certain individuals and subrogation claims on behalf of insurers relating to damages caused by a wildfire that began in October 2020 in Orange County, California (the Silverado Fire) and that is

purported to have damaged approximately 13,000 acres. The lawsuits allege the Silverado Fire originated from utility poles in the area, generally claiming that each defendant failed to adequately maintain, inspect, repair or replace its overhead facilities, equipment and utility poles and remove vegetation in the vicinity; that the utility poles were overloaded with equipment from shared usage; and that SCE failed to de-energize its facilities during red flag warnings for a Santa Ana wind event. The lawsuits allege the Silverado Fire started when SCE and T-Mobile equipment contacted each other and note the Orange County Fire Department is investigating whether a T-Mobile lashing wire contacted an SCE overhead primary conductor in high winds. T-Mobile has filed cross-complaints against SCE alleging, among other things, that the ignition site of the Silverado Fire encompassed two utility poles replaced by SCE or a third party engaged by SCE, and that certain equipment, including T-Mobile's lashing wire, was not sufficiently re-secured after the utility pole replacements. One of Quanta's subsidiaries performed planning and other services related to the two utility poles, and another Quanta subsidiary replaced the utility poles and reattached the electrical and telecommunication equipment to the new utility poles in March 2019, approximately 19 months before the Silverado Fire. Pursuant to the general terms of a master services agreement and a master consulting services agreement between the Quanta subsidiaries and SCE, the subsidiaries agreed to defend and indemnify SCE against certain claims arising with respect to performance or nonperformance under the agreements. The SCE tender letters seek contractual indemnification and defense from Quanta's subsidiaries for the claims asserted against SCE in the lawsuits and the T-Mobile cross-complaints.

Quanta's subsidiaries intend to vigorously defend against the lawsuits, the T-Mobile cross-complaints and any other claims asserted in connection with the Silverado Fire. Quanta will continue to review additional information in connection with this matter as litigation and resolution efforts progress, and any such information may potentially allow Quanta to determine an estimate of potential loss, if any. As of December 31, 2023, Quanta had not recorded an accrual with respect to this matter, and Quanta is currently unable to reasonably estimate a range of reasonably possible loss, if any, because there are a number of unknown facts and legal considerations that may impact the amount of any potential liability. Quanta also believes that to the extent its subsidiaries are determined to be liable for any damages resulting from this matter, its insurance would be applied to any such liabilities over its deductible amount and its insurance coverage would be adequate to cover such potential liabilities. However, the ultimate amount of any potential liability and insurance coverage in connection with this matter remains subject to uncertainties associated with pending and potential future litigation.

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 for services Quanta has performed for customers. 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.

Quanta grants credit under normal payment terms, generally without collateral, to its customers, which primarily include utilities, renewable energy developers, communications providers, industrial companies and energy delivery companies 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 recent economic and financial market conditions, including in connection with the uncertainties and challenges in the overall economy, including, among other things, inflationary pressure and increased interest rates. 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. See Note 4 for additional discussion on concentrations on credit risk.

Insurance

As discussed in Note 2, Quanta carries various insurance policies. As of December 31, 2023 and 2022, the gross amount accrued for employer's liability, workers' compensation, auto liability, general liability and group health claims totaled $351.7 million and $319.6 million, of which $229.2 million and $209.8 million are included in "Insurance and other non-current liabilities," and the remainder is included in "Accounts payables and accrued expenses." Related insurance recoveries/receivables as of December 31, 2023 and 2022 were $4.9 million and $5.8 million, of which $0.3 million and $0.3 million are included in "Prepaid expenses and other current assets" and $4.6 million and $5.5 million are included in "Other assets, net."

Quanta renews its insurance policies on an annual basis, and therefore deductibles and levels of insurance coverage may change in future periods. In addition, insurers may cancel Quanta's coverage or determine to exclude certain items from

coverage, including wildfires, or Quanta 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.

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 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. See Note 10 for additional information regarding Quanta's letters of credit outstanding. 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 and cash flows.

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. In certain circumstances, 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. Quanta may also be required to post letters of credit in favor of the sureties, which would reduce the borrowing availability under its senior credit facility. Quanta has not been required to make any material reimbursements to its sureties for bond-related costs except as described in *Legal Proceedings - Peru Project Dispute* 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 and cash flows. As of December 31, 2023, Quanta is 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 therefore a determination of maximum potential amounts outstanding requires 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 December 31, 2023, the estimated total amount of the outstanding performance bonds was estimated to be approximately $7.7 billion. Quanta's estimated maximum exposure related 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 $2.7 billion as of December 31, 2023.

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 guarantees that are material. To the extent a subsidiary incurs a material obligation or liability and Quanta has guaranteed the performance or payment of such obligation or 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.

Collective Bargaining Agreements and Multiemployer Pension Plans

Certain of Quanta's operating companies 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 companies 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.

In addition, Quanta may also be subject to liabilities as a result of its participation in, or withdrawal from, multiemployer defined benefit pension plans. Quanta may be required to make additional contributions to its multiemployer pension plans if they become underfunded, and these additional contributions will be determined based on Quanta's union employee payrolls. Certain plans to which Quanta contributes or may contribute in the future may 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. 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 also be subject to additional liabilities imposed by law if it or another participating employer withdraws from a multiemployer defined benefit pension plan, a plan is terminated or a plan experiences a mass withdrawal. These liabilities may include an allocable share of the unfunded vested benefits in the plan for all plan participants, not only 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 recent unfavorable and uncertain economic and financial market conditions. Quanta has been subject to significant withdrawal liabilities in the past, and 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 and 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. Quanta is not aware of any indemnity claims in connection with these obligations that are material, except as described in *Legal Proceedings - Silverado Wildfire Matter* above.

Additionally, in the normal course of Quanta's acquisition transactions, Quanta has granted indemnification rights to various parties against certain potential liabilities related to the transaction or the acquired business and obtained rights to indemnification from the sellers or former owners of acquired businesses for certain risks, liabilities and obligations arising from business operations prior to the date of acquisition, such as financial, performance, operational, safety, workforce, environmental, litigation, compliance 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.

Joint Venture Liabilities

As described in Note 2, Quanta is a participant in certain joint ventures, including joint venture entities that provide infrastructure-related services under specific customer contracts and partially owned entities that own, operate and/or maintain certain infrastructure assets. If losses are incurred by joint venture entities in which Quanta holds an interest, they are generally shared ratably based on the percentage ownership of the participants in the structures. However, in Quanta's joint venture structures that provide infrastructure-related 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, and therefore Quanta can be liable for full performance of the contract with the customer. Additionally, in circumstances where Quanta's participation in a joint venture qualifies as a general partnership, Quanta can be 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 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 and cash flows.

Capital Commitments and Other Committed Expenditures

As of December 31, 2023, Quanta had $61.2 million of outstanding capital commitments associated with investments in unconsolidated affiliates, the majority of which relates to a limited partnership interest in a fund that targets investments in certain portfolio companies that operate businesses related to the transition to a reduced-carbon economy.

As of December 31, 2023, Quanta had $148.3 million of production orders with expected delivery dates in 2024 for capital commitments primarily related to the expansion of its equipment fleet. The majority of this amount relates to the expansion of Quanta's equipment fleet in order to accommodate manufacturer lead times on certain types of vehicles. 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.

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 potential payment of specified amounts to such employees upon the occurrence of a defined change in control event.

Availability of Project Materials, Equipment and Labor

Quanta's customers depend on the availability of certain materials for construction, upgrade and repair and maintenance of their infrastructure and are typically responsible for supplying most or all of the materials required for the services Quanta performs on their projects, including, among other things, steel, copper, aluminum and components for renewable energy projects (e.g., solar panels, wind turbine blades). Additionally, Quanta is required to procure all or part of the materials needed for certain projects. Although there have been recent delays related to disruption in the supply chain for certain project materials, including delays with respect to solar panels during the year ended December 31, 2022 and into 2023, Quanta and its customers have generally been able to procure necessary materials.

Quanta also depends on the availability of certain equipment, including specialty vehicles, to perform services. As a result, to the extent vehicle manufacturers experience production delays with respect to new vehicles for Quanta's fleet (both on-road and specialty vehicles) or vehicle parts (e.g., tires), Quanta could encounter significant disruptions with respect to its fleet.

Quanta's success depends on its ability to attract, develop and retain highly qualified employees, including craft skilled labor, engineers, project management, architects, designers, management and professional and administrative employees, and the industries in which Quanta operates have experienced shortages of qualified skilled labor personnel in recent years, which is expected to continue and potentially worsen in the future. In order to help meet near-term and longer term labor needs, Quanta supports and utilizes its own training and educational programs and has developed additional company-wide and project-specific employee training and educational programs and strategic relationships with universities, the military and unions to recruit qualified personnel.

17. DETAIL OF CERTAIN ACCOUNTS:

Cash and Cash Equivalents

As of December 31, 2023 and 2022, cash equivalents were $610.8 million and $260.1 million and consisted primarily of money market investments and money market mutual funds.

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, to the extent made, and in the event of dissolution. Cash and cash equivalents held by Quanta's wholly-owned captive insurance company are generally not available for use in support of its other operations. Amounts related to cash and cash equivalents held by

consolidated or proportionately consolidated joint ventures and the captive insurance company, which are included in Quanta's total cash and cash equivalents balances, were as follows (in thousands):

	December 31,	
	2023	2022
Cash and cash equivalents held by domestic joint ventures	$ 41,427	$ 14,291
Cash and cash equivalents held by foreign joint ventures	10,968	6,277
Total cash and cash equivalents held by joint ventures	52,395	20,568
Cash and cash equivalents held by captive insurance company	19,088	35,085
Cash and cash equivalents not held by joint ventures or captive insurance company	1,218,765	372,852
Total cash and cash equivalents	$ 1,290,248	$ 428,505

Property and Equipment

Property and equipment consisted of the following (in thousands):

	Estimated Useful Lives in Years	December 31,	
		2023	2022
Land	N/A	$ 102,839	$ 90,715
Buildings and leasehold improvements	5-30	456,004	396,003
Operating machinery, equipment and vehicles	1-25	3,069,882	2,726,546
Office equipment, furniture and fixtures and information technology systems	3-10	290,687	282,282
Construction work in progress	N/A	73,018	84,446
Finance lease assets and lease financing transactions	5-20	165,923	101,385
Property and equipment, gross		4,158,353	3,681,377
Less — Accumulated depreciation and amortization		(1,821,410)	(1,650,913)
Property and equipment, net of accumulated depreciation		$ 2,336,943	$ 2,030,464

Depreciation expense related to property and equipment is recognized on a straight-line basis over the estimated useful lives of the assets and was $324.8 million, $290.6 million and $255.5 million for the years ended December 31, 2023, 2022 and 2021. In addition, Quanta held property and equipment, net of $245.7 million and $298.0 million in foreign countries, primarily Canada, as of December 31, 2023 and 2022.

Accounts Payable and Accrued Expenses

Accounts payable and accrued expenses consisted of the following (in thousands):

	December 31,	
	2023	2022
Accounts payable, trade	$ 2,027,588	$ 1,302,086
Accrued compensation and related expenses	526,221	469,048
Other accrued expenses	507,433	381,995
Accounts payable and accrued expenses	$ 3,061,242	$ 2,153,129

Other accrued expenses primarily include accrued insurance liabilities, income and franchise taxes payable and deferred revenues.

18. SUPPLEMENTAL CASH FLOW INFORMATION:

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

	December 31,			
	2023	2022	2021	2020
Cash and cash equivalents	$ 1,290,248	$ 428,505	$ 229,097	$ 184,620
Restricted cash included in "Prepaid expenses and other current assets" [1]	3,652	3,759	1,836	1,275
Restricted cash included in "Other assets, net" [1]	1,141	950	954	913
Total cash, cash equivalents, and restricted cash reported in the statements of cash flows	$ 1,295,041	$ 433,214	$ 231,887	$ 186,808

[1] 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):

	Year Ended December 31,		
	2023	2022	2021
Cash paid for amounts included in the measurement of lease liabilities:			
Operating cash flows used by operating leases	$ (95,900)	$ (95,175)	$ (104,434)
Operating cash flows used by finance leases	$ (1,463)	$ (108)	$ (90)
Financing cash flows used by finance leases	$ (2,511)	$ (1,457)	$ (1,001)
Lease assets obtained in exchange for lease liabilities:			
Operating leases	$ 100,594	$ 77,826	$ 73,713
Finance leases	$ 37,299	$ 2,331	$ 1,044
Lease financing transaction assets obtained in exchange for lease financing transaction liabilities	$ 26,969	$ 35,144	$ 11,713

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

	Year Ended December 31,		
	2023	2022	2021
Cash (paid) received during the period for:			
Interest paid	$ (175,782)	$ (106,052)	$ (52,737)
Income taxes paid	$ (248,527)	$ (111,569)	$ (125,328)
Income tax refunds	$ 6,483	$ 8,281	$ 13,257

Accrued capital expenditures were $15.7 million, $13.4 million and $27.4 million as of December 31, 2023, 2022 and 2021. The impact of these items has been excluded from Quanta's capital expenditures in the accompanying consolidated statements of cash flows due to their non-cash nature.

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

There have been no changes in or disagreements with accountants on accounting and financial disclosure within the parameters of Item 304(b) of Regulation S-K.

ITEM 9A. ***Controls and Procedures***

Attached as exhibits to this Annual Report on Form 10-K 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 9A. section 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 Annual Report on Form 10-K, 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 Annual Report, we evaluated the effectiveness of the design and operation of our disclosure controls and procedures pursuant to Rule 13a-15(b), as such disclosure controls and procedures are defined in Rule 13a-15(e) and 15d-15(e) 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 December 31, 2023, our disclosure controls and procedures were effective to provide reasonable assurance of achieving their objectives.

Evaluation of Internal Control over Financial Reporting

Management's report on internal control over financial reporting can be found in Item 8. *Financial Statements and Supplementary Data i*n Part II of this Annual Report under the heading *Report of Management* and is incorporated herein by reference. The report of PricewaterhouseCoopers LLP, an independent registered public accounting firm, on the financial statements, and its opinion on the effectiveness of internal control over financial reporting, can also be found in Item 8. *Financial Statements and Supplementary Data* in Part II of this Annual Report under the heading *Report of Independent Registered Public Accounting Firm* and is incorporated herein by reference.

We acquired five businesses during the year ended December 31, 2023. We are in the process of integrating these acquired businesses into our overall internal control over financial reporting process.

Except as noted above, there has been no change in our internal control over financial reporting that occurred during the quarter ended December 31, 2023 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.

ITEM 9B. ***Other Information***

Insider Trading Arrangements

During the three months ended December 31, 2023, no director or officer of Quanta adopted or terminated a “Rule 10b5-1 trading arrangement” or “non-Rule 10b5-1 trading arrangement,” as each term is defined in Item 408(a) of Regulation S-K.

ITEM 9C. ***Disclosure Regarding Foreign Jurisdictions that Prevent Inspections***

Not applicable.

PART III

ITEM 10. *Directors, Executive Officers and Corporate Governance*

The information required by this Item 10 is incorporated by reference to the definitive proxy statement related to our 2024 Annual Meeting of Stockholders, which is to be filed with the SEC pursuant to the Exchange Act within 120 days following the end of our 2023 fiscal year.

ITEM 11. *Executive Compensation*

The information required by this Item 11 is incorporated by reference to the definitive proxy statement related to our 2024 Annual Meeting of Stockholders, which is to be filed with the SEC pursuant to the Exchange Act within 120 days following the end of our 2023 fiscal year.

ITEM 12. *Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters*

The information required by this Item 12 is incorporated by reference to the definitive proxy statement related to our 2024 Annual Meeting of Stockholders, which is to be filed with the SEC pursuant to the Exchange Act within 120 days following the end of our 2023 fiscal year.

ITEM 13. *Certain Relationships and Related Transactions, and Director Independence*

The information required by this Item 13 is incorporated by reference to the definitive proxy statement related to our 2024 Annual Meeting of Stockholders, which is to be filed with the SEC pursuant to the Exchange Act within 120 days following the end of our 2023 fiscal year.

ITEM 14. *Principal Accounting Fees and Services*

The information required by this Item 14 is incorporated by reference to the definitive proxy statement related to our 2024 Annual Meeting of Stockholders, which is to be filed with the SEC pursuant to the Exchange Act within 120 days following the end of our 2023 fiscal year.

PART IV

ITEM 15. ***Exhibits and Financial Statement Schedules***

The following financial statements, schedules and exhibits are filed as part of this Annual Report on Form 10-K:

(1) *Consolidated financial statements.* The consolidated financial statements are included in Item 8. *Financial Statements and Supplementary Data* in Part II of this Annual Report on Form 10-K.

(2) *Financial statement schedules.* All financial statement schedules are omitted because they are not applicable or the required information is shown in the consolidated financial statements or the notes to the consolidated financial statements in Item 8. *Financial Statements and Supplementary Data* in Part II of this Annual Report on Form 10-K.

(3) *Exhibits.*

EXHIBIT INDEX

Exhibit No.		Description
2.1	—	Agreement and Plan of Merger by and among Blattner Holding Company, Quanta Services, Inc., Quanta Merger Sub, LLC and certain shareholders of Blattner Holding Company, dated as of September 1, 2021 (previously filed as Exhibit 2.1 to the Company's Form 8-K filed October 15, 2021 and incorporated herein by reference)
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 January 13, 2023 (previously filed as Exhibit 3.1 to the Company's Form 8-K filed January 19, 2023 and incorporated herein by reference)
4.1^	—	Description of Quanta Services, Inc.'s Securities Registered Pursuant to Section 12 of the Securities Exchange Act of 1934
4.2	—	Form of Common Stock Certificate (previously filed as Exhibit 4.1 to the Company's Registration Statement on Form S-1/Amendment No. 2 filed February 9, 1998 and incorporated herein by reference)
4.3	—	Indenture, dated as of September 22, 2020, between Quanta Services, Inc. and U.S. Bank National Association, as trustee (previously filed as Exhibit 4.1 to the Company's Form 8-K filed September 25, 2020 and incorporated herein by reference)
4.4	—	First Supplemental Indenture, dated as of September 22, 2020, between Quanta Services, Inc. and U.S. Bank National Association, as trustee (previously filed as Exhibit 4.2 to the Company's Form 8-K filed September 25, 2020 and incorporated herein by reference)
4.5	—	Second Supplemental Indenture, dated as of September 23, 2021, between Quanta Services, Inc. and U.S. Bank National Association, as trustee (previously filed as Exhibit 4.2 to the Company's Form 8-K filed September 23, 2021 and incorporated herein by reference)
4.6	—	Third Supplemental Indenture, dated as of September 23, 2021, between Quanta Services, Inc. and U.S. Bank National Association, as trustee (previously filed as Exhibit 4.3 to the Company's Form 8-K filed September 23, 2021 and incorporated herein by reference)
4.7	—	Fourth Supplemental Indenture, dated as of September 23, 2021, between Quanta Services, Inc. and U.S. Bank National Association, as trustee (previously filed as Exhibit 4.4 to the Company's Form 8-K filed September 23, 2021 and incorporated herein by reference)
4.8	—	Form of 2.900% Senior Notes due 2030 (previously filed as Exhibit 4.3 to the Company's Form 8-K filed September 25, 2020 and incorporated herein by reference)
4.9	—	Form of 0.095% Senior Notes due 2024 (previously filed as Exhibit 4.5 to the Company's Form 8-K filed September 23, 2021 and incorporated herein by reference)
4.10	—	Form of 2.350% Senior Notes due 2032 (previously filed as Exhibit 4.6 to the Company's Form 8-K filed September 23, 2021 and incorporated herein by reference)
4.11	—	Form of 3.050% Senior Notes due 2041 (previously filed as Exhibit 4.7 to the Company's Form 8-K filed September 23, 2021 and incorporated herein by reference)
10.1*	—	Quanta Services, Inc. 2019 Omnibus Equity Incentive Plan (previously filed as Exhibit 10.1 to the Company's Form 8-K filed May 24, 2019 and incorporated herein by reference)
10.2*	—	Amendment No. 1 to the Quanta Services, Inc. 2019 Omnibus Equity Incentive Plan (previously filed as Exhibit 10.2 to the Company's Form 8-K filed May 31, 2022 and incorporated herein by reference)
10.3*	—	Form of RSU Award Agreement for awards to employees/consultants pursuant to the 2019 Omnibus Equity Incentive Plan (previously filed as Exhibit 10.2 to the Company's Form 8-K filed May 24, 2019 and incorporated herein by reference)
10.4*	—	Form of RSU Award Agreement for awards to non-employee directors pursuant to the 2019 Omnibus Equity Incentive Plan (previously filed as Exhibit 10.3 to the Company's Form 8-K filed May 24, 2019 and incorporated herein by reference)
10.5*	—	Form of PSU Award Agreement for awards to employees/consultants pursuant to the 2019 Omnibus Equity Incentive Plan (previously filed as Exhibit 10.4 to the Company's Form 8-K filed May 24, 2019 and incorporated herein by reference)
10.6*	—	Form of RSU Award Agreement for awards to employees/consultants pursuant to the 2019 Omnibus Equity Incentive Plan (adopted August 2023) (previously filed as Exhibit 10.5 to the Company's Form 10-Q for the quarter ended September 30, 2023 filed November 2, 2023 and incorporated herein by reference)

Exhibit No.		Description
10.7*	—	Form of RSU Award Agreement for awards to non-employee directors pursuant to the 2019 Omnibus Equity Incentive Plan (adopted August 2023) (previously filed as Exhibit 10.6 to the Company's Form 10-Q for the quarter ended September 30, 2023 filed November 2, 2023 and incorporated herein by reference)
10.8*	—	Form of PSU Award Agreement for awards to employees/consultants pursuant to the 2019 Omnibus Equity Incentive Plan (adopted August 2023) (previously filed as Exhibit 10.7 to the Company's Form 10-Q for the quarter ended September 30, 2023 filed November 2, 2023 and incorporated herein by reference)
10.9*	—	Employment Agreement, dated August 1, 2023, by and between Quanta Services, Inc. and Earl C. (Duke) Austin, Jr. (previously filed as Exhibit 10.1 to the Company's Form 8-K filed August 3, 2023 and incorporated herein by reference)
10.10*	—	Employment Agreement, dated August 1, 2023, by and between Quanta Services, Inc. and Jayshree Desai (previously filed as Exhibit 10.2 to the Company's Form 8-K filed August 3, 2023 and incorporated herein by reference)
10.11*	—	Employment Agreement dated September 12, 2017, effective as of January 1, 2017, by and between Quanta Services, Inc. and Paul C. Gregory (previously filed as Exhibit 10.1 to the Company's Form 10-Q for the quarter ended September 30, 2017 filed November 9, 2017 and incorporated herein by reference)
10.12*	—	Employment Agreement, dated August 1, 2023, by and between Quanta Services, Inc. and James Redgie Probst (previously filed as Exhibit 10.3 to the Company's Form 8-K filed August 3, 2023 and incorporated herein by reference)
10.13*	—	Employment Agreement, dated August 1, 2023, by and between Quanta Services, Inc. and Derrick A. Jensen (previously filed as Exhibit 10.4 to the Company's Form 8-K filed August 3, 2023 and incorporated herein by reference)
10.14*	—	Quanta Services, Inc. Term Sheet for 2021 Annual Incentive Plan – Corporate Employees, Quanta Services, Inc. Term Sheet for 2021 Senior Leadership Long-Term Incentive Plan and Quanta Services, Inc. Term Sheet for 2021 Discretionary Plan – All Employees (previously filed as Exhibit 10.1 to the Company's Form 8-K filed March 30, 2021 and incorporated herein by reference)
10.15*	—	Quanta Services, Inc. Term Sheet for 2022 Annual Incentive Plan – Corporate Employees, Quanta Services, Inc. Term Sheet for 2022 Senior Leadership Long-Term Incentive Plan and Quanta Services, Inc. Term Sheet for 2022 Discretionary Plan – All Employees (previously filed as Exhibit 10.1 to Quanta's Form 8-K filed March 8, 2022 and incorporated herein by reference)
10.16*	—	Quanta Services, Inc. Term Sheet for 2023 Annual Incentive Plan – Corporate Employees, Quanta Services, Inc. Term Sheet for 2023 Senior Leadership Long-Term Incentive Plan and Quanta Services, Inc. Term Sheet for 2023 Discretionary Plan – All Employees (previously filed as Exhibit 10.1 to Quanta's Form 8-K filed March 14, 2023 and incorporated herein by reference)
10.17*	—	Director Compensation Summary, adopted March 29, 2023 and effective as of May 23, 2023 (previously filed as Exhibit 10.1 to the Company's Form 10-Q for the quarter ended March 31, 2023 filed May 4, 2023 and incorporated herein by reference)
10.18*	—	Quanta Services, Inc. Non-Employee Director Deferred Compensation Plan dated effective January 1, 2017 (previously filed as Exhibit 10.25 to the Company's Form 10-K for the year ended December 31, 2016 filed March 1, 2017 and incorporated herein by reference)
10.19*	—	Quanta Services, Inc. Nonqualified Deferred Compensation Plan, as restated effective January 1, 2017, including the Nonqualified Deferred Compensation Plan Adoption Agreement (previously filed as Exhibit 10.27 to the Company's Form 10-K for the year ended December 31, 2016 filed March 1, 2017 and incorporated herein by reference)
10.20	—	Form of Amended and Restated Indemnity Agreement (previously filed as Exhibit 10.1 to the Company's Form 8-K filed December 11, 2018 and incorporated herein by reference)
10.21	—	Fourth Amended and Restated Credit Agreement, dated as of December 18, 2015, among Quanta Services, Inc. and certain subsidiaries of Quanta Services, Inc., as Borrowers, certain subsidiaries of Quanta Services, Inc. identified therein as Guarantors, Bank of America, N.A., as Administrative Agent, Domestic Swing Line Lender and an L/C Issuer, and the other Lenders party thereto (previously filed as Exhibit 99.1 to the Company's Form 8-K filed December 23, 2015 and incorporated herein by reference)
10.22	—	First Amendment to Fourth Amended and Restated Credit Agreement dated as of June 27, 2016, among Quanta Services, Inc. and certain subsidiaries of Quanta Services, Inc., as Borrowers, certain subsidiaries of Quanta Services, Inc. identified therein as Guarantors, Bank of America, N.A., as Administrative Agent, Domestic Swing Line Lender and an L/C Issuer, and the other Lenders party thereto (previously filed as Exhibit 10.2 to the Company's Form 10-Q filed August 8, 2016 and incorporated herein by reference)

Exhibit No.		Description
10.23	—	Second Amendment to Fourth Amended and Restated Credit Agreement, dated as of October 31, 2017, among Quanta Services, Inc. and certain subsidiaries of Quanta Services, Inc., as Borrowers, certain subsidiaries of Quanta Services, Inc. identified therein as Guarantors, the lenders party thereto, Bank of America, N.A., as Administrative Agent, and the Swing Line Lenders and L/C Issuers party thereto (previously filed as Exhibit 10.1 to the Company's Form 8-K filed November 6, 2017 and incorporated herein by reference)
10.24	—	Third Amendment to Fourth Amended and Restated Credit Agreement, dated as of August 24, 2018, among Quanta Services, Inc. and certain subsidiaries of Quanta Services, Inc., as Borrowers, certain subsidiaries of Quanta Services, Inc. identified therein as Guarantors, the lenders party thereto, Bank of America, N.A., as Administrative Agent, and the Swing Line Lenders and L/C Issuers party thereto (previously filed as Exhibit 10.1 to the Company's Form 8-K filed October 15, 2018 and incorporated herein by reference)
10.25	—	Fourth Amendment to Fourth Amended and Restated Credit Agreement, dated as of October 10, 2018, among Quanta Services, Inc. and certain subsidiaries of Quanta Services, Inc., as Borrowers, certain subsidiaries of Quanta Services, Inc. identified therein as Guarantors, the lenders party thereto, Bank of America, N.A., as Administrative Agent, and the Swing Line Lenders and L/C Issuers party thereto (previously filed as Exhibit 10.2 to the Company's Form 8-K filed October 15, 2018 and incorporated herein by reference)
10.26	—	Incremental Term Loan Amendment and Fifth Amendment to Fourth Amended and Restated Credit Agreement and Omnibus Amendment to Loan Documents, dated as of September 6, 2019, among Quanta Services, Inc. and certain subsidiaries of Quanta Services, Inc., as Borrowers, certain subsidiaries of Quanta Services, Inc. identified therein as Guarantors, the lenders party thereto, Bank of America, N.A., as Administrative Agent, and the L/C Issuers party thereto (previously filed as Exhibit 10.6 to the Company's Form 8-K filed September 9, 2019 and incorporated herein by reference)
10.27	—	Incremental Revolving Credit Increase Agreement and Lender Joinder Agreement, dated as of September 12, 2019, among Quanta Services, Inc. and certain subsidiaries of Quanta Services, Inc., as Borrowers, certain subsidiaries of Quanta Services, Inc. identified therein as Guarantors, BNP Paribas, the Swing Line Lenders and L/C Issuers party thereto and Bank of America, N.A., as Administrative Agent (previously filed as Exhibit 10.4 to the Company's Form 10-Q filed November 1, 2019 and incorporated herein by reference)
10.28	—	Sixth Amendment to Fourth Amended and Restated Credit Agreement, dated as of September 22, 2020, among Quanta Services, Inc. and certain subsidiaries of Quanta Services, Inc., as Borrowers, certain subsidiaries of Quanta Services, Inc. identified therein as Guarantors, the lenders party thereto, Bank of America, N.A., as Administrative Agent, and the Swing Line Lenders and L/C Issuers party thereto (previously filed as Exhibit 10.1 to the Company's Form 8-K filed September 25, 2020 and incorporated herein by reference)
10.29	—	Seventh Amendment to Fourth Amended and Restated Credit Agreement, dated as of May 17, 2021, among Quanta Services, Inc. and certain subsidiaries of Quanta Services, Inc., as Borrowers, the lenders party thereto, Bank of America, N.A., as Administrative Agent, and the Swing Line Lenders and L/C Issuers party thereto (previously filed as Exhibit 10.1 to the Company's Form 10-Q filed August 5, 2021 and incorporated herein by reference)
10.30	—	Eighth Amendment to Fourth Amended and Restated Credit Agreement, dated as of September 9, 2021, among Quanta Services, Inc. and certain subsidiaries of Quanta Services, Inc., as Borrowers, Quanta Services, Inc., as Guarantor, the lenders party thereto, Bank of America, N.A., as Administrative Agent, and the Swing Line Lenders and L/C Issuers party thereto (previously filed as Exhibit 10.1 to the Company's Form 8-K filed October 15, 2021 and incorporated herein by reference)
10.31	—	Ninth Amendment to Fourth Amended and Restated Credit Agreement, dated as of October 8, 2021, among Quanta Services, Inc. and certain subsidiaries of Quanta Services, Inc., as Borrowers, Quanta Services, Inc., as Guarantor, the lenders party thereto, Bank of America, N.A., as Administrative Agent, and the Swing Line Lenders and L/C Issuers party thereto (previously filed as Exhibit 10.2 to the Company's Form 8-K filed October 15, 2021 and incorporated herein by reference)
10.32	—	Tenth Amendment to Fourth Amended and Restated Credit Agreement, dated as of February 4, 2022, among Quanta Services, Inc. and certain subsidiaries of Quanta Services, Inc., as Borrowers, the lenders party thereto and Bank of America, N.A., as Administrative Agent (previously filed as Exhibit 10.37 to the Company's Form 10-K filed February 25, 2022 and incorporated herein by reference)
10.33	—	Eleventh Amendment to Fourth Amended and Restated Credit Agreement, dated as of August 23, 2022, among Quanta Services, Inc., as a borrower and the guarantor, certain subsidiaries of Quanta Services, Inc., as borrowers, the lenders party thereto and Bank of America, N.A., as Administrative Agent (previously filed as Exhibit 10.2 to Quanta's Form 8-K filed August 24, 2022 and incorporated herein by reference)

Exhibit No.		Description
10.34	—	Form of Commercial Paper Dealer Agreement between Quanta Services, Inc. and the Dealer party thereto (previously filed as Exhibit 10.1 to Quanta's Form 8-K filed August 24, 2022 and incorporated herein by reference)
10.35	—	Underwriting, Continuing Indemnity and Security Agreement dated as of March 14, 2005 by Quanta Services, Inc. and the subsidiaries and affiliates of Quanta Services, Inc. identified therein, in favor of Federal Insurance Company (previously filed as Exhibit 10.1 to the Company's Form 8-K filed March 16, 2005 and incorporated herein by reference)
10.36	—	Joinder Agreement and Amendment to Underwriting, Continuing Indemnity and Security Agreement dated as of November 28, 2006, among American Home Assurance Company, National Union Fire Insurance Company of Pittsburgh, Pa., The Insurance Company of the State of Pennsylvania, Federal Insurance Company, Quanta Services, Inc., and the other Indemnitors identified therein (previously filed as Exhibit 99.1 to the Company's Form 8-K filed December 4, 2006 and incorporated herein by reference)
10.37	—	Second Amendment to Underwriting, Continuing Indemnity and Security Agreement dated as of January 9, 2008, among American Home Assurance Company, National Union Fire Insurance Company of Pittsburgh, Pa., The Insurance Company of the State of Pennsylvania, Federal Insurance Company, Quanta Services, Inc., and the other Indemnitors identified therein (previously filed as Exhibit 10.34 to the Company's Form 10-K for the year ended December 31, 2007 filed February 29, 2008 and incorporated herein by reference)
10.38	—	Joinder Agreement and Third Amendment to Underwriting, Continuing Indemnity and Security Agreement dated as of December 19, 2008, among American Home Assurance Company, National Union Fire Insurance Company of Pittsburgh, Pa., The Insurance Company of the State of Pennsylvania, Federal Insurance Company, Quanta Services, Inc., and the other Indemnitors identified therein (previously filed as Exhibit 10.30 to the Company's Form 10-K for the year ended December 31, 2011 filed February 29, 2012 and incorporated herein by reference)
10.39	—	Joinder Agreement and Fourth Amendment to Underwriting, Continuing Indemnity and Security Agreement dated as of March 31, 2009, among American Home Assurance Company, National Union Fire Insurance Company of Pittsburgh, Pa., The Insurance Company of the State of Pennsylvania, Liberty Mutual Insurance Company, Liberty Mutual Fire Insurance Company, Safeco Insurance Company of America, Federal Insurance Company, Quanta Services, Inc., and the other Indemnitors identified therein (previously filed as Exhibit 99.1 to the Company's Form 8-K filed April 1, 2009 and incorporated herein by reference)
10.40	—	Joinder Agreement and Fifth Amendment to Underwriting, Continuing Indemnity and Security Agreement dated as of May 17, 2012, among Federal Insurance Company, Liberty Mutual Insurance Company, Liberty Mutual Fire Insurance Company, Safeco Insurance Company of America, American Home Assurance Company, National Union Fire Insurance Company of Pittsburgh, PA, The Insurance Company of the State of Pennsylvania, Quanta Services, Inc., and the other Indemnitors identified therein (previously filed as Exhibit 10.2 to the Company's Form 10-Q for the quarter ended June 30, 2012 filed August 8, 2012 and incorporated herein by reference)
10.41	—	Sixth Amendment to Underwriting, Continuing Indemnity and Security Agreement dated as of December 3, 2012, among Federal Insurance Company, American Home Assurance Company, National Union Fire Insurance Company of Pittsburgh, PA, The Insurance Company of the State of Pennsylvania, Liberty Mutual Insurance Company, Liberty Mutual Fire Insurance Company, Safeco Insurance Company of America, Quanta Services, Inc., and the other Indemnitors identified therein (previously filed as Exhibit 10.32 to the Company's Form 10-K for the year ended December 31, 2012 filed March 1, 2013 and incorporated herein by reference)
10.42	—	Seventh Amendment to Underwriting, Continuing Indemnity and Security Agreement dated as of August 4, 2015, among Federal Insurance Company; American Home Assurance Company, National Union Fire Insurance Company of Pittsburgh, PA and The Insurance Company of the State of Pennsylvania; Liberty Mutual Insurance Company, Liberty Mutual Fire Insurance Company and Safeco Insurance Company of America; Quanta Services, Inc., the other Indemnitors identified therein; and the Stallone Companies (previously filed as Exhibit 10.2 to the Company's Form 10-Q for the quarter ended June 30, 2018 filed August 7, 2018 and incorporated herein by reference)
10.43	—	Eighth Amendment to Underwriting, Continuing Indemnity and Security Agreement, dated as of September 22, 2020, among Federal Insurance Company, American Home Assurance Company, National Union Fire Insurance Company of Pittsburgh, Pa., The Insurance Company of the State of Pennsylvania, Liberty Mutual Insurance Company, Liberty Mutual Fire Insurance Company, Safeco Insurance Company of America, Quanta Services, Inc. and the other Indemnitors identified therein (previously filed as Exhibit 10.2 to the Company's Form 8-K filed September 25, 2020 and incorporated herein by reference)
21.1^	—	Subsidiaries
23.1^	—	Consent of PricewaterhouseCoopers LLP

Exhibit No.		Description
31.1ˆ	—	Certification of Chief Executive Officer pursuant to Rule 13a-14(a) of the Exchange Act, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
31.2ˆ	—	Certification of Chief Financial Officer pursuant to Rule 13a-14(a) of the Exchange Act, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
32.1†	—	Certification of Chief Executive Officer and Chief Financial Officer pursuant to Rule 13a-14(b) of the Exchange Act and 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
97ˆ	—	Quanta Services, Inc. Policy For Recovery of Erroneously Awarded Compensation
101.INSˆ	—	The following financial statements from the Company's Annual Report on Form 10-K for the year ended December 31, 2023, formatted in Inline XBRL: (i) Consolidated Balance Sheets, (ii) Consolidated Statements of Operations, (iii) Consolidated Statements of Comprehensive Income, (iv) Consolidated Statements of Cash Flows, (v) Consolidated Statements of Equity and (vi) Notes to Consolidated Financial Statements, tagged as blocks of text and with detailed tags
104*	—	The cover page from the Company's Annual Report on Form 10-K for the year ended December 31, 2023, formatted in Inline XBRL (included as Exhibit 101)

* Management contracts or compensatory plans or arrangements

ˆ Filed with this Annual Report on Form 10-K

† Furnished with this Annual Report on Form 10-K

ITEM 16. ***Form 10-K Summary.***

Not applicable.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, Quanta Services, Inc. has duly caused this Report to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Houston, State of Texas, on February 22, 2024.

QUANTA SERVICES, INC.

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

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Earl C. Austin, Jr. and Jayshree S. Desai, each of whom may act without joinder of the other, as their true and lawful attorneys-in-fact and agents, each with full power of substitution and resubstitution, for such person and in his or her name, place and stead, in any and all capacities, to sign any and all amendments to this Annual Report on Form 10-K, and to file the same, with all exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents full power and authority to do and perform each and every act and thing requisite and necessary to be done in and about the premises, as fully to all intents and purposes as he might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents, or their substitutes, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Exchange Act of 1934, this Report has been signed by the following persons in the capacities indicated on February 22, 2024.

Signature	Title
/s/ EARL C. AUSTIN, JR. Earl C. Austin, Jr.	President, Chief Executive Officer and Director (Principal Executive Officer)
/s/ JAYSHREE S. DESAI Jayshree S. Desai	Chief Financial Officer (Principal Financial Officer)
/s/ PAUL M. NOBEL Paul M. Nobel	Chief Accounting Officer (Principal Accounting Officer)
/s/ DOYLE N. BENEBY Doyle N. Beneby	Director
/s/ VINCENT D. FOSTER Vincent D. Foster	Director
/s/ BERNARD FRIED Bernard Fried	Director
/s/ WORTHING F. JACKMAN Worthing F. Jackman	Director
/s/ HOLLI C. LADHANI Holli C. Ladhani	Director
/s/ DAVID M. McCLANAHAN David M. McClanahan	Chairman of the Board of Directors
/s/ R. SCOTT ROWE R. Scott Rowe	Director
/s/ MARGARET B. SHANNON Margaret B. Shannon	Director
/s/ RAÚL J. VALENTÍN Raúl J. Valentín	Director
/s/ MARTHA B. WYRSCH Martha B. Wyrsch	Director

EXHIBIT 4.1

Description of Securities Registered Pursuant to Section 12 of the Securities Exchange Act of 1934

As of the end of the fiscal year covered by the Annual Report on Form 10-K of which this exhibit is part, Quanta Services, Inc., a Delaware corporation ("Quanta," "we," "our" and "us"), had one class of securities registered under Section 12 of the Securities Exchange Act of 1934, as amended (the "Exchange Act"): common stock, par value $0.00001 per share ("common stock"). The following contains a description of our common stock, as well as certain related additional information. This description is a summary only and does not purport to be complete. We encourage you to read the complete text of Quanta's restated certificate of incorporation (the "certificate of incorporation") and amended and restated bylaws (the "bylaws"), which we have filed or incorporated by reference as exhibits to Quanta's Annual Report on Form 10-K. References to "stockholders" refer to holders of our common stock, unless the context otherwise requires.

General

Under our certificate of incorporation, we have the authority to issue 610,000,000 shares of capital stock, consisting of 600,000,000 shares of our common stock and 10,000,000 shares of preferred stock, par value $0.00001 per share ("preferred stock"). All of the outstanding shares of common stock are fully paid and nonassessable.

Voting Rights

Our stockholders are entitled to one vote for each share of common stock held on all matters voted upon by stockholders, including the election of directors.

Under our bylaws, when a quorum is present at any meeting of our stockholders, the affirmative vote of a majority of the votes cast affirmatively or negatively on a matter will be the act of the stockholders, unless the question is one upon which by express provision of law, our certificate of incorporation, or our bylaws, a different vote is required or unless under the rules and regulations of any stock exchange applicable to us or pursuant to any regulation applicable to us or our securities, a different vote is provided, in which case such express provision will govern and control the decision of such question.

Under our bylaws, in connection with an election of directors, each nominee for election in an uncontested election is elected by the vote of the majority of votes cast with respect to such director at any meeting of our stockholders at which a quorum is present, meaning that the number of shares voted for such director must exceed the number of shares voted against such director; provided, however, that in all elections other than uncontested elections, directors will be elected by a plurality of the votes cast at any meeting of the stockholders. If directors are to be elected by a plurality of the votes cast, stockholders will not be permitted to vote against a nominee. Holders of our common stock have no right to cumulate their votes in an election of directors.

Dividend Rights

Subject to the preferred rights of the holders of shares of any class or series of our preferred stock, holders of our common stock are entitled to receive out of our funds legally available therefor, such dividends (payable in cash, stock or otherwise) as Quanta's board of directors (the "board of directors") may from time to time determine, payable to stockholders of record on such dates. The declaration and amount of future dividends is at the discretion of our board of directors and will depend on, among other factors, our financial condition, results of operations, cash flows, current and anticipated expansion plans, requirements under Delaware law and other factors that our board of directors may deem relevant.

Liquidation Rights

Our stockholders are entitled to share equally and ratably in our net assets upon a liquidation or dissolution after the payment or provision for all liabilities, subject to any preferential liquidation rights of any preferred stock that at the time may be outstanding.

No Preemptive, Conversion or Redemption Rights

Our stockholders have no preemptive, subscription, conversion or redemption rights, and are not subject to further calls or assessments by us. There are no sinking fund provisions applicable to our common stock.

Listing

Our common stock is traded on the New York Stock Exchange under the symbol "PWR."

Effects of Certain Provisions of Our Certificate of Incorporation and Bylaws and Delaware Law

Our certificate of incorporation, our bylaws and Delaware law contain provisions that may deter or render more difficult proposals to acquire control of Quanta, including proposals a stockholder might consider to be in his

or her best interest, impede or delay a change in membership of the board of directors and make removal of our management more difficult.

Action by Stockholders Without a Meeting

Our certificate of incorporation provides that any action to be taken by our stockholders must be effected at an annual or special meeting and may not be effected by any consent in writing of such stockholders.

Special Meetings of Stockholders

Our certificate of incorporation and bylaws provide that special meetings of stockholders may be called at any time only by the chairman of the board of directors and shall be called within ten days after receipt of the written request of the board of directors, pursuant to a resolution of a majority of the board of directors to call a special meeting. Holders of our common stock do not have the right to call a special meeting of stockholders. The business transacted at a special meeting of stockholders is confined to the purpose stated in the notice of the meeting.

Advance Notice Provisions

Our bylaws provide that proposals and director nominations made by a stockholder to be voted upon at any annual meeting or special meeting of the stockholders may be considered only if such proposal or director nomination is properly brought before such meeting. In order for any matter, to be considered properly brought before such meeting, a stockholder must comply with certain requirements regarding advance notice to us.

Generally, in the case of an annual meeting, stockholders must deliver to the Secretary of Quanta a written notice between 90 and 120 days before the anniversary date of our immediately preceding annual meeting of the stockholders. In the case of an annual meeting that is more than 30 days before or more than 30 days after such anniversary date, or in the event that no annual meeting was held in the preceding year, stockholders must deliver such notice between 90 and 120 days prior to such annual meeting or within 10 days following the day on which public announcement of the date of such meeting is first made by us. In no event will the adjournment of an annual meeting, or postponement of an annual meeting for which notice was given, or the public announcement of such adjournment or postponement, commence a new time period for any stockholder to give notice.

To be in proper form, the notice must include, among other things, the name and address of the stockholder, certain information regarding the shares owned by the stockholder, a brief description of the business desired to be brought by the stockholder at the meeting, the text of the proposal or business, the reasons for conducting such business at the meeting and any material interest in such business of the stockholder and the beneficial owner, if any, on whose behalf the proposal is made. To nominate directors, the notice must include, as to each person whom the stockholder proposes to nominate for election or re-election as a director, all information relating to such person that would be required to be disclosed in solicitations of proxies for election of directors in an election contest, or is otherwise required, in each case pursuant to Regulation 14A under the Exchange Act, as well as representations regarding whether a director nominee is a party to any agreement with respect to voting or compensation or that might limit such director nominee's exercise of fiduciary duties, among other things. Additionally, the notice must include such other information about the stockholder, each proposal and nominee as required by the Securities and Exchange Commission.

Director nominations and stockholder proposals that are late or that do not include all required information may be rejected. This could prevent stockholders from bringing certain matters before a meeting, including making nominations for directors.

Vacancies on the Board of Directors

Our bylaws provide that, subject to the rights of the holders of any outstanding series of preferred stock and unless otherwise required by law or resolution of our board of directors, vacancies on the board of directors arising through death, resignation, retirement, disqualification or removal, an increase in the number of directors or otherwise may be filled by a majority of the directors then in office, though less than a quorum, or a successor or successors may be chosen at a special meeting of the stockholders called for that purpose.

Issuance of Preferred Stock

Our certificate of incorporation authorizes up to 10,000,000 shares of preferred stock. Preferred stock may be issued in one or more series as may be determined from time to time by the board of directors, and the board of directors, without further approval of the stockholders, is authorized to fix by resolution or resolutions providing for the issue of each such series the voting powers, designations, preferences, and relative, participating, optional, redemption, conversion, exchange or other special rights qualifications, limitations or restrictions of such series, and the number of shares in each series, to the fullest extent permitted by law. The purpose of authorizing the board of directors to determine these rights, preferences, privileges and restrictions is to eliminate delays associated with a stockholder vote on specific issuances. The issuance of preferred stock, while providing flexibility in connection

with possible acquisitions and other corporate purposes, could, among other things, adversely affect the voting power of our then-existing stockholders and, under certain circumstances, make it more difficult for a third party to gain control of Quanta.

Delaware Business Combination Statute

We are a Delaware corporation and are subject to Section 203 of the General Corporation Law of the State of Delaware (the "DGCL"). Section 203 of the DGCL prohibits a "business combination" between a corporation and an "interested stockholder" within three years of the time the stockholder became an interested stockholder, unless:

- prior to such time, the board of directors of the corporation approved either the business combination or the transaction that resulted in the stockholder becoming an interested stockholder;
- upon consummation of the transaction that resulted in the stockholder becoming an interested stockholder, the interested stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction commenced, exclusive of shares owned by directors who are also officers and by certain employee stock plans; or
- at or subsequent to such time, the business combination is approved by the board of directors and authorized at a stockholders' meeting by at least two-thirds of the outstanding voting stock that is not owned by the interested stockholder.

Generally, a "business combination" includes a merger, asset or stock sale, or other transaction resulting in a financial benefit to the interested stockholder. Generally, an "interested stockholder" is a person who owns, individually or with or through other persons, 15% or more of the corporation's outstanding voting stock.

Forum Selection

Our bylaws provide that, unless we consent in writing to the selection of an alternative forum, and to the fullest extent permitted by law, the sole and exclusive forum for certain legal matters will be the Court of Chancery in the State of Delaware (or, if the Court of Chancery does not have jurisdiction, the federal district court for the District of Delaware or other state courts of the State of Delaware). This provision applies to (i) any derivative action or proceeding brought on behalf of Quanta, (ii) any action asserting a claim of breach of a fiduciary duty owed by any of our present or former directors, officers, employees or stockholders to Quanta or our stockholders (including any claim alleging aiding and abetting of such breach of fiduciary duty), (iii) any action asserting a claim arising pursuant to any provision of the DGCL, (iv) any action asserting a claim arising pursuant to any provision of the certificate of incorporation or bylaws (as either may be amended from time to time), or (v) any action asserting a claim governed by the internal affairs doctrine.

Additionally, our bylaws provide unless we consent in writing to the selection of an alternative forum, the federal courts shall be the exclusive forum for the resolution of any complaint asserting a cause of action arising under the Securities Act of 1933, as amended (the "Securities Act") against us or any of our directors, officers, other employees or agents. Section 22 of the Securities Act, however, created concurrent jurisdiction for federal and state courts over all suits brought to enforce any duty or liability created by the Securities Act or the rules and regulations thereunder. Accordingly, there is uncertainty as to whether a court would enforce such provisions, and the enforceability of similar choice of forum provisions in other companies' charter documents has been challenged in legal proceedings. While the Delaware courts have determined that such exclusive forum provisions are facially valid, a stockholder may nevertheless seek to bring a claim in a venue other than those designated in the exclusive forum provisions, and there can be no assurance that such provisions will be enforced by a court in those other jurisdictions. Any person or entity purchasing or otherwise acquiring any interest in our securities shall be deemed to have notice of and consented to these provisions; however, we note that investors cannot waive compliance with the federal securities laws and the rules and regulations thereunder.

Transfer Agent and Registrar

The transfer agent and registrar for our common stock is Equiniti Trust Company, LLC.

Exhibit 21.1

Quanta Services, Inc.
Subsidiaries List

The following is a list of the subsidiaries of Quanta Services, Inc. showing the jurisdiction of incorporation or organization and the names under which each subsidiary does business (in italics). The names of certain subsidiaries may be omitted as such subsidiaries, considered as a single subsidiary, would not constitute a significant subsidiary.

Subsidiary and Names Under Which Subsidiary Does Business	Jurisdiction of Incorporation or Organization
618232 Alberta Ltd. *ValAir*	Alberta
8246408 Canada Inc. *G-TEK* *G-Vac*	Quebec
Advanced Electric Systems, LLC *Advanced Utility Testing & Maintenance, LLC* *Utility Testing & Maintenance, LLC*	Delaware
Alexander Publications, LLC	California
Allteck GP Ltd.	British Columbia
Allteck Limited Partnership	British Columbia
Allteck USA, LLC	Delaware
American Eagle Ready Mix Utah, LLC	Delaware
Arizona Trench Company, LLC	Delaware
Arnett & Burgess Energy Services GP Ltd.	Alberta
Arnett & Burgess Energy Services LP	Alberta
Arnett & Burgess Pipeliners (Rockies) LLC	Delaware
Axcentium Pty Ltd (f/k/a DOD Fueling Contractors Pty Ltd.)	Australia
B&N Clearing and Environmental, LLC	Delaware
Banister Pipelines Constructors GP Ltd.	British Columbia
Banister Pipelines Limited Partnership	British Columbia
Blackbox Technologies International	Texas
Blattner Canada, LLC	Minnesota
Blattner Energy, LLC *Blattner Energy, PLLC*	Minnesota
Blattner Holding Company, LLC *Blattner Company*	Minnesota
Blattner Investments, LLC	Minnesota
Brent Woodward, Inc.	Oregon
Brink Constructors, Inc. *Brink Constructors, Inc. A Corporation Of South Dakota*	South Dakota
Cable Communication Services, LLC	Delaware
Calico Real Property, LLC	Delaware
Canacre USA, LLC	Delaware
CanACRE Ltd.	British Columbia
Canadian Utility Construction GP Ltd.	British Columbia
Canadian Utility Construction Limited Partnership	British Columbia

Carolina Power & Signalization, LLC	Delaware
Catalyst Changers Inc.	Alberta
Catalyst Changers Trinidad, ULC	British Columbia
Cat-Spec, Ltd. *Cat Spec Limited, LP* *Cat Spec, Ltd* *CAT SPEC, Ltd.* *Cat-Spec, Ltd., L.P.* *Cat-Spec, Ltd., LP* *Cat Spec, Ltd. L.P.* *Cat Spec, Ltd., LP* *Cat Spec., Ltd. LP* *Cat-Spec Ltd, LP* *CAT-SPEC, Limited Partnership* *CAT-SPEC, Limited Partnership (Regd Name) CAT SPEC, Ltd. (Part Name)* *Cat-Spec, Ltd., LP (Used in VA By: Cat-Spec, Ltd.)* *Cat-Spec, Ltd (A Domestic limited Partnership)* *Cat-Spec, Ltd. Limited Partnership*	Texas
Citadel Industrial Services, Ltd. *Citadel Industrial Services, L.P.* *Citadel Industrial Services, Ltd. Limited Partnership* *Citadel Industrial Services, Ltd., L.P.*	Texas
Clear Power Alaska Joint Venture, LLC	Delaware
Coe Drilling Pty Ltd. *Coe Group* *Mears Integrity Solutions*	Australia
Conam Construction Co. *Conam Construction Co., Inc.*	Texas
Consolidated Power Projects Australia Pty Ltd *Conpower* *Consolidated Power* *Consolidated Power Industries* *CPP Civil*	Australia
Conti Communications, Inc.	Delaware
Crux Subsurface Canada Ltd.	British Columbia
Crux Subsurface, Inc.	Delaware
D.H. Blattner & Sons, LLC	Minnesota
Dacon Corporation *Dacon Corporation (DE)*	Delaware
Dacon West, LLC	Delaware
Dashiell Corporation *Dashiell (DE) Corporation (Dashiell Corporation)* *Dashiell Corporation DBA Dashiell (DE) Corporation* *Dacon Corporation*	Delaware
Dashiell MI Corporation	Delaware
Dashiell West, LLC	Delaware
Digco Utility Construction, L.P. *Digco Utility Construction Limited Partnership*	Delaware
Dorado Specialty Services, Ltd. *Dorado Specialty Services, L.P.* *Dorado Specialty Services, Ltd. L.P.* *Dorado Specialty Services. Ltd., L.P.*	Texas
EHV Power ULC *EHV Power ULC Corp.*	British Columbia

Elite Construction of Ocala, LLC *Marathon Construction Services*	Delaware
Elite Fabrication, LTD *Elite Fabrication, LP*	Texas
Elite Piping & Civil, Ltd. *Elite Piping & Civil Limited Partnership* *Elite Piping & Civil Ltd, L.P.* *Elite Piping & Civil, Limited Partnership* *Elite Piping & Civil, Ltd. Limited Partnership* *Elite Piping & Civil, Ltd., L.P.* *Elite Piping and Civil, L.P.* *ELITE PIPING & CIVIL, L.P.*	Texas
Elite Turnaround Specialists, Ltd. *Elite Turnaround Specialists Limited Partnership* *Elite Turnaround Specialists Limited Lp* *Elite Turnaround Specialists Ltd. L.P.* *Elite Turnaround Specialists, L.p.* *Elite Turnaround Specialists, Limited Partnership* *ELITE TURNAROUND SPECIALISTS, LTD* *Elite Turnaround Specialists, Ltd, Lp* *Elite Turnaround Specialists, Ltd. Limited Partnership* *Elite Turnaround Specialists, Ltd., LP* *Elite Turnaround Specialists, Ltd. Limited Partnership (Elite Turnaround Specialists, Ltd.)*	Texas
Energy Services West, LLC	Delaware
Enscope Pty Ltd	Australia
Evergreen Environmental Services, L.L.C.	Texas
Evergreen Industrial Services, Inc.	Arkansas
FiberTel, LLC *Fibertel Communications* *Fiber Telecom NV LLC* *Fiber Telecom NV*	Utah
FIC GP, LLC	Delaware
Field Personnel Services, LLC *Field Personnel Services LLC*	Delaware
First Infrastructure Capital Advisors, LLC	Delaware
First Infrastructure Capital GP, L.P.	Delaware
Flare Construction, LLC *Flare Construction, Inc.*	Utah
Fleet Services West, LLC	Delaware
Fueling Systems Contractors, LLC	Delaware
GEM Mobile Treatment Services, Inc.	California
Grid Manufacturing Corporation *Northwest Lineman College*	Idaho
Grid Training Corporation *Northwest Lineman Center* *Northwest Lineman College*	Idaho
H.L. Chapman Pipeline Construction, Inc.	Delaware
Hallen Integrated Construction Services, LLC	Delaware
Haverfield International Incorporated *Haverfield Aviation* *Haverfield Aviation, Inc.*	Delaware

HBK Engineering, LLC *HBK Engineering, PLLC*	Illinois
Helibro, LLC	California
Heritage Midstream, LLC	Delaware
InfraSource Construction, LLC *Infrasource Iowa Underground, LLC* *InfraSources Construction, LLC* *IUC ILLINOIS, LLC* *IUC Nebraska, LLC* *QS Mats* *Trans Tech Electric*	Delaware
Infrasource Electric, LLC	Delaware
Infrasource Equipment Services, LLC	Delaware
InfraSource Services, LLC	Delaware
Infrastructure Tackle & Supply, LLC	Delaware
Innoversa Mobile Solutions GP Ltd.	British Columbia
Innoversa Mobile Solutions Limited Partnership	British Columbia
Innoversa Mobile Solutions, LLC	Delaware
Intermountain Electric, Inc. *Grand Electric Inc.* *IM Electric, Inc.* *Ime Electric* *Intermountain Electric, Inc. which will do business in California as: Colorado IM Electric* *Intermountain Electric, Inc., A Corporation of Colorado*	Colorado
Irby Construction Company *Irby Construction Company, Inc.* *Legend Foundation Services* *Marathon Construction Services*	Mississippi
Irbyvalard, LLC	Delaware
Island Mechanical Corporation	Hawaii
J&R Underground LLC	Wisconsin
J.C.R. Construction Co., Inc. *J.C.R. Utility Construction Co.*	New Hampshire
J.W. Didado Electric, LLC	Delaware
JBT Electric, LLC	Texas
Lazy Q Ranch, LLC *DE Lazy Q Ranch, LLC* *(De) Lazy Q Ranch, LLC* *Lazy Q Line School* *Lazy Q Line School, LLC*	Delaware
Lee Electrical Construction, LLC *Lee Utilities, Inc.*	North Carolina
Lex Engineering Ltd.	British Columbia
Lindsey Electric, L.P.	Texas

M. J. Electric, LLC *Great Lakes Line Builders* *Iron Mountain M.J. Electric, LLC* *IRON POWER SERVICES, A DIVISION OF M. .J ELECTRIC* *Iron Power Services* *Iron Power Services, A Division of M.J. Electric, LLC* *M. J. Electric, LLC – Iron Mountain* *M. J. Electric, LLC DBA M. J. Electric Iron Mountain, LLC* *M. J. ELECTRIC, LLC IRON MOUNTAIN* *M.J. Electric, LLC DBA M.J. Electric Iron Mountain* *M.J. Electric, LLC Iron Mountain* *MJ Drilling, A Division of M. J. Electric* *MJ Drilling, A Division of M. J. Electric, LLC* *MJ Excavating, A Division of M.J.Electric, LLC* *Process Controls & Instrumentation* *Process Controls & Instrumentation, A Division of M. J. Electric, LLC*	Delaware
M.G. Dyess, LLC	Mississippi
MATG I, LLC	Delaware
Mears Broadband, LLC	Delaware
Mears Canada Corp.	Nova Scotia
Mears Electric, LLC	Delaware
Mears Equipment Services, LLC *Infrasource Of Pa, LLC* *Mears Equipment Service, LLC* *QPS Global Services*	Delaware
Mears Group Pty Ltd. *Mears Integrity Solutions*	Australia
Mears Group, Inc. *De Mears Group* *De Mears Group, Inc.* *Enscope* *Ranger Directional*	Delaware
Mears Holdings, LLC *Mears Holdings Ny, LLC* *TN Mears Holdings, LLC*	Delaware
Mears Installation, LLC	Delaware
Mearsmex S. de R.L. de C.V.	Mexico
Mejia Personnel Services, LLC	Texas
Mid America Energy Services, Inc. *TA Construction* *Tom Allen Construction Company Inc.* *Tom Allen Construction Company of Delaware*	Delaware
MTS Quanta, LLC *Mercer Technical Services* *MTS Field Services* *MTS Field Services (Richmond Co)* *Mercer Software Solutions, LLC*	Texas
NACAP Niugini Ltd.	Papua New Guinea
Nacap PNG Limited	Papua New Guinea
Nacap Pty Ltd.	Australia
NAES Northeast, LLC	New York
NLC CA., Inc. *NORTHWEST LINEMAN COLLEGE*	Idaho
NLC FL., Inc. *Northwest Lineman Center*	Idaho

NLC ID., Inc. *Northwest Lineman College*	Idaho
NLC TX., Inc. *Northwest Lineman Center* *Northwest Lineman Training Center* *Northwest Lineman Training Center, Inc.*	Idaho
North American Industrial Services, Inc.	New York
North American Services Group, LLC	Kentucky
North Houston Pole Line, L.P. *North Houston Pole Line Limited Partnership* *QUANTA FOUNDATION SERVICES*	Texas
Northern Powerline Constructors, Inc. *Chatham Electric*	Alaska
NorthStar Energy Services, Inc. *NC Northstar Energy Services, Inc* *NC Northstar Energy Services, Inc.Quanta Underground Services* *Quanta Underground Services (Culpeper Co)* *Quanta Underground Services (Spotsylvania Co)* *Quanta Underground Services, Inc.*	North Carolina
Northstar Energy Solutions, LLC *Northstar Energy, LLC*	Delaware
Nova Constructors LLC	Japan
Nova Equipment Leasing, LLC	Washington
Nova Group, Inc. *NGI Construction* *NGI Construction, Inc.* *NGI Construction, Inc. (FN)* *Nova Group, Inc* *Nova Group, Inc (CA)* *Nova Group, Inc. DBA NGI Construction*	California
Nova NextGen Solutions, LLC	Delaware
NPC Energy Services LLC	Alaska
O. J. Pipelines Canada Corporation *OJ Industrial Maintenance* *O.J. Pipelines Canada* *RMS WELDING SYSTEMS*	New Brunswick
O. J. Pipelines Canada Limited Partnership	Alberta
P.J. Helicopters, Inc.	California
PAR Electrical Contractors, LLC *Computapole* *Didado Utility Company, Inc.* *J.W. Didado Electric* *J.W. Didado Electric, Inc.* *Longfellow Drilling* *Par Electric Contractors, LLC* *QUES* *Riggin & Diggin Line Construction* *Seaward* *Seaward Corp* *Seaward Corporation*	Missouri
Par Internacional, S. de R.L. de C.V.	Mexico
PAR Western Line Contractors, LLC *QUES* *Utility Line Management Services*	Delaware
Pennsylvania Transformer Technology, LLC	Delaware
Performance Energy Services Guyana, Ltd.	British Virgin Islands

Performance Energy Services, L.L.C. *Fuzion Specialty Turnarounds And Piping* *FUZION SPECIALTY TURNAROUNDS AND PIPING*	Louisiana
Phasor Engineering Inc.	Alberta
Phasor Engineering, LLC	Delaware
Phasor Geomatics, Ltd.	Alberta
Phoenix North Constructors Inc.	British Columbia
Phoenix Power Group, Inc.	Delaware
Potelco, Inc. *Potelco, Incorporated*	Washington
Power Engineering Services, LLC	Delaware
Price Gregory International, LLC	Delaware
Price Gregory Services, LLC	Delaware
Probst Electric, Inc. *Advanced Electric Systems* *Probst Construction, Inc.* *Utility Fleet Services*	Utah
QES GP, LLC	Delaware
QESC GP Ltd.	British Columbia
QPS Engineering, LLC *QPS Engineering PLLC* *QPS Environmental* *QPS Global* *QPS Global Services* *QPS Global Services (Richmond Ci)* *QPSE*	Delaware
QPS Flint, LLC *QPS Flint Construction* *QPS Flint Tank Services* *QPS Professional Services* *Quanta Environmental Solutions* *Quanta EPC Services* *Quanta Tank Services*	Delaware
QSI Engineering, Inc.	Delaware
QSI Finance (Australia) Pty Ltd.	Australia
QSI Finance (Cayman) Pvt. Ltd.	Cayman Islands
QSI Finance Canada ULC	British Columbia
QSI Finance GP (US), LLC	Delaware
QSI Finance I (US), LP	Delaware
QSI Finance II (Australia) Pty Ltd.	Australia
QSI Finance II (Lux) S.à r.l	Luxembourg
QSI Finance III (Canada) ULC	British Columbia
QSI Finance III (Lux) SARL	Luxemburg
QSI Finance IV (Canada) ULC	British Columbia
QSI Finance IX (Canada) Limited Partnership	British Columbia
QSI Finance VI (Canada) ULC	British Columbia
QSI Finance VII (Canada) Limited Partnership	British Columbia
QSI Finance VIII (Canada) ULC	British Columbia
QSI Finance X (Canada) ULC	British Columbia
QSI Holdings I (Singapore) Pte. Ltd.	Singapore
QSI Holdings II (Singapore) Pte. Ltd.	Singapore
QSI Investment AR, LLC	Delaware
QSI Investment KORE, LLC	Delaware

QSI Investment UL, LLC	Delaware
QSI Investment VFD, LLC	Delaware
QSI Investment West, LLC	Delaware
QSI Investment, LLC	Delaware
QSI Management, LLC	Delaware
QSI PR, LLC	Puerto Rico
QSI, Inc. *CA-QSI,* *Delaware Inc* *DE QSI INC* *De Qsi Inc.* *QSI (DE), INC.* *Qsi, Inc. Of*	Delaware
QSN Lux Holdings I SCSp	Luxembourg
QSN Lux Holdings II SCSp	Luxembourg
QSN Lux Holdings III SCSp	Luxembourg
QSN Lux Holdings IV SCSp	Luxembourg
Quanta Asset Management LLC	Delaware
Quanta Associates, L.P.	Texas
Quanta Aviation Equipment Company, LLC	Delaware
Quanta Aviation Services, LLC	Delaware
Quanta Canada GP ULC	British Columbia
Quanta Canada Holdings III Limited Partnership	British Columbia
Quanta Canada Holdings LP	Alberta
Quanta Canada III GP Ltd.	British Columbia
Quanta Canada Renewables GP Ltd.	Alberta
Quanta Canada Renewables LP	Alberta
Quanta Capital GP, LLC	Delaware
Quanta Capital LP, L.P.	Delaware
Quanta Capital Solutions, LLC	Delaware
Quanta Cares	Texas
Quanta East, LLC	Delaware
Quanta Electric Power Services West, LLC	Delaware
Quanta Electric Power Services, LLC	Delaware
Quanta Energized Innovations Ltd.	British Columbia
Quanta Energized Services of Canada Limited Partnership	British Columbia
Quanta Energized Services U.S., LLC	Delaware
Quanta Energy Services, LLC	Delaware
Quanta Equipment Company Canada GP Ltd.	Alberta
Quanta Equipment Company Canada Limited Partnership	Alberta
Quanta Equipment Company, LLC *Qec, LLC*	Delaware
Quanta Government Solutions, Inc.	Delaware
Quanta Industrial Solutions, LLC	Delaware
Quanta Infraestructura de Chile SpA	Chile
Quanta Infrastructure Holdings, LLC	Delaware
Quanta Infrastructure Services, LLC	Delaware
Quanta Infrastructure Services, S. de R.L. de C.V.	Mexico

Quanta Infrastructure Solutions Group, LLC *Iron Power Services* *QEPC* *QISG* *QPEC* *Quanta Electric Power Construction, LLC* *Timken Power Systems GS*	Delaware
Quanta Inline Devices, LLC	Texas
Quanta Insurance Company, Inc.	Texas
Quanta International Holdings (US) LLC	Delaware
Quanta International Holdings II, Ltd.	British Virgin Islands
Quanta International Holdings IV, Ltd.	British Virgin Islands
Quanta International Holdings V Ltd.	British Virgin Islands
Quanta International Holdings VI Ltd.	British Virgin Islands
Quanta International Holdings VII, Ltd.	British Virgin Islands
Quanta International Holdings, Ltd.	British Virgin Islands
Quanta International Limited	British Virgin Islands
Quanta Lines Pty Ltd.	Australia
Quanta Marine Services, LLC	Delaware
Quanta Metro, LLC	Delaware
Quanta Mountain West, LLC	Delaware
Quanta Power Australia Pty Ltd	Australia
Quanta Power Delivery, LLC	Delaware
Quanta Power Generation, Inc.	Delaware
Quanta Power Solutions India Private Limited	India
Quanta Services Australia Pty Ltd.	Australia
Quanta Services Chile SpA	Chile
Quanta Services Colombia S.A.S.	Colombia
Quanta Services Costa Rica, Ltda.	Costa Rica
Quanta Services Guatemala, Ltda.	Guatemala
Quanta Services International Holdings II Limited Partnership	British Columbia
Quanta Services International Holdings LP	Alberta
Quanta Services Management Partnership, L.P.	Texas
Quanta Services Netherlands B.V. *Quanta Energized Services Europe* *Quanta Services Netherlands B.V.* *Quanta Technology Europe*	Netherlands
Quanta Services of Canada Ltd.	British Columbia
Quanta Services Peru S.A.C.	Peru
Quanta Services Puerto Rico Holdings, LLC	Delaware
Quanta Services Solutions PR, LLC *Quanta Services Puerto Rico*	Puerto Rico
Quanta Services STPR, LLC *Quanta Services Puerto Rico*	Puerto Rico
Quanta Solar, LLC	Delaware
Quanta Subsurface Canada, Ltd.	British Columbia
Quanta Supply Solutions, LLC	Delaware
Quanta Technology Canada Ltd.	British Columbia
Quanta Technology, LLC *Delaware Quanta Technology, LLC*	Delaware
Quanta Tecnología do Brasil Ltda.	Brazil

Quanta Telecommunication Solutions, LLC *Quanta Telecom* *Quanta Telecom Services* *Quanta Telecommunication Services* *Quanta Telecommunications Services, LLC*	Delaware
Quanta Utility Installation Company, Inc.	Delaware
Quanta Utility Operations PR, LLC	Puerto Rico
Quanta Utility Operations, LLC	Delaware
Quanta West, LLC	Delaware
Quanta Workforce Solutions, LLC	Delaware
R. R. Cassidy, Inc.	Louisiana
Redes Andinas de Comunicaciones S.R.L.	Peru
RMS Holdings, LLC *RMS Holdings, LLC (Delaware)* *RMS Welding Systems* *Rms Welding Systems LLC* *RMS Welding Systems, LLC* *Rms Welding, LLC* *RMS Welding Systems LLC (Used in VA By: RMS Holdings, LLC)* *RMS Welding Systems, LLC (RMS Holdings, LLC)*	Delaware
Road Bore Corporation	Hawaii
Robinson Brothers Construction, LLC *Robinson Brothers Construction , Inc.* *Robinson Brothers Construction, LLC* *Robinson Brothers Construction, LLC A Limited Liability Company of Delaware* *UT RBC, LLC*	Delaware
RP Construction Services, LLC *RP Construction, Inc.* *RPCS Solar Tracking System, LLC* *Rpcs Solar Tracking Systems, Inc.* *Rpcs Solar Tracking Systems, LLC* *Rpcs, Inc*	Delaware
Safety Test & Equipment Company, Inc.	North Carolina
Service Electric Company *P.D.G. Electric* *Service EC (DE), Inc.* *Service Electric Company (DE)* *Service Electric Company of Delaware* *Service Electric Company Of Delaware* *Service Electric Company, Inc.*	Delaware
Servicios de Infraestructura del Peru S.A.C.	Peru
Southern Electric Corporation of Mississippi *Sec Utility Corporation*	Mississippi
Southwest Trenching Company, Inc.	Texas
Specialty Tank Services, Ltd. *Specialty Tank Services Limited Partnership* *Specialty Tank Services, L.P.* *Specialty Tank Services, Limited Partnership* *Specialty Tank Services, LP* *Specialty Tank Services, Ltd. (LP)* *Specialty Tank Services, Ltd. Limited Partnership* *Specialty Tank Services, Ltd. LP* *Specialty Tank Services, Ltd., L.P.* *Specialty Tank Services, Ltd., LP* *Specialty Tank Services, Ltd., LP (Used in VA by: Specialty Tank Services, Ltd.)* *Texas Specialty Tank Services, Ltd. LP*	Texas
Stronghold Companies U.K. Ltd.	United Kingdom

Stronghold General, LLC	Texas
Stronghold Holdings (BVI) Limited	British Virgin Islands
Stronghold Inspection, Ltd. *Stronghold Inspection Limited Partnership* *Stronghold Inspection Ltd, L.P.* *Stronghold Inspection, L.P.* *Stronghold Inspection, Limited Partnership* *Stronghold Inspection, Ltd. Limited Partnership* *Stronghold Inspection, Ltd., L.P.* *Stronghold Inspection, L.P. (Fict Name) Stronghold Inspection, Ltd. (Part Name)* *Stronghold Inspection, Ltd., L.P. (Used in VA By: Stronghold Inspection, Ltd.)*	Texas
Stronghold Specialty General, LLC	Texas
Stronghold Specialty, Ltd. *Stronghold Specialty, Ltd. Limited Partnership*	Texas
Stronghold Tower Group, Ltd. *Stronghold Tower Group, LP* *Stronghold Tower Group, Ltd, LP* *Stronghold Tower Group, Ltd., LP*	Texas
Stronghold VI, LLC	U.S. Virgin Islands
Stronghold, Ltd. *Stronghold Management Holdings, LP* *Stronghold Limited Partnership* *Stronghold, Limited Partnership* *Stronghold, Ltd. Limited Partnership*	Texas
Summit Line Construction, Inc. *Summit Line Construction*	Utah
Sumter Utilities, Inc.	Delaware
T. G. Mercer Consulting Services, Inc.	Texas
TC Infrastructure Services Ltd.	British Columbia
The Aspen Utility Company, LLC *The Aspen Utility Company, LLC*	Texas
The ComTran Group, Inc.	Georgia
The Hallen Construction Co., Inc.	New York
The Ryan Company, Inc. *Ryan Company, Inc. of Massachusetts* *Ryan Company, Inc.(The)* *Ryan Company, Inc., The* *The Massachusetts Ryan Company, Inc.* *The Ryan Company Inc Of Ma* *The Ryan Company Inc of Massachusetts* *The Ryan Company Inc of Massachusetts (Used in VA By: The Ryan Company, Inc.)* *The Ryan Company Inc. of Massachusetts* *The Ryan Company Incorporated Of Massachusetts* *The Ryan Company Of Massachusetts* *The Ryan Company Of Massachusetts, Inc.* *The Ryan Company of Massachusetts* *The Ryan Company of Massachusetts (FN)* *The Ryan Company of Massachusetts, Inc.* *The Ryan Company, Inc. (Massachusetts)* *The Ryan Company, Inc. of Massachusetts* *The Ryan Company, Inc. which will do business in California as: The Ryan Company Incorporated of Massachusetts* *The Ryan Company, Incorporated Electrical Contractors*	Massachusetts

TurnKey Automation, Ltd. *TurnKey Automation Limited Partnership* *TurnKey Automation, Limited Partnership* *Turnkey Automation, Ltd. L.P.* *TurnKey Automation, Ltd. Limited Partnership* *TurnKey Automation, Ltd., Limited Partnership* *TurnKey Automaton, Ltd. L.P.* *TurnKey I&E, Ltd.*	Texas
Underground Construction Co., Inc. *Delaware Underground Construction Co.* *Ucc - Underground Construction Co.* *UCC Underground Construction Co., Inc.* *Underground Construction Co., Inc. (Delaware)*	Delaware
Underground Electric Construction Company, LLC	Delaware
Underground Pipeline Services, LLC	Delaware
Valard Construction (Quebec) Inc.	Quebec
Valard Construction 2008 Ltd.	Alberta
Valard Construction Australia Pty Ltd.	Australia
Valard Construction LP	Alberta
Valard Construction, LLC *Valard*	Delaware
Valard Equipment GP Ltd.	Alberta
Valard Equipment Limited Partnership	Alberta
Valard Geomatics BC, Ltd.	British Columbia
Valard Major Transmission GP Ltd.	Alberta
Valard Major Transmission LP	Alberta
Valard Major Transmission USA, LLC	Delaware
William E. Groves Construction, LLC *Groves Electrical Services*	Kentucky
Winco, Inc. *Winco Helicopters* *Winco Powerline Services* *Winco Powerline Services Inc.* *Winco Powerline Services, Inc.* *Winco, Inc. an Oregon Based Corporation (Used in VA By: Winco, Inc.) Winco, Inc. D/B/A Winco Powerline Services* *Winco, Inc. DBA Winco Services Inc.*	Oregon

Exhibit 23.1

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We hereby consent to the incorporation by reference in the Registration Statements on Form S-3 (No. 333-248776) and Form S-8 (Nos. 333-267093, 333-231769, 333-226780, 333-193616 and 333-174374) of Quanta Services, Inc. of our report dated February 22, 2024 relating to the financial statements and the effectiveness of internal control over financial reporting, which appears in this Form 10-K.

/s/ PricewaterhouseCoopers LLP
Houston, Texas
February 22, 2024

Exhibit 31.1

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

1. I have reviewed this annual report on Form 10-K 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.

Date: February 22, 2024

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

Exhibit 31.2

I, Jayshree S. Desai, certify that:

1. I have reviewed this annual report on Form 10-K 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.

Date: February 22, 2024

By: /s/ JAYSHREE S. DESAI

Jayshree S. Desai
Chief 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-K report for the period ending December 31, 2023 as filed with the U.S. Securities and Exchange Commission (the "Report") fully complies with the requirements of Section 13(a) or 15(d) 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.

Dated: February 22, 2024

/s/ EARL C. AUSTIN, JR.
Earl C. Austin, Jr.
President and Chief Executive Officer

Dated: February 22, 2024

/s/ JAYSHREE S. DESAI
Jayshree S. Desai
Chief Financial Officer

EXHIBIT 97

QUANTA SERVICES, INC.

POLICY FOR RECOVERY OF ERRONEOUSLY AWARDED COMPENSATION

Quanta Services, Inc. (the "***Company***") has adopted this Policy for Recovery of Erroneously Awarded Compensation (the "***Policy***"), effective as of October 2, 2023 (the "***Effective Date***"). Capitalized terms used in this Policy but not otherwise defined herein are defined in Section 11.

1. Persons Subject to Policy

This Policy shall apply to current and former Officers.

2. Compensation Subject to Policy

This Policy shall apply to Incentive-Based Compensation received on or after the Effective Date. For purposes of this Policy, the date on which Incentive-Based Compensation is "received" shall be determined under the Applicable Rules, which generally provide that Incentive-Based Compensation is "received" in the Company's fiscal period during which the relevant Financial Reporting Measure is attained or satisfied, without regard to whether the grant, vesting or payment of the Incentive-Based Compensation occurs prior to or after the end of that period.

3. Recovery of Compensation

In the event that the Company is required to prepare a Restatement, the Company shall recover, reasonably promptly, the portion of any Incentive-Based Compensation that is Erroneously Awarded Compensation, unless the Committee has determined that recovery would be Impracticable. Recovery shall be required in accordance with the preceding sentence regardless of whether the applicable Officer engaged in misconduct or otherwise caused or contributed to the requirement for the Restatement and regardless of whether or when restated financial statements are filed by the Company. For clarity, the recovery of Erroneously Awarded Compensation under this Policy will not give rise to any person's right to voluntarily terminate employment for "good reason," or due to a "constructive termination" (or any similar term of like effect) under any plan, program or policy of or agreement with the Company or any of its affiliates.

4. Manner of Recovery; Limitation on Duplicative Recovery

The Committee shall, in its sole discretion, determine the manner of recovery of any Erroneously Awarded Compensation, which may include, without limitation, reduction or cancellation by the Company or an affiliate of the Company of Incentive-Based Compensation or Erroneously Awarded Compensation, reimbursement or repayment by any person subject to this Policy of the Erroneously Awarded Compensation, and, to the extent permitted by law, an offset of the Erroneously Awarded Compensation against other compensation payable by the Company or an affiliate of the Company to such person. Notwithstanding the foregoing, unless otherwise prohibited by the Applicable Rules, to the extent this Policy provides for recovery of Erroneously Awarded Compensation already recovered by the Company pursuant to Section 304 of the Sarbanes-Oxley Act of 2002 or Other Recovery Arrangements, the amount of Erroneously Awarded Compensation already recovered by the Company from the recipient of such Erroneously Awarded Compensation may be credited to the amount of Erroneously Awarded Compensation required to be recovered pursuant to this Policy from such person.

5. Administration

This Policy shall be administered, interpreted and construed by the Committee, which is authorized to make all determinations necessary, appropriate or advisable for such purpose. The Board of Directors of the Company (the "***Board***") may re-vest in itself the authority to administer, interpret and construe this Policy in accordance with applicable law, and in such event references herein to the "Committee" shall be deemed to be references to the Board. Subject to any permitted review by the applicable national securities exchange or association pursuant to the Applicable Rules, all determinations and decisions made by the Committee pursuant to the provisions of this Policy shall be final, conclusive and binding on all persons, including the Company and its affiliates, equityholders and employees. The Committee may delegate administrative duties with respect to this Policy to one or more directors or employees of the Company, as permitted under applicable law, including any Applicable Rules.

6. Interpretation

This Policy will be interpreted and applied in a manner that is consistent with the requirements of the Applicable Rules, and to the extent this Policy is inconsistent with such Applicable Rules, it shall be deemed amended to the minimum extent necessary to ensure compliance therewith.

7. No Indemnification; No Liability

The Company shall not indemnify or insure any person against the loss of any Erroneously Awarded Compensation pursuant to this Policy, nor shall the Company directly or indirectly pay or reimburse any person for any premiums for third-party insurance policies that such person may elect to purchase to fund such person's potential obligations under this Policy. None of the Company, an affiliate of the Company or any member of the Committee or the Board shall have any liability to any person as a result of actions taken under this Policy.

8. Application; Enforceability

Except as otherwise determined by the Committee or the Board, the adoption of this Policy does not limit, and is intended to apply in addition to, any other clawback, recoupment, forfeiture or similar policies or provisions of the Company or its affiliates, including any such policies or provisions of such effect contained in any employment agreement, bonus plan, incentive plan, equity-based plan or award agreement thereunder or similar plan, program or agreement of the Company or an affiliate or required under applicable law (the "***Other Recovery Arrangements***"). The remedy specified in this Policy shall not be exclusive and shall be in addition to every other right or remedy at law or in equity that may be available to the Company or an affiliate of the Company or is otherwise required by applicable law and regulations.

9. Severability

The provisions in this Policy are intended to be applied to the fullest extent of the law; provided, however, to the extent that any provision of this Policy is found to be unenforceable or invalid under any applicable law, such provision will be applied to the maximum extent permitted, and shall automatically be deemed amended in a manner consistent with its objectives to the extent necessary to conform to any limitations required under applicable law.

10. Amendment and Termination

The Board or the Committee may amend, modify or terminate this Policy in whole or in part at any time and from time to time in its sole discretion. This Policy will terminate automatically when the Company does not have a class of securities listed on a national securities exchange or association.

11. Definitions

"***Applicable Rules***" means Section 10D of the Exchange Act, Rule 10D-1 promulgated thereunder, the listing rules of the national securities exchange or association on which the Company's securities are listed, and any applicable rules, standards or other guidance adopted by the Securities and Exchange Commission or any national securities exchange or association on which the Company's securities are listed.

"***Committee***" means the Compensation Committee of the Board or, in the absence of such a committee, a majority of the independent directors serving on the Board.

"***Erroneously Awarded Compensation***" means the amount of Incentive-Based Compensation received by a current or former Officer that exceeds the amount of Incentive-Based Compensation that would have been received by such current or former Officer based on a restated Financial Reporting Measure, as determined on a pre-tax basis in accordance with the Applicable Rules. For Incentive-Based Compensation based on total stockholder return or stock price, where the amount of Erroneously Awarded Compensation is not subject to mathematical recalculation directly from the information in the Restatement, Erroneously Awarded Compensation is the Committee's reasonable estimate of the effect of the Restatement on the total stockholder return or stock price upon which the Incentive-Based Compensation was received, with documentation of the determination of such reasonable estimate provided by the Company to the applicable listing exchange or association.

"***Exchange Act***" means the Securities Exchange Act of 1934, as amended.

"***Financial Reporting Measure***" means any measure determined and presented in accordance with the accounting principles used in preparing the Company's financial statements, and any measures derived wholly or in part from such measures, including GAAP, IFRS and non-GAAP/IFRS financial measures, as well as stock or share price and total equityholder return.

"***GAAP***" means United States generally accepted accounting principles.

"***IFRS***" means international financial reporting standards as adopted by the International Accounting Standards Board.

"***Impracticable***" means (a) the direct costs paid to third parties to assist in enforcing recovery would exceed the Erroneously Awarded Compensation; provided that the Company has (i) made reasonable attempts to recover the Erroneously Awarded Compensation, (ii) documented such attempt(s), and (iii) provided such documentation to the relevant listing exchange or association, (b) to the extent permitted by the Applicable Rules, the recovery would violate the Company's home country laws pursuant to an opinion of home country counsel; provided that the Company has (i) obtained an opinion of home country counsel, acceptable to the relevant listing exchange or association, that recovery would result in such a violation, and (ii) provided such opinion to the relevant listing exchange or association, or (c) recovery would likely cause an otherwise tax-qualified retirement plan, under which benefits are broadly available to employees of the Company, to fail to meet the requirements of 26 U.S.C. 401(a)(13) or 26 U.S.C. 411(a) and the regulations thereunder.

"***Incentive-Based Compensation***" means, with respect to a Restatement, any compensation that is granted, earned, or vested based wholly or in part upon the attainment of one or more Financial Reporting Measures and received by a person: (a) after beginning service as an Officer; (b) who served as an Officer at any time during the performance period for that compensation; (c) while the Company has a class of its securities listed on a national securities exchange or association; and (d) during the applicable Three-Year Period.

"***Officer***" means each person who serves as an executive officer of the Company, as defined in Rule 10D-1(d) under the Exchange Act.

"***Restatement***" means an accounting restatement to correct the Company's material noncompliance with any financial reporting requirement under securities laws, including restatements that correct an error in previously issued financial statements (a) that is material to the previously issued financial statements or (b) that would result in a material misstatement if the error were corrected in the current period or left uncorrected in the current period.

"***Three-Year Period***" means, with respect to a Restatement, the three completed fiscal years immediately preceding the date that the Board, a committee of the Board, or the officer or officers of the Company authorized to take such action if Board action is not required, concludes, or reasonably should have concluded, that the Company is required to prepare such Restatement, or, if earlier, the date on which a court, regulator or other legally authorized body directs the Company to prepare such Restatement. The "Three-Year Period" also includes any transition period (that results from a change in the Company's fiscal year) within or immediately following the three completed fiscal years identified in the preceding sentence. However, a transition period between the last day of the Company's previous fiscal year end and the first day of its new fiscal year that comprises a period of nine to 12 months shall be deemed a completed fiscal year.