ARCH RESOURCES, INC.

2020 ANNUAL REPORT

ARCH
RESOURCES

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, DC 20549
Form 10-K

☒ ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the fiscal year ended December 31, 2020

or

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

Commission file number: 1-13105

Arch Resources, Inc.
(Exact name of registrant as specified in its charter)

Delaware	**43-0921172**
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification Number)
One CityPlace Drive **Suite 300** **St. Louis** **Missouri**	**63141**
(Address of principal executive offices)	(Zip code)

Registrant's telephone number, including area code: **(314) 994-2700**

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

Title of Each Class	Trading Symbol	Name of Each Exchange on Which Registered
Common Stock, $.01 par value	ARCH	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 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 if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K (229.405 of this chapter) is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. ☒

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, 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. ☒

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

The aggregate market value of the voting stock held by non-affiliates of the registrant (excluding outstanding shares beneficially owned by directors, officers, other affiliates and treasury shares) as of **June 30, 2020** was approximately $430.3 million.

Indicate by check mark whether the registrant has filed all documents and reports required to be filed by Section 12, 13 or 15(d) of the Securities Exchange Act of 1934 subsequent to the distribution of securities under a plan confirmed by a court. Yes ☒ No ☐

At January 31, 2021 there were 15,234,899 shares of the registrant's common stock outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's definitive proxy statement to be filed with the Securities and Exchange Commission in connection with the 2021 annual stockholders' meeting are incorporated by reference into Part III of this Form 10-K.

TABLE OF CONTENTS

If you are not familiar with any of the mining terms used in this report, we have provided explanations of many of them under the caption "Glossary of Selected Mining Terms" on page 35 of this report. Unless the context otherwise requires, all references in this report to "Arch," "we," "us," or "our" are to Arch Resources, Inc. and its subsidiaries.

CAUTIONARY STATEMENTS REGARDING FORWARD-LOOKING INFORMATION

This report contains forward-looking statements, within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended, such as our expected future business and financial performance, and are intended to come within the safe harbor protections provided by those sections. The words "anticipates," "believes," "could," "estimates," "expects," "intends," "may," "plans," "predicts," "projects," "seeks," "should," "will" or other comparable words and phrases identify forward-looking statements, which speak only as of the date of this report. Forward-looking statements by their nature address matters that are, to different degrees, uncertain. Actual results may vary significantly from those anticipated due to many factors, including:

- changes in the demand for our coal, by the steel industries and electric generation;
- geologic conditions, weather and other inherent risks of coal mining that are beyond our control;
- competition, both within our industry and with producers of competing energy sources, including the effects from any current or future legislation or regulations designed to support, promote or mandate renewable energy sources;
- excess production and production capacity;
- our ability to acquire or develop coal reserves in an economically feasible manner;
- our ability to fund substantial capital expenditures;
- inaccuracies in our estimates of our coal reserves;
- availability and price of mining and other industrial supplies;
- disruptions in the supply of coal from third parties;
- availability of skilled employees and other workforce factors;
- our ability to collect payments from our customers;
- defects in title or the loss of a leasehold interest;
- railroad, barge, truck, ocean vessel and other transportation performance and costs;
- our ability to successfully integrate the operations that we acquire;
- our ability to successfully dispose of the operations that we sell;
- our ability to secure new coal supply arrangements or to renew existing coal supply arrangements;
- our relationships with, and other conditions affecting our customers;
- the loss of, or significant reduction in, purchases by our largest customers;
- our ability to service our outstanding indebtedness and raise funds necessary to repurchase Convertible Notes for cash following a fundamental change or to pay any cash amounts due upon conversion;

- our ability to comply with the restrictions imposed by our Term Loan Debt Facility, Extended Securitization Facility, Inventory Facility, Equipment Financing, Tax Exempt Bonds, Convertible Debt (each as defined below), other financing arrangements or any subsequent financing or credit facilities;
- additional demands for credit support by third parties and decisions by banks, surety bond providers, or other counterparties to reduce or eliminate their exposure to the coal industry;
- access to capital and its associated costs;
- development of future technology to replace coal with hydrogen in the steel making process;
- risks related to operating as an essential service producer during the COVID-19 pandemic;
- impact of COVID-19 on efficiency, costs, and production;
- the availability and cost of surety bonds; including potential collateral requirements;
- our ability to manage the market risks and other risks associated with certain trading and other asset optimization strategies;
- cyber-attacks or other security breaches that disrupt our operations, or that result in the unauthorized release of proprietary or confidential information;
- the loss of key personnel or the failure to attract additional qualified personnel;
- the effects of foreign and domestic trade policies, actions or disputes on the level of trade among the countries and regions in which we operate, the competitiveness of our exports, or our ability to export;
- terrorist attacks, military action or war;
- our ability to obtain and renew various permits;
- existing and future legislation and regulations affecting both our coal mining operations and our customers' coal usage, governmental policies and taxes, including those aimed at reducing emissions of elements such as mercury, sulfur dioxides, nitrogen oxides, particulate matter or greenhouse gases;
- existing and future litigation based on the alleged effects of climate change;
- the accuracy of our estimates of reclamation and other mine closure obligations;
- the existence of hazardous substances or other environmental contamination on property owned or used by us;
- the number and quantity of viable financing alternatives available to us may be significantly impacted by unfavorable lending and investment policies by financial institutions and insurance companies associated with concerns about environmental impacts of coal combustion, and negative views around our efforts with respect to environmental and social matters and related governance considerations could harm the perception of our company by certain investors or result in the exclusion of our securities from consideration by those investors;
- other factors, including those discussed in "Legal Proceedings", set forth in Item 3 of this report and "Risk Factors," set forth in Item 1A of this report.

All forward-looking statements in this report, as well as all other written and oral forward-looking statements attributable to us or persons acting on our behalf, are expressly qualified in their entirety by the cautionary statements contained in this section and elsewhere in this report. These factors are not necessarily all of the important factors that could affect us. These risks and uncertainties, as well as other risks of which we are not aware or which we currently do not believe to be material, may cause our actual future results to be materially different than those expressed in our forward-looking statements. These forward-looking statements speak only as of the date on which such statements were made, and we do not undertake to update our forward-looking statements, whether as a result of new information, future events or otherwise, except as may be required by the federal securities laws.

PART I

ITEM 1. BUSINESS

Introduction

We are one of the world's largest coal producers and a premier producer of metallurgical coal. For the year ended December 31, 2020, we sold approximately 63 million tons of coal, including approximately 0.9 million tons of coal we purchased from third parties. We sell substantially all of our coal to steel mills, power plants and industrial facilities. At December 31, 2020, we operated 7 active mines located in many of the major coal-producing regions of the United States. The locations of our mines and access to export facilities enable us to ship coal worldwide. We incorporate by reference the information about the geographical breakdown of our coal sales for the respective periods covered within this Form 10-K contained in Note 24 to the Consolidated Financial Statements, "Risk Concentrations."

Business Strategy

We are a leading U.S. producer of metallurgical products for the global steel industry, and the leading supplier of premium High-Vol A metallurgical coal globally. We operate four large, modern metallurgical mines that consistently set the industry standard for both mine safety and environmental stewardship. The flagship Leer mine consistently ranks among the lowest cost U.S. metallurgical mines and produces a product quality that is recognized and sought-after worldwide.

An Arch subsidiary is in the process of developing a second world-class longwall mine known as Leer South on the same reserve base as Leer. Leer South is expected to commence longwall production in the third quarter of 2021. The startup of Leer South is expected to increase our annual High-Vol A output to around 8 million tons per year, and is expected to enhance our already advantageous position on the U.S. cost curve; strengthen our coking coal profit margins across a wide range of market conditions; and solidify our position as the leading supplier of High-Vol A coal globally.

The Leer and Leer South operations are complemented by the Beckley and Mountain Laurel mines, which in aggregate provide us with a full suite of high-quality metallurgical products for sale into the global metallurgical market.

Arch and its subsidiaries also operate thermal mines in the United States in the Powder River Basin and Colorado. These mines produce thermal coal for sale into the domestic and international power generation markets.

Coal Characteristics

End users generally characterize coal as thermal coal or metallurgical coal. Heat value, sulfur, ash, moisture content, and volatility, in the case of metallurgical coal, are important variables in the marketing and transportation of coal. These characteristics help producers determine the best end use of a particular type of coal. The following is a description of these general coal characteristics:

Heat Value. In general, the carbon content of coal supplies most of its heating value, but other factors also influence the amount of energy it contains per unit of weight. The heat value of coal is commonly measured in Btus. Coal is generally classified into four categories, lignite, subbituminous, bituminous and anthracite, reflecting the progressive response of individual deposits of coal to increasing heat and pressure. Anthracite is coal with the highest carbon content and, therefore, the highest heat value, nearing 15,000 Btus per pound. Bituminous coal, used primarily to generate electricity and to make coke for the steel industry, has a heat value ranging between 10,500 and 15,500 Btus per pound. Subbituminous coal ranges from 8,300 to 13,000 Btus per pound and is generally used for electric power generation. Lignite coal is a geologically young coal which has the lowest carbon content and a heat value ranging between 4,000 and 8,300 Btus per pound.

Sulfur Content. Federal and state environmental regulations, including regulations that limit the amount of sulfur dioxide that may be emitted as a result of combustion, have affected and may continue to affect the demand for certain types of coal. The sulfur content of coal can vary from seam to seam and within a single seam. The chemical composition and concentration of sulfur in coal affects the amount of sulfur dioxide produced in combustion. Coal-fueled power plants can comply with sulfur dioxide emission regulations by burning coal with low sulfur content, blending coals with various sulfur contents, purchasing emission allowances on the open market and/or using sulfur dioxide emission reduction technology.

Ash. Ash is the inorganic material remaining after the combustion of coal. As with sulfur, ash content varies from seam to seam. Ash content is an important characteristic of coal because it impacts boiler performance and electric generating plants must handle and dispose of ash following combustion. The composition of the ash, including the proportion of sodium oxide and fusion temperature, is also an important characteristic of coal, as it helps to determine the suitability of the coal to end users. The absence of ash is also important to the process by which metallurgical coal is transformed into coke for use in steel production.

Moisture. Moisture content of coal varies by the type of coal, the region where it is mined and the location of the coal within a seam. In general, high moisture content decreases the heat value and increases the weight of the coal, thereby making it more expensive to transport. Moisture content in coal, on an as-sold basis, can range from approximately 2% to over 30% of the coal's weight.

Other. Users of metallurgical coal measure certain other characteristics, including fluidity, swelling capacity and volatility to assess the strength of coke produced from a given coal or the amount of coke that certain types of coal will yield. These characteristics are important elements in determining the value of the metallurgical coal we produce and market.

Industry Overview

Background. Coal is mined globally using various methods of surface and underground recovery. Coal is primarily used for steel production and electric power generation, but it is also used for certain industrial processes such as cement production. Coal is a globally marketed commodity and can be transported to demand centers by ocean-going vessels, barge, rail, truck or conveyor belt.

In 2020, world coal production fell, due to the effects of COVID-19 and increasing demand for competing fuels used for power generation, after having increased around 0.5% to approximately 8.1 billion metric tons in 2019 according to BP's Statistical Review. China is the largest producer of coal in the world with over 3.8 billion metric tons in 2020 according to the Chinese National Bureau of Statistics. Other major producers of coal are India, Indonesia, Australia, United States and Russia. U.S. coal production fell by approximately 24% in 2020 to around 487 million metric tons due to lower demand for power generation. The significant annual drop in coal output likely made the U.S. the fifth largest coal producer after trailing only China in the past decade.

Steel is produced via two main methods: basic oxygen furnace (BOF) and electric arc furnace (EAF). EAF steelmaking produces steel by using an electrical current to melt scrap steel, while BOF steelmaking relies on coke and iron ore as key inputs to produce pig iron, which is then converted into steel. Metallurgical coal is a key part of the BOF process as it is used to make coke.

Approximately 72% of global steel is produced via the BOF steelmaking process, while in the U.S., BOF accounts for around 30% of steel production. The main steel producing countries are China, India, Japan, U.S., Russia, South Korea, Germany, Turkey, Brazil and Vietnam. Arch sells high-quality metallurgical products that are essential inputs for BOF steel production. Our focus is to be a premier low-cost, metallurgical coal supplier to the global steel industry.

In most global regions steel output fell sharply in 2020 due to COVID-19 induced economic slowdown and industrial production stoppages. World steel production decreased under 1% in 2020. In Europe, North America, South America, and some parts of Asia steel production levels fell by more than 16% in 2020 compared to 2019. Chinese steel production was an outlier during the year of the pandemic, and increased around 5%. As economic activity began to recover throughout the year so did steel production. Many of the countries that suffered significant steel production reductions were close to reaching pre-pandemic monthly levels towards the end of 2020.

Global trade of metallurgical coal was also affected by the pandemic. We estimate metallurgical coal import-export trade flows decreased by around 10% in 2020. The primary nations that supply seaborne metallurgical coal to the global steel markets are Australia, United States, Canada, and Russia.

We rank among the largest metallurgical coal producers in the U.S. Based on internal estimates, we produced around 10% of total U.S. metallurgical coal, which was estimated to be close to 60 million tons in 2020. Our metallurgical coal was sold to 5 North American customers and exported to 26 customers overseas in 14 countries.

All of our metallurgical coal is produced at operations in West Virginia. Approximately 50% of the metallurgical coal produced in the U.S. is produced in West Virginia. Carbon content, volatile matter, fluidity, coke strength after reaction (CSR), and other chemical and physical properties are among critical characteristics for metallurgical coal. We produced coal used for electric power generation (thermal) from our mines located in Wyoming and Colorado.

Much of our coal is sold at the mine where title and risk of loss transfer to the customer as coal is loaded into the railcar or truck. Customers are generally responsible for transportation - typically using third party carriers. There are, however, some agreements where we retain responsibility for the coal during delivery to the customer site or intermediate terminal. Our export coals usually change title and risk of loss as the coal is loaded on a vessel. Normally we contract for transportation services from the mine to the ocean loading port. On occasion, we retain title to the coal to the ocean receiving port.

We seek to establish long-term relationships with customers through exemplary customer service while operating safe and environmentally responsible mines. In 2020, approximately 91% of our coal sales volume was sold as a thermal product with the remaining 9% as metallurgical. However, due to the significantly higher value and selling price of our metallurgical coal, our metallurgical segment contributed around 44% of our sales revenue in 2020.

We operate in a very competitive environment. We compete with domestic and international coal producers, traders or brokers, and non-coal based power producers, as well as with electric arc based steel producers. We compete using price, coal quality, transportation, optionality, customer administration, reputation and reliability.

Coal prices are tied to supply and demand patterns, which are influenced by many uncontrollable factors. For power generation, the price of coal is affected by the relative supply and demand of competitive coal, transportation, availability, weather, competing power generation fuels, governmental subsidies of alternate energy sources, regulations and economic conditions. For metallurgical coal, the price of coal is affected by the supply, demand of competitive coal, transportation, the price of steel, the price of scrap, demand for steel, transportation rates, strength of the U.S. dollar, regulations, international trade disputes and economic conditions.

We have an experienced and knowledgeable sales and marketing group. This group is dedicated to meeting customer needs, coordinating transportation, and managing risk.

U.S. Coal Production. The United States is among the top five largest coal producers in the world. According to the U.S. Energy Information Administration (EIA), there are over 250 billion short tons of recoverable coal in the United States. The U.S. Department of Energy estimates that current domestic recoverable coal reserves could supply enough electricity to satisfy domestic demand for over 300 years.

Coal is mined from coal basins throughout the United States, with the major production centers located in the western United States, the Appalachian region and the Interior. According to the preliminary information from EIA and Mine Safety and Health Administration (MSHA), U.S. coal production decreased by an estimated 170 million short tons in 2020, to around 537 million short tons.

The EIA subdivides United States coal production into three major areas: Western, Appalachia and Interior.

The Western area includes the Powder River Basin and the Western Bituminous region. According to the EIA, coal produced in the western United States decreased from an estimated 382 million short tons in 2019 to 303 million short tons in 2020. The Powder River Basin is located in northeastern Wyoming and southeastern Montana and is the largest producing region in the United States. Coal from this region is sub-bituminous coal with low sulfur content ranging from 0.2% to 0.9% and heating values ranging from 8,300 to 9,500 BTU/lb. Powder River Basin coal generally has a lower heat content than other regions and is produced from thick seams using surface recovery methods. The Western Bituminous region includes Colorado, Utah and southern Wyoming. Coal from this region typically has low sulfur content ranging from 0.4% to 0.8% and heating values ranging from 10,000 to 12,200 BTU/lb. Western bituminous coal has certain quality characteristics, especially its higher heat content and low sulfur, that make this a desirable coal for domestic and international power producers.

The Appalachia region is divided into north, central and southern regions. According to the EIA, coal produced in the Appalachian region decreased from 193 million short tons in 2019 to 143 million short tons in 2020. Appalachian coal is located near the prolific eastern shale-gas producing regions. Central Appalachian thermal coal is disadvantaged for power generation because of the depletion of economically attractive reserves, increasing costs of production and permitting issues. However, virtually all U.S. metallurgical coal is produced in Appalachia and the relative scarcity and high quality of this coal allows for a pricing premium over thermal coal. Appalachia, while still a major producer of thermal coal, is undergoing a shift towards heavier reliance on metallurgical coal production for both domestic and international use. This is especially the case in Central Appalachia.

Northern Appalachia includes Pennsylvania, Northern West Virginia, Ohio and Maryland. Coal from this region generally has a high heat value ranging from 10,300 to 13,500 BTU/lb and a sulfur content ranging from 0.8% to 4.0%. Central Appalachia includes Southern West Virginia, Virginia, Kentucky and Northern Tennessee. Coal mined from this region generally has a high heat value ranging from 11,400 to 13,200 BTU/lb and low sulfur content ranging from 0.2% to 2.0%. Southern Appalachia primarily covers Alabama and generally has a heat content ranging from 11,300 to 12,300 BTU/lb and a sulfur content ranging from 0.7% to 3.0%. Southern Appalachia mines are primarily focused on metallurgical markets.

The Interior region includes the Illinois Basin and Gulf Lignite production in Texas and Louisiana, and a small producing area in Kansas, Oklahoma, Missouri and Arkansas. The Illinois Basin is the largest producing region in the Interior and consists of Illinois, Indiana and western Kentucky. According to the EIA, coal produced in the Interior region decreased from 131 million short tons in 2019 to approximately 91 million short tons in 2020. Coal from the Illinois Basin generally has a heat value ranging from 10,100 to 12,600 BTU/lb and has a sulfur content ranging from 1.0% to 4.3%. Despite its high sulfur content, coal from the Illinois Basin can generally be used by electric power generation facilities that have installed emissions control devices, such as scrubbers.

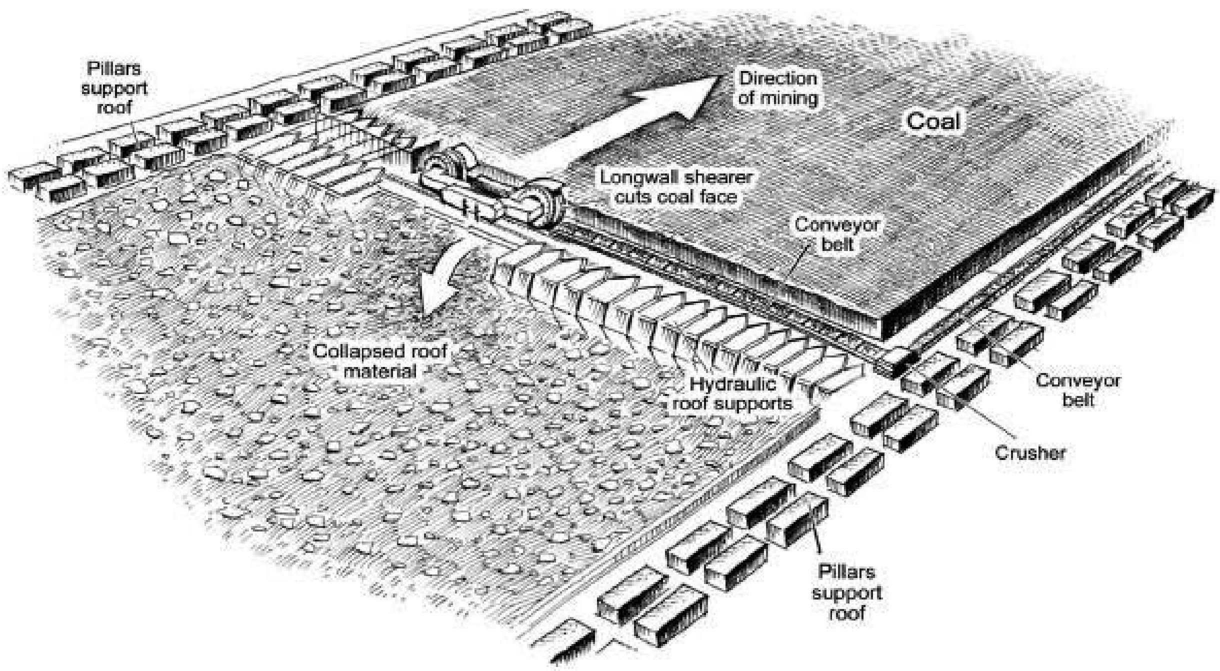
Coal Mining Methods

The geological characteristics of our coal reserves largely determine the coal mining method we employ. We use two primary methods of mining coal: underground mining and surface mining.

Underground Mining. We use underground mining methods when coal is located deep beneath the surface. We have included the identity and location of our underground mining operations below under "Our Mining Operations-General."

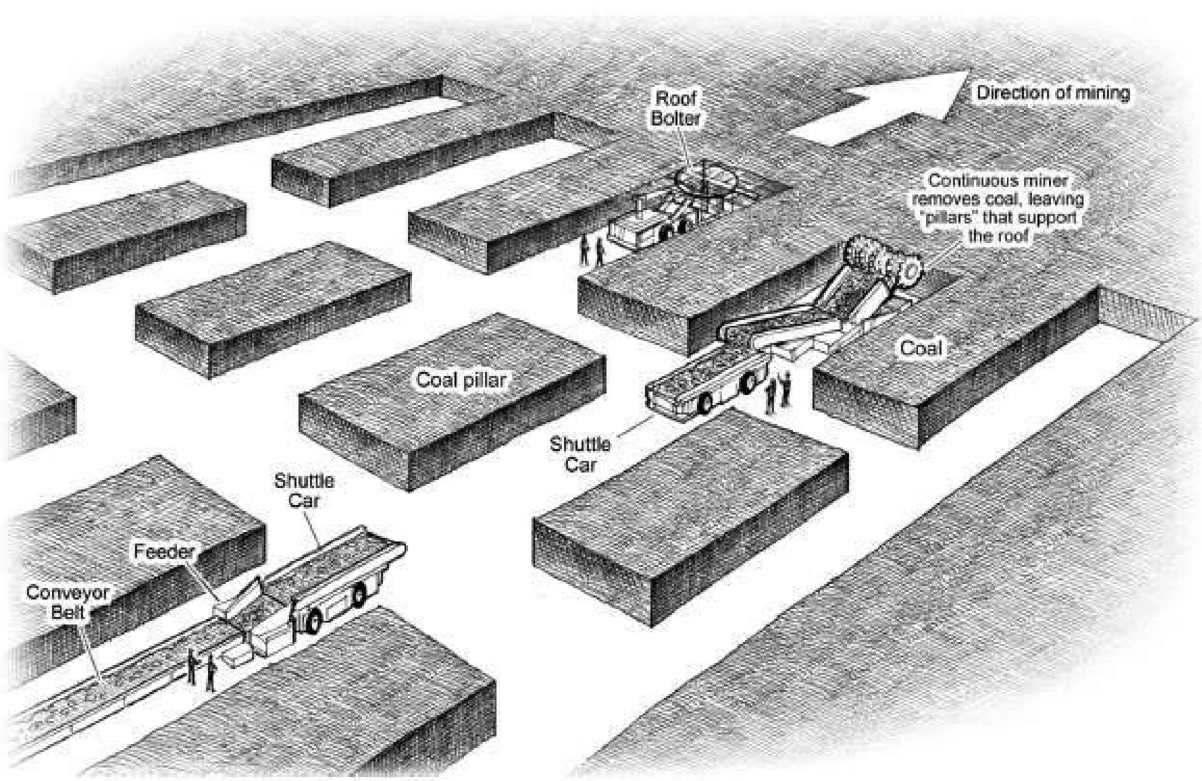
Our underground mines are typically operated using one or both of two different mining techniques: longwall mining and room-and-pillar mining.

Longwall Mining. Longwall mining involves using a mechanical shearer to extract coal from long rectangular blocks of medium to thick seams. Ultimate seam recovery using longwall mining techniques can exceed 75%. In longwall mining, continuous miners are used to develop access to these long rectangular coal blocks. Hydraulically powered supports temporarily hold up the roof of the mine while a rotating drum mechanically advances across the face of the coal seam, cutting the coal from the face. Chain conveyors then move the loosened coal to an underground mine conveyor system for delivery to the surface. Once coal is extracted from an area, the roof is allowed to collapse in a controlled fashion. The following diagram illustrates a typical underground mining operation using longwall mining techniques:



Room-and-Pillar Mining. Room-and-pillar mining is effective for small blocks of thin coal seams. In room-and-pillar mining, a network of rooms is cut into the coal seam, leaving a series of pillars of coal to support the roof of the mine. Continuous miners are used to cut the coal and shuttle cars are used to transport the coal to a conveyor belt for further transportation to the surface. The pillars generated as part of this mining method can constitute up to 40% of the total coal in a seam. Higher seam recovery rates can be achieved if retreat mining is used. In retreat mining, coal is mined from the pillars as workers retreat. As retreat mining occurs, the roof is allowed to collapse in a controlled fashion.

The following diagram illustrates our typical underground mining operation using room-and-pillar mining techniques:



Coal Preparation and Blending. We crush the coal mined from our Powder River Basin mining complexes and ship it directly from our mines to the customer. Typically, no additional preparation is required for a saleable product. Coal extracted from some of our underground mining operations contains impurities, such as rock, shale and clay occupying a wide range of particle sizes. All of our mining operations in the Appalachia region use a coal preparation plant located near the mine or connected to the mine by a conveyor. These coal preparation plants allow us to treat the coal we extract from those mines to ensure a consistent quality and to enhance its suitability for particular end-users. In addition, depending on coal quality and customer requirements, we may blend coal mined from different locations, including coal produced by third parties, in order to achieve a more suitable product.

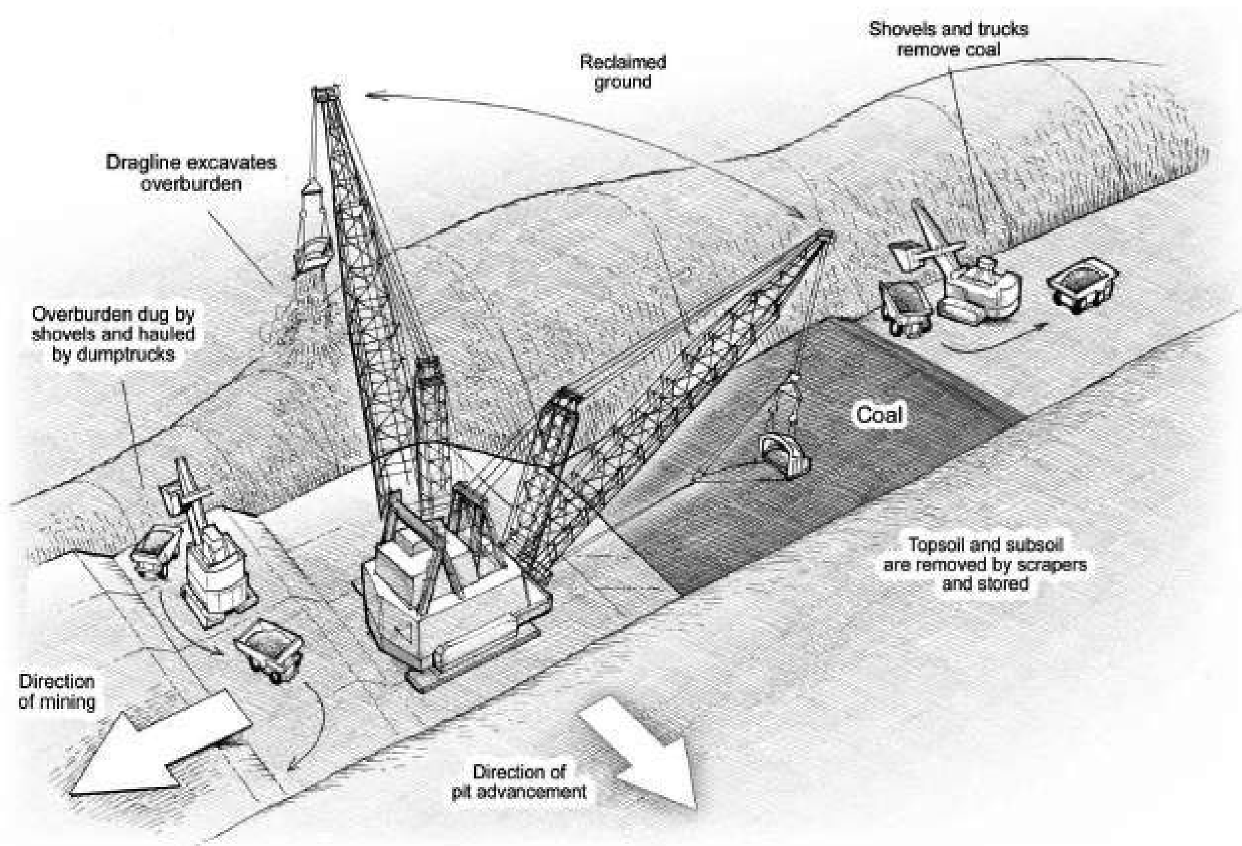
The treatments we employ at our preparation plants depend on the size of the raw coal. For coarse material, the separation process relies on the difference in the density between coal and waste rock and, for the very fine fractions, the separation process relies on the difference in surface chemical properties between coal and the waste minerals. To remove impurities, we crush raw coal and classify it into various sizes. For the largest size fractions, we use dense media vessel separation techniques in which we float coal in a tank containing a liquid of a pre-determined specific gravity. Since coal is lighter than its impurities, it floats, and we can separate it from rock and shale. We treat intermediate sized particles with dense medium cyclones, in which a liquid is spun at high speeds to separate coal from rock. Fine coal is treated in spirals, in which the differences in density between coal and rock allow them, when suspended in water, to be separated. Ultra fine coal is recovered in column flotation cells utilizing the differences in surface chemistry between coal and rock. By injecting stable air bubbles through a suspension of ultra-fine coal and rock, the coal particles adhere to the bubbles and rise to the surface of the column where they are removed. To minimize the moisture content in coal, we process most coal sizes through centrifuges. A centrifuge spins coal very quickly, causing water accompanying the coal to separate.

For more information about the locations of our preparation plants, you should see the section entitled “Our Mining Operations.”

Surface Mining. We use surface mining when coal is found close to the surface. We have included the identity and location of our surface mining operations below under “Our Mining Operations-General.” The majority of the thermal coal we produce comes from surface mining operations.

Surface mining involves removing the topsoil then drilling and blasting the overburden (earth and rock covering the coal) with explosives. We then remove the overburden with heavy earth-moving equipment, such as draglines, power shovels, excavators and loaders. Once exposed, we drill, fracture and systematically remove the coal using haul trucks or conveyors to transport the coal to a preparation plant or to a loadout facility. We reclaim disturbed areas as part of our normal mining activities. After final coal removal, we use draglines, power shovels, excavators or loaders to backfill the remaining pits with the overburden removed at the beginning of the process. Once we have replaced the overburden and topsoil, we reestablish vegetation and plant life into the natural habitat and make other improvements that have local community and environmental benefits.

The following diagram illustrates a typical dragline surface mining operation:



Our Mining Operations

General. At December 31, 2020, we operated 7 active mines in the United States. Our reportable business segments are based on two distinct lines of business, metallurgical coal and thermal coal, and may include a number of mine complexes. We manage our coal sales by market, not by individual mining complex. Geology, coal transportation routes to customers, and regulatory environments also have a significant impact on our marketing and operations management. Our mining operations are evaluated based on Adjusted EBITDA, per-ton cash operating costs (defined as including all mining costs except depreciation, depletion, amortization, accretion on asset retirements obligations, and pass-through transportation expenses divided by segment tons sold), and on other non-financial measures, such as safety and environmental performance. Adjusted EBITDA is defined as net income (loss) attributable to the Company before the effect of net interest expense, income taxes, depreciation, depletion and amortization, the amortization of sales contracts, and the accretion on asset retirement obligations. Adjusted EBITDA may also be adjusted for items that may not reflect the trend of future results by excluding transactions that are not indicative of our core operating performance. We use Adjusted EBITDA to measure the operating performance of our segments and allocate resources to our segments. Adjusted EBITDA is not a measure of financial performance in accordance with generally accepted accounting principles, and items excluded from Adjusted EBITDA are significant in understanding and assessing our financial condition. Therefore, Adjusted EBITDA should not be considered in isolation, nor as an alternative to net income (loss), income (loss) from operations, cash flows from operations or as a measure of our profitability, liquidity or performance under generally accepted accounting principles. Furthermore, analogous measures are used by industry analysts to evaluate the Company's operating performance. Investors should be aware that our presentation of Adjusted EBITDA may not be comparable to similarly titled measures used by other companies. Our reportable segments are the Powder River Basin (PRB) segment containing our primary thermal operations in Wyoming; the Metallurgical (MET) segment, containing our metallurgical operations in West Virginia and the Other Thermal segment containing our supplementary thermal operations in Colorado. For additional information about the operating results of each of our segments for the years ended December 31, 2020, 2019, and 2018, see Note 27 to the Consolidated Financial Statements, "Segment Information."

In general, we have developed our mining complexes and preparation plants at strategic locations in close proximity to rail or barge shipping facilities. Coal is transported from our mining complexes to customers by means of railroads, trucks, barge lines, and ocean-going vessels from terminal facilities. We currently own or lease under long-term arrangements all of the equipment utilized in our mining operations. We employ sophisticated preventative maintenance and rebuild programs and upgrade our equipment to ensure that it is productive, well-maintained and cost-competitive.

In December of 2020, we sold our Viper operation, which had been part of our Other Thermal segment, to Knight Hawk Holdings, LLC. For further information on the sale of Viper to Knight Hawk Holdings, LLC, please see Note 4 to the Consolidated Financial Statements, "Divestitures."

In December of 2019, we sold our Coal-Mac operation, Coal-Mac LLC, which had been part of our Other Thermal segment, to Condor Holdings LLC. For further information on the sale of Coal-Mac LLC to Condor Holdings LLC, please see Note 4 to the Consolidated Financial Statements, "Divestitures."

The following table provides a summary of information regarding our active mining complexes as of December 31, 2020, including the total sales associated with these complexes for the years ended December 31, 2020, 2019, and 2018 and the total assigned reserves associated with these complexes at December 31, 2020. The amount disclosed below for the total cost of property, plant and equipment of each mining complex does not include the costs of the coal reserves that we have assigned to an individual complex.

Mining Complex	Mines	Mining Equipment	Railroad	Tons Sold (1) 2018	2019	2020	Total Cost of Property, Plant and Equipment at December 31, 2020 ($ millions)	Total Assigned Recoverable Reserves (Million tons)
Powder River Basin:								
Black Thunder	S	D, S	UP/BN	71.1	72.0	50.2	$ 195.7	699.3
Coal Creek	S	D, S	UP/BN	8.0	2.6	2.1	0.3	—
Metallurgical:								
Leer	U	LW, CM	CSX	3.5	4.1	4.2	263.6	50.3
Leer South/Sentinel	U	CM	CSX	1.2	1.1	0.7	429.5	46.3
Beckley	U	CM	CSX	1.0	1.0	1.0	67.2	24.4
Mountain Laurel	U	CM	CSX	1.9	1.4	0.9	46.1	18.1
Other Thermal:								
West Elk	U	LW, CM	UP	4.8	4.1	2.5	0.3	48.0
Totals				91.5	86.3	61.6	$ 1,002.7	886.4

S = Surface mine	D = Dragline	UP = Union Pacific Railroad
U = Underground mine	S = Shovel/truck	CSX = CSX Transportation
	LW = Longwall	BN = Burlington Northern-Santa Fe Railway
	CM = Continuous miner	

(1) Tons of coal we purchased from third parties that were not processed through our loadout facilities are not included in the amounts shown in the table above.

Powder River Basin

Black Thunder. Black Thunder is a surface mining complex located on approximately 35,400 acres in Campbell County, Wyoming. The Black Thunder complex extracts thermal coal from the Upper Wyodak and Main Wyodak seams.

We control a significant portion of the coal reserves through federal and state leases. The Black Thunder mining complex had approximately 699.3 million tons of proven and probable reserves at December 31, 2020.

The Black Thunder mining complex currently consists of four active pit areas and two active loadout facilities. We ship all of the coal raw to our customers via the Burlington Northern Santa Fe and Union Pacific railroads. We do not process the coal mined at this complex. Each of the loadout facilities can load a 15,000-ton train in less than two hours.

Coal Creek. Coal Creek is a surface mining complex located on approximately 7,400 acres in Campbell County, Wyoming. The Coal Creek mining complex extracts thermal coal from the Wyodak-R1 and Wyodak-R3 seams.

In alignment with our desire to shrink our operational footprint and associated liabilities, we have committed to closing our Coal Creek operation in the Powder River Basin once all currently committed sales have been shipped by the end of 2022.

The Coal Creek complex currently consists of one active pit area and a loadout facility. We ship all of the coal raw to our customers via the Burlington Northern Santa Fe and Union Pacific railroads. We do not process the coal mined at this complex. The loadout facility can load a 15,000-ton train in less than three hours.

Metallurgical

Leer. The Leer Complex, located in Taylor County, West Virginia, includes approximately 50.3 million tons of coal reserves as of December 31, 2020 and has primarily High-Vol A metallurgical quality coal in the Lower Kittanning seam, and is part of approximately 93,000 acres that is considered our Tygart Valley area. Substantially all of the reserves at Leer are owned rather than leased from third parties.

All the production is processed through a 1,400 ton-per-hour preparation plant and loaded on the CSX railroad. A 15,000-ton train can be loaded in less than four hours.

Leer South/Sentinel. The Leer South/Sentinel mining complex consists of the existing Sentinel underground mine in the Clarion seam, the Leer South longwall operation being developed in the Lower Kittanning seam, a preparation plant and a loadout facility located on approximately 26,000 acres in Barbour County, West Virginia. Plant and coal handling facilities are being upgraded to handle longwall volumes and will include a 1,600 ton-per-hour preparation plant located near the mine, as well as a loadout facility served by the CSX railroad and connected to the plant by a 4,000 ton-per-hour conveyor system. The loadout facility will be capable of loading a 15,000 ton unit train in less than four hours.

Coal quality is primarily High-Vol A metallurgical coal similar to our Leer Complex. The Leer South/Sentinel mining complex had approximately 46.3 million tons of proven and probable reserves at December 31, 2020. Full production will not be realized until the longwall is placed into service in the third quarter of 2021. A significant portion of the reserves at Leer South are owned rather than leased from third parties.

Beckley. The Beckley mining complex is located on approximately 19,700 acres in Raleigh County, West Virginia. Beckley is extracting high quality, Low-Volatile metallurgical coal in the Pocahontas No. 3 seam. The Beckley mining complex had approximately 24.4 million tons of proven and probable reserves at December 31, 2020.

Coal is belted from the mine to a 600-ton-per-hour preparation plant before shipping the coal via the CSX railroad. The loadout facility can load a 10,000-ton train in less than four hours.

Mountain Laurel. Mountain Laurel is an underground mining complex located on approximately 38,200 acres in Logan County and Boone County, West Virginia. Underground mining operations at the Mountain Laurel mining complex extracts High-Vol B metallurgical coal from the Alma and No. 2 Gas seams. We are currently developing further access to High-Vol B reserves in the No. 2 Gas seam. Including the No. 2 Gas seam, the Mountain Laurel mining complex has approximately 18.1 million tons of proven and probable reserves at December 31, 2020.

We process all of the coal through a 1,400-ton-per-hour preparation plant before shipping the coal to our customers via the CSX railroad. The loadout facility can load a 15,000-ton train in less than four hours.

Other Thermal

West Elk. West Elk is an underground mining complex located on approximately 18,500 acres in Gunnison County, Colorado. The West Elk mining complex extracts thermal coal from the E seam.

We control a significant portion of the coal reserves through federal and state leases. The West Elk mining complex had approximately 48.0 million tons of proven and probable reserves at December 31, 2020.

The West Elk complex currently consists of a longwall, continuous miner sections and a loadout facility. We ship most of the coal raw to our customers via the Union Pacific railroad. The loadout facility can load an 11,000-ton train in less than three hours.

Sales, Marketing and Trading

Overview. Coal prices are influenced by a number of factors and can vary materially by region. The price of coal within a region is influenced by general marketplace conditions, the supply and price of alternative fuels to coal (such as natural gas and subsidized renewables), production costs, coal quality, transportation costs involved in moving coal from the mine to the point of use and mine operating costs. For example, in thermal coal markets, higher heat and lower ash content generally result in higher prices, and higher sulfur and higher ash content generally result in lower prices within a given geographic region. In metallurgical coal markets, chemical properties within the coal determine price differences.

The cost of producing coal at the mine is also influenced by geologic characteristics such as seam thickness, overburden ratios and depth of underground reserves. It is generally less expensive to mine coal seams that are thick and located close to the surface than to mine thin underground seams. Within a particular geographic region, underground mining, which is the mining method we use in certain of our Appalachian mines, is generally more expensive than surface mining, which is the mining method we use in the Powder River Basin. This is the case because of the higher capital costs relative to the reserve base, including costs for construction of extensive ventilation systems, and higher per unit labor costs due to lower productivity associated with underground mining.

Our sales, marketing and trading functions are principally based in St. Louis, Missouri and consist of sales and trading, transportation and distribution, quality control and contract administration personnel as well as revenue management. We also have sales representatives in our Singapore and London offices. In addition to selling coal produced from our mining complexes, from time to time we purchase and sell coal mined by others, some of which we blend with coal produced from our mines. We focus on meeting the needs and specifications of our customers rather than just selling our coal production.

Customers. The Company markets its metallurgical and thermal coal to domestic and foreign steel producers, domestic and foreign power generators, and other industrial facilities. For the year ended December 31, 2020, we derived approximately 21% of our total coal revenues from sales to our three largest customers, ArcelorMittal, Southern Company and Union Electric dba Ameren Missouri and approximately 45% of our total coal revenues from sales to our 10 largest customers.

In 2020, we sold coal to domestic customers located in 26 different states. The locations of our mines enable us to ship coal to most of the major coal-fueled power plants in the United States.

In addition, in 2020 we exported coal to Europe, Asia, Central and South America and Africa. Exports to seaborne countries were $0.5 billion, $1.0 billion and $1.1 billion for the years ended December 31, 2020, 2019 and 2018, respectively. As of December 31, 2020 and 2019, trade receivables related to metallurgical-quality coal sales totaled $69.1 million and $98.8 million, respectively, or 62% and 59% of total trade receivables, respectively. We do not have foreign currency exposure for our international sales as all sales are denominated and settled in U.S. dollars.

The Company's seaborne revenues by coal shipment destination for the year ended December 31, 2020, were as follows:

(In thousands)	
Europe	$ 289,176
Asia	138,086
Central and South America	56,905
Africa	12,763
Total	$ 496,930

Long-Term Coal Supply Arrangements

As is customary in the coal industry, we enter into fixed price, fixed volume term-based supply contracts, the terms of which are sometimes more than one year ("Long-Term"), with many of our customers. Multiple year contracts usually have specific and possibly different volume and pricing arrangements for each year of the contract. Long-term contracts allow customers to secure a supply for their future needs and provide us with greater predictability of sales volume and sales prices. In 2020, we sold approximately 67% of our coal under long-term supply arrangements. The majority of our supply contracts include a fixed price for the term of the agreement or a pre-determined escalation in price for each year. Some of our long-term supply agreements may include a variable pricing system. While most of our sales contracts are for terms of one to five years, some are as short as one month. At December 31, 2020, the average volume-weighted remaining term of our long-term contracts for metallurgical and thermal coal was approximately 2.2 years, with remaining terms ranging from one to three years. At December 31, 2020, remaining tons under long-term supply agreements, including those subject to price re-opener or extension provisions, were approximately 91.6 million tons.

We typically sell coal to North American customers under term arrangements through a "request-for-proposal" process. The terms of our coal sales agreements are dictated by general marketplace conditions, the availability and price of alternative fuels, the quality of the coal we have available to sell, our mine operations (including operating costs), the length of contract, as well as negotiations with customers. Consequently, the terms of these contracts may vary to some extent by customer, including base price adjustment features, price re-opener terms, coal quality requirements, quantity parameters, permitted sources of supply, future regulatory changes, extension options, *force majeure*, termination, damages and assignment provisions. Our long-term supply contracts typically contain provisions to adjust the base price due to new statutes, ordinances or regulations. We typically sell our metallurgical coal to non-North American customers based on various indices or agreements to mutually negotiate the price. These agreements generally are for one year and can reset pricing with each shipment. Additionally, some of our contracts contain provisions that allow for the recovery of costs affected by modifications or changes in the interpretations or application of any applicable statute by local, state or federal government authorities. These provisions only apply to the base price of coal contained in these supply contracts. In some circumstances, a significant adjustment in base price can lead to termination of the contract.

Certain of our contracts contain index provisions that change the price based on changes in market based indices or changes in economic indices or both. Certain of our contracts contain price re-opener provisions that may allow a party to commence a renegotiation of the contract price at a pre-determined time. Price re-opener provisions may automatically set a new price based on prevailing market price or, in some instances, require us to negotiate a new price, sometimes within a specified range of prices. In a limited number of agreements, if the parties do not agree on a new price, either party has an option to suspend the agreement for the pricing period not agreed to. In addition, certain of our contracts contain clauses that may allow customers to terminate the contract in the event of certain changes in environmental laws and regulations that impact their operations.

Coal quality and volumes are stipulated in coal sales agreements. In most cases, the annual pricing and volume obligations are fixed, although in some cases the volume specified may vary depending on the customer consumption requirements. Most of our coal sales agreements contain provisions requiring us to deliver coal within certain ranges for specific coal characteristics such as heat content (for thermal coal contracts), volatile matter (for metallurgical coal contracts), and for both types of contracts, sulfur, ash and moisture content. Failure to meet these specifications can result in economic penalties, suspension or cancellation of shipments or termination of the contracts.

Our coal sales agreements also typically contain *force majeure* provisions allowing temporary suspension of performance by us or our customers, during the duration of events beyond the control of the affected party, including events such as strikes, adverse mining conditions, mine closures or serious transportation problems that affect us or unanticipated plant outages that may affect the buyer. Our contracts also generally provide that in the event a *force majeure* circumstance exceeds a certain time period, the unaffected party may have the option to terminate the purchase or sale in whole or in part. Some contracts stipulate that this tonnage can be made up by mutual agreement or at the discretion of the buyer. Agreements between our customers and the railroads servicing our mines may also contain *force majeure* provisions.

In most of our thermal coal contracts, we have a right of substitution (unilateral or subject to counterparty approval), allowing us to provide coal from different mines, including third-party mines, as long as the replacement coal meets quality specifications and will be sold at the same equivalent delivered cost.

In some of our coal supply contracts, we agree to indemnify or reimburse our customers for damage to their or their rail carrier's equipment while on our property, which results from our or our agents' negligence, and for damage to our customer's equipment due to non-coal materials being included with our coal while on our property.

Trading. In addition to marketing and selling coal to customers through traditional coal supply arrangements, we seek to optimize our coal production and leverage our knowledge of the coal industry through a variety of other marketing, trading and asset optimization strategies. From time to time, we may employ strategies to use coal and coal-related commodities and contracts for those commodities in order to manage and hedge volumes and/or prices associated with our coal sales or purchase commitments, reduce our exposure to the volatility of market prices or augment the value of our portfolio of traditional assets. These strategies may include physical coal contracts, as well as a variety of forward, futures or options contracts, swap agreements or other financial instruments, in coal or other commodities such as natural gas and foreign currencies.

We maintain a system of complementary processes and controls designed to monitor and manage our exposure to market and other risks that may arise as a consequence of these strategies. These processes and controls seek to preserve our ability to profit from certain marketing, trading and asset optimization strategies while mitigating our exposure to potential losses. You should see Item 7A, entitled "Quantitative and Qualitative Disclosures About Market Risk" for more information about the market risks associated with these strategies at December 31, 2020.

Transportation. We ship our coal to domestic customers by means of railcars, barges, or trucks, or a combination of these means of transportation. We generally sell coal used for domestic consumption free on board (f.o.b.) at the mine or nearest loading facility. Our domestic customers normally bear the costs of transporting coal by rail, barge or truck.

Historically, most domestic electricity generators have arranged long-term shipping contracts with rail, trucking or barge companies to assure stable delivery costs. Transportation can be a large component of a purchaser's total cost. Although the purchaser pays the freight, transportation costs still are important to coal mining companies because the purchaser may choose a supplier largely based on cost of transportation. Transportation costs borne by the customer vary greatly based on each customer's proximity to the mine and our proximity to the loadout facilities. Trucks and overland conveyors haul coal over shorter distances, while barges, Great Lake carriers and ocean vessels move coal to export markets and domestic markets requiring shipment over the Great Lakes and several river systems.

Most coal mines are served by a single rail company, but much of the Powder River Basin is served by two rail carriers: the Burlington Northern-Santa Fe railroad and the Union Pacific railroad. We generally transport coal produced at our Appalachian mining complexes via the CSX railroad. Besides rail deliveries, some customers in the eastern United States rely on a river barge system.

We generally sell coal to international customers at export terminals, and we are usually responsible for the cost of transporting coal to the export terminals. We transport our coal to Atlantic coast terminals, Pacific cost terminals or terminals along the Gulf of Mexico for transportation to international customers. Our international customers are generally responsible for paying the cost of ocean freight. We may also sell coal to international customers delivered to an unloading facility at the destination country.

We own a 35% interest in Dominion Terminal Associates LLP, a limited liability partnership that operates a ground storage-to-vessel coal transloading facility in Newport News, Virginia. The facility has a rated throughput capacity of 20 million tons of coal per year and ground storage capacity of approximately 1.7 million tons. The facility primarily serves international customers, as well as domestic coal users located along the Atlantic coast of the United States. From time-to-time, we may lease a portion of our port capacity to third parties.

Competition

The coal industry is intensely competitive. The most important factors on which we compete are coal quality, delivered costs to the customer and reliability of supply. In thermal coal, another important factor is the cost competitiveness of our coal relative to alternative fuels and subsidized renewables. Our principal domestic coal-producing competitors include Blackhawk Mining LLC; Alpha Metallurgical Resources Inc. f/k/a Contura Energy; Coronado Coal LLC; Corsa Coal Corp.; Eagle Specialty Materials LLC; Navajo Transitional Energy Company LLC; Peabody Energy Corp.; Ramaco Resources and Warrior Met Coal, Inc. Some of these coal producers are larger than we are and have greater financial resources and larger reserve bases than we do. We also compete directly with a number of smaller producers in each of the geographic regions in which we operate, as well as companies that produce coal from one or more foreign countries, such as Australia, Canada, Colombia, Indonesia and South Africa. In thermal coal, our principal competitor is natural gas and other alternative fuels.

Specifically, coal competes directly with other fuels, such as natural gas, nuclear energy, hydropower, subsidized renewable, and petroleum, for steam and electrical power generation. Costs and other factors relating to these alternative fuels, such as safety and environmental considerations, as well as tax incentives and various mandates, affect the overall demand for coal as a fuel and the price we can charge for the coal.

Suppliers

Principal supplies used in our business include petroleum-based fuels, explosives, tires, steel and other raw materials as well as spare parts and other consumables used in the mining process. We use third-party suppliers for a significant portion of our equipment rebuilds and repairs, drilling services and construction. We use sole source suppliers for certain parts of our business such as explosives and fuel, and preferred suppliers for other parts of our business such as original equipment suppliers, dragline and shovel parts and related services. We believe adequate substitute suppliers are available. For more information about our suppliers, you should see Item 1A, "Risk Factors-Increases in the costs of mining and other industrial supplies, including steel-based supplies, diesel fuel and rubber tires, or the inability to obtain a sufficient quantity of those supplies, could negatively affect our operating costs or disrupt or delay our production."

Environmental and Other Regulatory Matters

Federal, state and local authorities regulate the U.S. coal mining industry with respect to matters such as employee health and safety and the environment, including the protection of air quality, water quality, wetlands, special status species of plants and animals, land uses, cultural and historic properties and other environmental resources identified during the permitting process. Reclamation is required during production and after mining has been completed. Materials used and generated by mining operations must also be managed according to applicable regulations and law. These laws have, and will continue to have, a significant effect on our production costs and our competitive position.

We endeavor to conduct our mining operations in compliance with applicable federal, state and local laws and regulations. However, due in part to the extensive, comprehensive and changing regulatory requirements, violations during mining operations occur from time to time. We cannot assure you that we have been or will be at all times in complete compliance with such laws and regulations. Expenditures we incur to maintain compliance with all applicable federal and state laws have been and are expected to continue to be significant. Federal and state mining laws and regulations require us to obtain surety bonds to guarantee performance or payment of certain long-term obligations, including mine closure and reclamation costs, federal and state workers' compensation benefits, coal leases and other miscellaneous obligations. Compliance with these laws has substantially increased the cost of coal mining for domestic coal producers.

Future laws, regulations or orders, as well as future interpretations and more rigorous enforcement of existing laws, regulations or orders, may require substantial increases in equipment and operating costs and delays, interruptions or a termination of operations, the extent to which we cannot predict. Future laws, regulations or orders may also cause coal to become a less attractive fuel source, thereby reducing coal's share of the market for fuels and other energy sources used to generate electricity. As a result, future laws, regulations or orders may adversely affect our mining operations, cost structure or our customers' demand for coal.

The following is a summary of the various federal and state environmental and similar regulations that have a material impact on our business:

Mining Permits and Approvals. Numerous governmental permits or approvals are required for mining operations. When we apply for these permits and approvals, we may be required to prepare and present to federal, state or local authorities' data pertaining to the effect or impact that any proposed production or processing of coal may have upon the environment. For example, in order to obtain a federal coal lease, an environmental impact statement must be prepared to assist the BLM in determining the potential environmental impact of lease issuance, including any collateral effects from the mining, transportation and burning of coal, which may in some cases include a review of impacts on climate change. The authorization, permitting and implementation requirements imposed by federal, state and local authorities may be costly and time consuming and may delay commencement or continuation of mining operations. In the states where we operate, the applicable laws and regulations also provide that a mining permit or modification can be delayed, refused or revoked if officers, directors, shareholders with specified interests or certain other affiliated entities with specified interests in the applicant or permittee have, or are affiliated with another entity that has, outstanding permit violations. Thus, past or ongoing violations of applicable laws and regulations could provide a basis to revoke existing permits and to deny the issuance of additional permits.

In order to obtain mining permits and approvals from federal and state regulatory authorities, mine operators must submit a reclamation plan for restoring, upon the completion of mining operations, the mined property to its prior condition or other authorized use. Typically, we submit the necessary permit applications several months or even years before we plan to begin mining a new area. Some of our required permits are becoming increasingly more difficult and expensive to obtain, and the application review processes are taking longer to complete and becoming increasingly subject to challenge, even after a permit has been issued.

Under some circumstances, substantial fines and penalties, including revocation or suspension of mining permits, may be imposed under the laws described above. Monetary sanctions and, in severe circumstances, criminal sanctions may be imposed for failure to comply with these laws.

Surface Mining Control and Reclamation Act. The Surface Mining Control and Reclamation Act, which we refer to as SMCRA, establishes mining, environmental protection, reclamation and closure standards for all aspects of surface mining as well as many aspects of underground mining. Mining operators must obtain SMCRA permits and permit renewals from the Office of Surface Mining, which we refer to as OSM, or from the applicable state agency if the state agency has obtained regulatory primacy. A state agency may achieve primacy if the state regulatory agency develops a mining regulatory program that is no less stringent than the federal mining regulatory program under SMCRA. All states in which we conduct mining operations have achieved primacy and issue permits in lieu of OSM.

SMCRA permit provisions include a complex set of requirements which include, among other things, coal prospecting; mine plan development; topsoil or growth medium removal and replacement; selective handling of overburden materials; mine pit backfilling and grading; disposal of excess spoil; protection of the hydrologic balance; subsidence control for underground mines; surface runoff and drainage control; establishment of suitable post mining land uses; and revegetation. We begin the process of preparing a mining permit application by collecting baseline data to adequately characterize the pre-mining environmental conditions of the permit area. This work is typically conducted by third-party consultants with specialized expertise and includes surveys and/or assessments of the following: cultural and historical resources; geology; soils; vegetation; aquatic organisms; wildlife; potential for threatened, endangered or other special status species; surface and ground water hydrology; climatology; riverine and riparian habitat; and wetlands. The geologic data and information derived from the other surveys and/or assessments are used to develop the mining and reclamation plans presented in the permit application. The mining and reclamation plans address the provisions and performance standards of the state's equivalent SMCRA regulatory program, and are also used to support applications for other authorizations and/or permits required to conduct coal mining activities. Also included in the permit application is information used for documenting surface and mineral ownership, variance requests, access roads, bonding information, mining methods, mining phases, other agreements that may relate to coal, other minerals, oil and gas rights, water rights, permitted areas, and ownership and control information required to determine compliance with OSM's Applicant Violator System, including the mining and compliance history of officers, directors and principal owners of the entity.

Once a permit application is prepared and submitted to the regulatory agency, it goes through an administrative completeness review and a thorough technical review. Also, before a SMCRA permit is issued, a mine operator must submit a bond or otherwise secure the performance of all reclamation obligations. After the application is submitted, a public notice or advertisement of the proposed permit is required to be given, which begins a notice period that is followed by a public comment period before a permit can be issued. It is not uncommon for a SMCRA mine permit application to take over a year to prepare, depending on the size and complexity of the mine, and anywhere from six months to two years or even longer for the permit to be issued. The variability in time frame required to prepare the application and issue the permit can be attributed primarily to the various regulatory authorities' discretion in the handling of comments and objections relating to the project received from the general public and other agencies. Also, it is not uncommon for a permit to be delayed as a result of litigation related to the specific permit or another related company's permit.

In addition to the bond requirement for an active or proposed permit, the Abandoned Mine Land Fund, which was created by SMCRA, requires that a fee be paid on all coal produced. The proceeds of the fee are used to restore mines closed or abandoned prior to SMCRA's adoption in 1977, as well as fund other state and federal initiatives. The current fee is $0.28 per ton of coal produced from surface mines and $0.12 per ton of coal produced from underground mines. In 2020, we recorded $15.8 million of expense related to these reclamation fees.

Surety Bonds. Mine operators are often required by federal and/or state laws, including SMCRA, to assure, usually through the use of surety bonds, payment of certain long-term obligations including mine closure or reclamation costs, federal and state workers' compensation costs, coal leases and other miscellaneous obligations. Although surety bonds are usually non-cancelable during their term, many of these bonds are renewable on an annual basis and collateral requirements may change.

The costs of these bonds have widely fluctuated in recent years while the market terms of surety bonds have remained difficult for mine operators. These changes in the terms of the bonds have been accompanied at times by a decrease in the number of companies willing to issue surety bonds. As of December 31, 2020, we posted an aggregate of approximately $573.0 million in surety bonds, cash and letters of credit outstanding for reclamation purposes.

For additional information, please see "Failure to obtain or renew surety bonds on acceptable terms could affect our ability to secure reclamation and coal lease obligations and, therefore, our ability to mine or lease coal, which could have a material adverse effect on our business and results of operations," contained in Item 1A, "Risk Factors—Risk Related to Our Operations," for a discussion of certain risks associated with our surety bonds.

Mine Safety and Health. Stringent safety and health standards have been imposed by federal legislation since Congress adopted the Mine Safety and Health Act of 1969. The Mine Safety and Health Act of 1977 significantly expanded the enforcement of safety and health standards and imposed comprehensive safety and health standards on all aspects of mining operations. In addition to federal regulatory programs, all of the states in which we operate also have programs aimed at improving mine safety and health. Collectively, federal and state safety and health regulation in the coal mining industry is among the most comprehensive and pervasive systems for the protection of employee health and safety affecting any segment of U.S. industry.

Under the Black Lung Benefits Revenue Act of 1977 and the Black Lung Benefits Reform Act of 1977, each coal mine operator must secure payment of federal black lung benefits to claimants who are current and former employees and to a trust fund for the payment of benefits and medical expenses to claimants who last worked in the coal industry prior to July 1, 1973. The trust fund is funded by an excise tax on production of up to $1.10 per ton for coal mined in underground operations and up to $0.55 per ton for coal mined in surface operations. These amounts may not exceed 4.4% of the gross sales price. This excise tax does not apply to coal shipped outside the United States. In 2020, we recorded $30.9 million of expense related to this excise tax.

Clean Air Act. The federal Clean Air Act and similar state and local laws that regulate air emissions affect coal mining directly and indirectly. Direct impacts on coal mining and processing operations include Clean Air Act permitting requirements and emissions control requirements. These include emissions of ozone precursors and particulate matter which may include controlling fugitive dust. The Clean Air Act also indirectly affects coal mining operations, for example, by extensively regulating the emissions of fine particulate matter measuring 2.5 micrometers in diameter or smaller, sulfur dioxide, nitrogen oxides, mercury and other compounds emitted by coal-fueled power plants and industrial boilers, which are the largest end-users of our coal. Already stringent regulation of emissions further tightened throughout the Obama Administration, such as the Mercury and Air Toxics Standard (MATS), finalized in 2011 and discussed in more detail below. In addition, the U.S. Environmental Protection Agency, which we refer to as the EPA, has issued regulations with respect to other emissions, such as greenhouse gases (GHGs), from new, modified, reconstructed and existing electric generating units, including coal-fired plants. Other GHG regulations apply to industrial boilers (see discussion of Climate Change, below). On January 20, 2021, the current administration issued an executive order directing all federal agencies to review and take action to address any federal regulations, orders, guidance documents, policies and any similar agency actions promulgated during the prior administration that may be inconsistent with the administration's policies. As a result, it is unclear the degree to which certain recent regulatory developments may be modified or rescinded. The executive order also established an Interagency Working Group on the Social Cost of Greenhouse Gases ("Working Group"), which is called on to, among other things, develop methodologies for calculating the "social cost of carbon," "social cost of nitrous oxide" and "social cost of methane." Recommendations from the Working Group are due beginning June 1, 2021 and final recommendations no later than January 2022. Further regulation of air emissions, as well as uncertainty regarding the future course of regulation, could eventually reduce the demand for coal.

On January 27, 2021, the current administration issued an executive order focused on addressing climate change. Among other things, the executive order directed the Secretary of the Interior to pause new oil and natural gas leasing on public lands or in offshore waters pending completion of a comprehensive review of the federal permitting and leasing practices, consider whether to adjust royalties associated with coal, oil, and gas resources extracted from public lands and offshore waters, or take other appropriate action, to account for corresponding climate costs. The executive order also directs the federal government to identify "fossil fuel subsidies" to take steps to ensure that, to the extent consistent with applicable law, federal funding is not directly subsidizing fossil fuels. Legal challenges to the suspension have already been filed and are currently pending.

Clean Air Act requirements that may directly or indirectly affect our operations include the following:

- *Acid Rain.* Title IV of the Clean Air Act, promulgated in 1990, imposed a two-phase reduction of sulfur dioxide emissions by electric utilities. Phase II became effective in 2000 and applies to all coal-fueled power plants with a capacity of more than 25-megawatts. Generally, the affected power plants have sought to comply with these requirements by switching to lower sulfur fuels, installing pollution control devices, reducing electricity generating levels or purchasing or trading sulfur dioxide emissions allowances. Although we cannot accurately predict the future effect of this Clean Air Act provision on our operations, we believe that implementation of Phase II has been factored into the pricing of the coal market.

- *Particulate Matter.* The Clean Air Act requires the EPA to set national ambient air quality standards, which we refer to as NAAQS, for certain pollutants associated with the combustion of coal, including sulfur dioxide, particulate matter, nitrogen oxides and ozone. Areas that are not in compliance with these standards, referred to as non-attainment areas, must take steps to reduce emissions levels. For example, NAAQS currently exist for particulate matter measuring 10 micrometers in diameter or smaller (PM10) and for fine particulate matter measuring 2.5 micrometers in diameter or smaller (PM2.5), and the EPA revised the PM2.5 NAAQS on December 14, 2012, making it more stringent. The states were required to make recommendations on nonattainment designations for the new NAAQS in late 2013. The EPA issued final designations for most areas of the country in 2012 and made some revisions in 2015. Individual states must now identify the sources of emissions and develop emission reduction plans. These plans may be state-specific or regional in scope. Under the Clean Air Act, individual states have up to 12 years from the date of designation to secure emissions reductions from sources contributing to the problem. Future regulation and enforcement of the new PM2.5 standard, as well as future revisions of PM standards, will affect many power plants, especially coal-fueled power plants, and all plants in non-attainment areas.

- *Ozone.* On October 26, 2015, the EPA published a final rule revising the existing primary and secondary NAAQS for ozone, reducing them to 70ppb on an 8-hour average. On November 17, 2016, the EPA issued a proposed implementation rule on non-attainment area classification and state implementation plans (SIPs). The EPA published a final rule in November 2017 that issued area designations with respect to ground-level ozone for approximately 35% of the U.S. counties, designating them as either "attainment/unclassifiable" or "unclassifiable." In April 2018 and July 2018, the EPA issued ozone designations for all areas not addressed in the November 2017 rule. States with moderate or high nonattainment areas must submit SIPs by October 2021. Significant additional emission control expenditures will likely be required at certain coal-fueled power plants to meet the new stricter NAAQS. Nitrogen oxides, which are a byproduct of coal combustion, are classified as an ozone precursor. As a result, emissions control requirements for new and expanded coal-fueled power plants and industrial boilers will continue to become more demanding in the years ahead. On December 6, 2018, the EPA issued a Final Rule implementing the 2015 Ozone NAAQS for nonattainment areas ("2015 Ozone Implementation Rule"). The 2015 Ozone Implementation Rule is notable for providing greater flexibility to States to consider international sources of pollution and other mechanisms for relief from strict application of the standard. With such flexibility, the effect on demand for coal will vary by state. By law, the EPA must review each NAAQS every five years. In December 2020, the EPA announced that it was retaining without revision the 2015 NAAQS for ozone. However, as noted above, on January 20, 2021, the current administration issued an executive order directing federal agencies to review and take action to address any federal regulations or similar agency actions promulgated during the prior administration that may be inconsistent with the current administration's stated priorities. The EPA was specifically ordered to, among other things, propose a Federal Implementation Plan for ozone standards for California, Connecticut, New York, Pennsylvania and Texas by January 2022.

- *NOx SIP Call.* The Nitrogen Oxides State Implementation Plan (NOx SIP) Call program was established by the EPA in October 1998 to reduce the transport of ozone on prevailing winds from the Midwest and South to states in the Northeast, which said that they could not meet federal air quality standards because of migrating pollution. The program was designed to reduce nitrous oxide emissions by one million tons per year in 22 eastern states and the District of Columbia. Phase II reductions were required by May 2007. As a result of the program, many power plants were required to install additional emission control measures, such as selective catalytic reduction devices. Installation of additional emission control measures has made it more costly to operate coal-fueled power plants, which could make coal a less attractive fuel.

- *Interstate Transport.* The EPA finalized the Clean Air Interstate Rule, which we refer to as CAIR, in March 2005. CAIR called for power plants in 28 Eastern states and the District of Columbia to reduce emission levels of sulfur dioxide and nitrous oxide, which could lead to non-attainment of PM2.5 and ozone NAAQS in downwind states (interstate transport), pursuant to a cap and trade program similar to the system now in effect for acid deposition control. In July 2008, in *State of North Carolina v. EPA* and consolidated cases, the D.C. Circuit disagreed with the EPA's reading of the Clean Air Act and vacated CAIR in its entirety. In December 2008, the D.C. Circuit revised its remedy and remanded the rule to the EPA. The EPA proposed a revised transport rule on August 2, 2010 (75 Fed. Reg. 45209) to address attainment of the 1997 ozone NAAQS and the 2006 PM2.5 NAAQS. The rule was finalized as the Cross State Air Pollution Rule (CSAPR) on July 6, 2011, with compliance required for SO2 reductions beginning January 1, 2012 and compliance with NOx reductions required by May 1, 2012. Numerous appeals of the rule were filed and, on August 21, 2012, the D.C. Circuit vacated the rule, leaving the EPA to continue implementation of the CAIR. Controls required under the CAIR, especially in conjunction with other rules, may have affected the market for coal inasmuch as multiple existing coal fired units were being retired rather than having required controls installed.

The U.S. Supreme Court agreed to hear the EPA's appeal of the decision vacating CSAPR and on April 29, 2014, issued an opinion reversing the August 21, 2012 D.C. Circuit decision, remanding the case back to the D.C. Circuit. The EPA then requested that the court lift the CSAPR stay and toll the CSAPR compliance deadlines by three years. On October 23, 2014, the D.C. Circuit granted the EPA's request, and that court later dismissed all pending challenges to the rule on July 28, 2015 but it remanded some state budgets to the EPA for further consideration. CSAPR Phase 1 implementation began in 2015, with Phase 2 beginning in 2017. CSAPR generally requires greater reductions than under CAIR. As a result, some coal-fired power plants will be required to install costly pollution controls or shut down which may adversely affect the demand for coal. Finally, in October 2016, the EPA issued an update to the CSAPR to address interstate transport of air pollution under the more recent 2008 ozone NAAQS and the state budgets remanded by the D.C. Circuit. Consolidated judicial challenges to the rule are now pending, but on August 10, 2017, the D.C. Circuit suspended briefing in the litigation after industry petitioners challenging the rule requested to delay proceedings so the EPA can determine whether to reconsider the revised CSAPR. On June 29, 2018, the EPA issued a proposed determination that the 2016 CSAPR Update Rule fully addresses states' interstate transport obligations under the 2008 ozone NAAQS. However, the EPA has also signaled in a variety of 2018 memoranda that states may have more flexibility to consider international emissions and higher thresholds in developing SIPS than under prior guidance. It is not clear how the combination of upholding the 2016 CSAPR Update Rule while allowing greater SIP flexibility will affect decisions to install controls or shut down units, and any resulting effects on the demand for coal. On September 13, 2019 the D.C. Circuit upheld most of the 2016 CSAPR Update Rule, but vacated a provision that allowed upwind states to continue to contribute significantly to downwind states' noncompliance beyond downwind states' statutory compliance deadlines. On October 15, 2020, EPA proposed the Revised CSAPR Update Rule in order to address 21 states' outstanding interstate pollution transport obligations for the 2008 NAAQS. Starting in the 2021 ozone season, the proposed rule would require additional emissions reductions of NOx from power plants in 12 states. If the CSAPR Update Rule goes into effect as proposed, this may affect demand for coal.

- *Mercury*. In February 2008, the D.C. Circuit vacated the EPA's Clean Air Mercury Rule (CAMR), which was promulgated to reduce mercury emissions from coal-fired power plants and remanded it to the EPA for reconsideration. In response, the EPA announced an Electric Generating Unit (EGU) Mercury and Air Toxics Standard (MATS) on December 16, 2011. The MATS was finalized April 16, 2012, and required compliance for most plants by 2015. In addition, before the court decision vacating the CAMR, some states had either adopted the CAMR or adopted state-specific rules to regulate mercury emissions from power plants that are more stringent than the CAMR. MATS compliance, coupled with state mercury and air toxics laws and other factors have required many plants to install costly controls, re-fire with natural gas or retire, which may adversely affect the demand for coal.

  MATS was challenged in the D.C. Circuit, which upheld the rule on April 15, 2013. Petitioners successfully obtained Supreme Court review, and on June 29, 2015, the Supreme Court issued a 5-4 decision striking down the final rule based on the EPA's failure to consider economic costs in determining whether to regulate. The case was remanded to the D.C. Circuit. The EPA began reconsideration of costs, and petitioners unsuccessfully sought a stay of the rule in the Supreme Court in February 2016. In April 2016, the EPA issued a MATS 2016 Supplemental Finding, a final finding that it is appropriate and necessary to set standards for emissions of air toxics from coal- and oil-fired power plants. On December 27, 2018, the EPA released a proposed Supplemental Cost Finding, concluding that direct regulation of air toxics from coal- and oil-fired power plants is not cost-justified, but proposing to leave the emissions standards and other requirements of the 2012 rule in place. On May 22, 2020, EPA released a final Supplemental Finding, again concluding that it is not "appropriate and necessary" to regulate EGUs under section 112 of the CAA. EPA also took final action on the residual risk and technology review (RTR) required by CAA section 112. The results from the RTR showed that emissions of hazardous air pollutants (HAPs) had been reduced such that residual risk is at acceptable levels, there are no developments in HAP emissions controls to achieve further cost-effective reductions beyond the current standards, and, therefore, that no changes to the MATS rule are warranted.

- *Regional Haze.* The EPA has initiated a regional haze program designed to protect and improve visibility at and around national parks, national wilderness areas and international parks, particularly those located in the southwest and southeast United States. Under the Regional Haze Rule, affected states were required to submit regional haze SIPs by December 17, 2007, that, among other things, were to identify facilities that would have to reduce emissions and comply with stricter emission limitations. The vast majority of states failed to submit their plans by December 17, 2007, and the EPA issued a Finding of Failure to Submit plans on January 15, 2009 (74 Fed. Reg. 2392). The EPA had taken no enforcement action against states to finalize implementation plans and was slowly dealing with the state Regional Haze SIPs that were submitted, which resulted in the National Parks Conservation Association commencing litigation in the D.C. Circuit on August 3, 2012, against the EPA for failure to enforce the rule *(National Parks Conservation Act v. EPA, D.C. Cir)*. Industry groups, including the Utility Air Regulatory Group intervened.

  The EPA ultimately agreed in a consent decree with environmental groups to impose regional haze federal implementation plans (FIPs) or to take action on regional haze SIPs before the agency for 42 states and the District of Columbia. The EPA has completed those actions for all but several states in its first planning period (2008-2010). In many eastern states, the EPA has allowed states to meet "best available retrofit control technology" (BART) requirements for power plants through compliance with CAIR and CSAPR (a policy under pending litigation). Other states have had BART imposed on a case-by-case basis, and where the EPA found SIPs deficient, it disapproved them and issued FIPs. It is possible that the EPA may continue to increase the stringency of control requirements imposed under the Regional Haze Program as it moves toward the next planning period.

  This program may result in additional emissions restrictions from new coal-fueled power plants whose operations may impair visibility at and around federally protected areas. This program may also require certain existing coal-fueled power plants to install additional control measures designed to limit haze-causing emissions, such as sulfur dioxide, nitrogen oxides, volatile organic chemicals and particulate matter. These limitations could affect the future market for coal. However, on January 18, 2018, the EPA announced that it was revisiting the 2017 Regional Haze Rule revisions, and announced an intent to commence a new rulemaking. On September 11, 2018, the EPA released a "Regional Haze Reform Roadmap" and reaffirmed its commitment to additional rulemaking.
  On August 20, 2019, EPA issued guidance to states in preparing SIPS to meet the 2021 deadline, highlighting state flexibility. Additional regional haze litigation is likely.

- *New Source Review.* A number of pending regulatory changes and court actions are affecting the scope of the EPA's new source review program, which under certain circumstances requires existing coal-fueled power plants to install the more stringent air emissions control equipment required of new plants. The new source review program is continually revised and such revisions may impact demand for coal nationally.

Climate Change. Carbon dioxide, which is defined to be a greenhouse gas, is a by-product of burning coal. Global climate issues, including with respect to greenhouse gases such as carbon dioxide and the relationship that greenhouse gases may have with perceived global warming, continue to attract significant public and scientific attention. For example, the Fourth and Fifth Assessment Reports of the Intergovernmental Panel on Climate Change have expressed concern about the impacts of human activity, especially from fossil fuel combustion, on global climate issues. As a result of the public and scientific attention, several governmental bodies increasingly are focusing on global climate issues and, more specifically, levels of emissions of carbon dioxide from coal combustion by power plants. Future regulation of greenhouse gas emissions in the United States could occur pursuant to future U.S. treaty obligations, statutory or regulatory changes at the federal, state or local level or otherwise.

Demand for coal also may be impacted by international efforts to reduce emissions of greenhouse gases. For example, in December 2015, representatives of 195 nations reached a climate accord that will, for the first time, commit participating countries to lowering greenhouse gas emissions. Further, the United States and a number of international development banks, such as the World Bank, the European Investment Bank and European Bank for Reconstruction and

Development, have announced that they will no longer provide financing for the development of new coal-fueled power plants, subject to very narrow exceptions.

Although the U.S. Congress has considered various legislative proposals that would address global climate issues and greenhouse gas emissions, no such federal proposals have been adopted into law to date. In the absence of U.S. federal legislation on these topics, the EPA has been the primary source of federal oversight, although future regulation of greenhouse gases and global climate matters in the United States could occur pursuant to future U.S. treaty obligations, statutory or regulatory changes under the Clean Air Act, federal adoption of a greenhouse gas regulatory scheme or otherwise.

In 2007, the U.S. Supreme Court held that the EPA has authority under the Clean Air Act to regulate carbon dioxide emissions from automobiles and can decide against regulation only if the EPA determines that carbon dioxide does not significantly contribute to climate change and does not endanger public health or the environment. Although the Supreme Court's holding did not expressly involve the EPA's authority to regulate greenhouse gas emissions from stationary sources, such as coal-fueled power plants, the EPA since has determined on its own that it has the authority to regulate greenhouse gas emissions from power plants, and the EPA has published a formal determination that six greenhouse gases, including carbon dioxide, endanger both the public health and welfare of current and future generations.

In 2014, the EPA proposed a sweeping rule, known as the "Clean Power Plan," to cut carbon emissions from existing electric generating units, including coal-fired power plants. A final version of the Clean Power Plan was adopted in August 2015. The final version of the Clean Power Plan aims to reduce carbon dioxide emissions from electrical power generation by 32% by 2030 relative to 2005 levels through reduction of emissions from coal-burning power plants and increased use of renewable energy and energy conservation methods. Under the Clean Power Plan, states are free to reduce emissions by various means and must submit emissions reduction plans to the EPA by September 2016 or, with an approved extension, September 2018. If a state has not submitted a plan by then, the Clean Power Plan authorizes the EPA to impose its own plan on that state. In order to determine a state's goal, the EPA has divided the country into three regions based on connected regional electricity grids. States are to implement their plans by focusing on (i) increasing the generation efficiency of existing fossil fuel plants, (ii) substituting lower carbon dioxide emitting natural gas generation for coal-powered generation and (iii) substituting generation from new zero carbon dioxide emitting renewable sources for fossil fuel powered generation. States are permitted to use regionally available low carbon generation sources when substituting for in-state coal generation and coordinate with other states to develop multi-state plans. Following the adoption, 27 states sued the EPA, claiming that the EPA overstepped its legal authority in adopting the Clean Power Plan. In February 2016, the U.S. Supreme Court ordered the EPA to halt enforcement of the Clean Power Plan until a lower court rules on the lawsuit and until the Supreme Court determines whether or not to hear the case. In October 2017, the EPA commenced rulemaking proceedings to rescind the Clean Power Plan, and in December 2017, the EPA published an Advanced Notice of Proposed Rulemaking announcing an intent to commence a new rulemaking to replace the Clean Power Plan with an alternative framework for regulating carbon dioxide.

In a parallel litigation, 25 states and other parties filed lawsuits challenging the EPA's final New Source Performance Standards rules, which we refer to as NSPS, for carbon dioxide emissions from new, modified, and reconstructed power plants under the Clean Air Act. One of the primary issues in these lawsuits is the EPA's establishment of standards of performance based on technologies including carbon capture and sequestration, which we refer to as CCS. New coal plants cannot meet the new standards unless they implement CCS, which reportedly is not yet commercially available or technically feasible. In conjunction with the EPA's proposal to rescind the Clean Power Plan, the EPA also requested a stay of the NSPS litigation. The D.C. Circuit granted the request, and the litigation has been held in abeyance since then.

On June 19, 2019, the EPA finalized the Affordable Clean Energy (ACE) rule as a replacement for the Clean Power Plan. The ACE rule establishes emission guidelines for states to develop plans to address greenhouse gas emissions from existing coal-fired power plants. The ACE rule has several components: a determination of the best system of emission reduction for greenhouse gas emissions from coal-fired power plants, a list of "candidate technologies" states can use when developing their plans, a new preliminary applicability test for determining whether a physical or operational change made to a power plant may be a "major modification" triggering New Source Review, and new implementing regulations for emission guidelines under Clean Air Act section 111(d). On January 19, 2021, the D.C. Circuit Court of Appeals vacated the ACE rule and its implied repeal of the Clean Power Plan, remanding to EPA for further proceedings. In the event the matter is not heard by the Supreme Court, it is not clear whether EPA will reinstate the Clean Power Plan or undertake new rulemaking.

In December 2015, 195 nations (including United States) signed the Paris Agreement, a long-term, international framework convention designed to address climate change over the next several decades. This agreement entered into force in November 2016 after more than 70 countries, including the United States, ratified or otherwise agreed to be bound by the agreement. The United States was among the countries that submitted its declaration of intended greenhouse gas reductions in early 2015, stating its intention to reduce U.S. greenhouse gas emissions by 26-28% by 2025 compared to 2005 levels. Whether and to what extent the United States meets its stated intention likely depends on several factors, including whether the ACE rule is implemented. In June 2017, The Trump Administration announced the United States intends to withdraw from the Paris Agreement. In November 2019, The Trump administration formally initiated the withdrawal process, and formally exited the Agreement on November 4, 2020. In January 2021, the current administration issued an executive order commencing the process to reenter the Paris Agreement, although the emissions pledges in connection with that effort have not yet been updated. Regardless of the extent to which the United States ultimately participates in these reductions, over the long term, international participation in the Paris Agreement framework could reduce overall demand for coal which could have a material adverse impact on us. These effects could be more adverse to the extent the United States ultimately participates in these reductions (whether via the Paris Agreement or otherwise).

Several U.S. states have enacted legislation establishing greenhouse gas emissions reduction goals or requirements or joined regional greenhouse gas reduction initiatives. Some states also have enacted legislation or regulations requiring electricity suppliers to use renewable energy sources to generate a certain percentage of power or that provide financial incentives to electricity suppliers for using renewable energy sources. For example, eleven northeastern states currently are members of the Regional Greenhouse Gas Initiative, which is a mandatory cap-and-trade program established in 2005 to cap regional carbon dioxide emissions from power plants. Six Midwestern states and one Canadian province entered into the Midwestern Regional Greenhouse Gas Reduction Accord to establish voluntary regional greenhouse gas reduction targets and develop a voluntary multi-sector cap-and-trade system to help meet the targets, although it has been reported that the members no longer are actively pursuing the group’s activities. Lastly, California and Quebec remain members of the Western Climate Initiative, which was formed in 2008 to establish a voluntary regional greenhouse gas reduction goal and develop market-based strategies to achieve emissions reductions, and those two jurisdictions have adopted their own greenhouse gas cap-and-trade regulations. Several states and provinces that originally were members of these organizations, as well as some current members, have joined the new North America 2050 initiative, which seeks to reduce greenhouse gas emissions and create economic opportunities aside from cap-and-trade programs. Any particular state, or any of these or other regional group, may have or adopt in the future rules or policies that cause some users of coal to switch from coal to a lower carbon fuel. There can be no assurance at this time that a carbon dioxide cap-and-trade-program, a carbon tax or other regulatory or policy regime, if implemented by any one or more states or regions in which our customers operate or at the federal level, will not affect the future market for coal in those states or regions and lower the overall demand for coal.

Clean Water Act. The federal Clean Water Act (sometimes shortened to CWA) and corresponding state and local laws and regulations affect coal mining operations by restricting the discharge of pollutants, including dredged and fill materials, into waters of the United States. The Clean Water Act provisions and associated state and federal regulations are complex and subject to amendments, legal challenges and changes in implementation. Recent court decisions and regulatory actions have created uncertainty over Clean Water Act jurisdiction and permitting requirements that could variously increase or decrease the cost and time we expend on Clean Water Act compliance.

The scope of waters that fall within the Clean Water Act’s jurisdiction is expansive and may include features not commonly understood to be a stream or wetland. In June 2015, the EPA and the Army Corps of Engineers (the “Corps”) issued a new rule defining the scope of "waters of the United States" (WOTUS) that are subject to regulation. The 2015 WOTUS rule was challenged by a number of states and private parties in various federal courts. In December 2017, the EPA and the Corps proposed a rule to repeal the 2015 WOTUS rule. The repeal took effect on December 23, 2019. In December 2018, the EPA and Corps also formally proposed a new rule revising the definition of WOTUS. The new rule -- the Navigable Waters Protection Rule -- became effective on June 22, 2020 and substantially reduces the scope of waters that fall within the Clean Water Act's jurisdiction, in part by excluding ephemeral streams, which potentially qualified as "Waters of the United States" under the 2015 WOTUS rule. The repeal of the 2015 WOTUS rule and implementation of the pre-2015 rule have been challenged in federal courts, as has the Navigable Waters Protection Rule, which is currently subject to a challenge in at least twelve federal district courts. A federal district court issued a preliminary injunction preventing the Navigable Waters Protection Rule from taking effect in Colorado, but the rule is otherwise effective in every other state. In addition, in April 2020, the U.S. Supreme Court issued a decision finding that point source discharges to navigable waters through groundwater are subject to regulation under the Clean Water Act. The U.S. Supreme Court specifically held that the Clean Water Act requires a permit if the addition of the pollutants through groundwater is the "functional equivalent" of a direct discharge from the point source into navigable waters. As a result of such recent developments, substantial uncertainty exists regarding the scope of waters protected under the Clean Water Act and the discharges to such waters that are subject to permit requirements. Should the State of Colorado's challenge to the new definition of "waters of the United States" be unsuccessful or should the new Biden administration further modify the definition, operators such as us could incur increased costs or delays with respect to obtaining permits for such activities as dredge and fill operations.

Clean Water Act requirements that may directly or indirectly affect our operations include the following:

Water Discharge. Section 402 of the Clean Water Act creates a process for establishing effluent limitations for discharges to streams that are protective of water quality standards through the National Pollutant Discharge Elimination System, which we refer to as the NPDES, or an equally stringent program delegated to a state regulatory agency. Regular monitoring, reporting and compliance with performance standards are preconditions for the issuance and renewal of NPDES permits that govern discharges into waters of the United States. Discharges that exceed the limits specified under NPDES permits can lead to the imposition of penalties, and persistent non-compliance could lead to significant penalties, compliance costs and delays in coal production. In addition, the imposition of future restrictions on the discharge of certain pollutants into waters of the United States could increase the difficulty of obtaining and complying with NPDES permits, which could impose additional time and cost burdens on our operations.

- Discharges of pollutants into waters that states have designated as impaired (i.e., as not meeting present water quality standards) are subject to Total Maximum Daily Load, which we refer to as TMDL, regulations. The TMDL regulations establish a process for calculating the maximum amount of a pollutant that a water body can receive while maintaining state water quality standards. Pollutant loads are allocated among the various sources that discharge pollutants into that water body. Mine operations that discharge into water bodies designated as impaired will be required to meet new TMDL allocations. The adoption of more stringent TMDL-related allocations for our coal mines could require more costly water treatment and could adversely affect our coal production.

The Clean Water Act also requires states to develop anti-degradation policies to ensure that non-impaired water bodies continue to meet water quality standards. The issuance and renewal of permits for the discharge of pollutants to waters that have been designated as "high quality" are subject to anti-degradation review that may increase the costs, time and difficulty associated with obtaining and complying with NPDES permits.

Under the Clean Water Act, citizens may sue to enforce NPDES permit requirements. Beginning in 2012, multiple citizens' suits were filed in West Virginia against mine operators for alleged violations of NPDES permit conditions requiring compliance with West Virginia's water quality standards. Some of the lawsuits alleged violations of water quality standards for selenium, whereas others alleged that discharges of conductivity and sulfate were causing violations of West Virginia water quality standards that prohibit adverse effects to aquatic life. The suits sought penalties as well as injunctive relief that would limit future discharges of selenium, conductivity or sulfate through the implementation of expensive treatment technologies. The federal district court for the Southern District of West Virginia has ruled in favor of the citizen suit groups in multiple suits alleging violations of the water quality standard for selenium and in two suits alleging violations of water quality standards due to discharge of conductivity (one of which was upheld on appeal by the United States Court of Appeals for the Fourth Circuit in January 2017). In 2015, the West Virginia Legislature amended the West Virginia Water Pollution Control Act and associated rules to expressly prohibit the direct enforcement of water quality standards against permit holders. On March 27, 2019, the EPA approved these changes.

Citizens may also sue under the Clean Water Act when pollutants are being discharged without NPDES permits. Beginning in 2013, multiple citizens' suits were filed in West Virginia against landowners alleging ongoing discharges of pollutants, including selenium and conductivity, from valley fills at reclaimed mining sites. In each case, the reclamation bond had been released and the mining and NPDES permits had been terminated following the completion of reclamation. While it is difficult to predict the outcome of such suits, any determination that discharges from valley fills require NPDES permits could result in increased compliance costs following the completion of mining at our operations.

- *Dredge and Fill Permits.* Many mining activities, such as the development of refuse impoundments, fresh water impoundments, refuse fills, valley fills, and other similar structures, may result in impacts to waters of the United States, including wetlands, streams and, in certain instances, man-made conveyances that have a hydrologic connection to such streams or wetlands. Under the Clean Water Act, coal companies are required to obtain a Section 404 permit from the Corps, prior to conducting such mining activities. The Corps is authorized to issue general "nationwide" permits for specific categories of activities that are similar in nature and that are determined to have minimal adverse effects on the environment. Permits issued pursuant to Nationwide Permit 21, which we refer to as NWP 21, generally authorize the disposal of dredged and fill material from surface coal mining activities into waters of the United States, subject to certain restrictions. Since March 2007, permits under NWP 21 were reissued for a five-year period with new provisions intended to strengthen environmental protections. There must be appropriate mitigation in accordance with nationwide general permit conditions rather than less restricted state-required mitigation requirements, and permit holders must receive explicit authorization from the Corps before proceeding with proposed mining activities. Notwithstanding the additional environmental protections designed in the NWP 21, on July 15, 2009, the Corps proposed to immediately suspend the use of NWP 21 in six Appalachian states, including West Virginia, Kentucky and Virginia where the Company conducts operations. On June 17, 2010, the Corps announced that it had suspended the use of NWP 21 in the same six states although it remained for use elsewhere. In February 2012, the Corps proposed to reissue NWP 21, albeit with significant restrictions on the acreage and length of stream channel that can be filled in the course of mining operations. The Corps' decisions regarding the use of NWP 21 does not prevent the Company's operations from seeking an individual permit under § 404 of the CWA, nor does it restrict an operation from utilizing another version of the nationwide permit, NWP 50, authorized for small underground coal mines that must construct fills as part of their mining operations. On January 13, 2021, the Corps published a final rule modifying its NWP program. The final rule replaced several of the 2017 NWPs, including NWP 21 and NWP 50, and added several new NWPs. The Corps removed the provision in NWP 21 and NWP 50 requiring the permittee to "receive a written authorization" from the Corps before commencing the covered activity. The final rule is likely to be challenged in court, and it could be withdrawn or modified by the Corps or Congress given the recent change in Presidential administration.

Resource Conservation and Recovery Act. The Resource Conservation and Recovery Act, which we refer to as RCRA, may affect coal mining operations through its requirements for the management, handling, transportation and disposal of hazardous wastes. Many mining wastes are excluded from the regulatory definition of hazardous wastes, and coal mining operations covered by SMCRA permits are by statute exempted from RCRA permitting. RCRA also allows the EPA to require corrective action at sites where there is a release of hazardous substances. In addition, each state has its own laws regarding the proper management and disposal of waste material. In June 2010, the EPA released a proposed rule to regulate the disposal of certain coal combustion residuals, which we refer to as CCR. The proposed rule set forth two very different options for regulating CCR under RCRA. The first option called for regulation of CCR as a hazardous waste under Subtitle C, which creates a comprehensive program of federally enforceable requirements for waste management and disposal. The second option utilized Subtitle D, which would give the EPA authority to set performance standards for waste management facilities and would be enforced primarily through citizen suits. The proposal left intact the so-called Bevill exemption for beneficial uses of CCR. The EPA finalized the CCR rule on December 19, 2014, setting nationwide solid nonhazardous waste standards for CCR disposal. On April 17, 2015, the

EPA finalized regulations under the solid waste provisions (Subtitle D) of RCRA and not the hazardous waste provisions (Subtitle C) which became effective on October 19, 2015. The final rule establishes national minimum criteria for existing and new CCR landfills, surface impoundments and lateral expansions, and also establishes structural integrity criteria for new and existing surface impoundments (including establishing requirements for owners and operators to conduct periodic structural integrity-related assessments). The criteria include location restrictions, design and operating criteria, groundwater monitoring and corrective action, closure requirements and post-closure care and recordkeeping, notification and internet posting requirements. While classification of CCR as a hazardous waste would have led to more stringent restrictions and higher costs, this regulation may still increase our customers' operating costs and potentially reduce their ability to purchase coal. In addition, contamination caused by the past disposal of CCR, including coal ash, could lead to citizen suit enforcement against our customers under RCRA or other federal or state laws and potentially reduce the demand for coal. In another development regarding coal combustion wastes, the EPA conducted an assessment of impoundments and other units that manage residuals from coal combustion and that contain free liquids following a massive coal ash spill in Tennessee in 2008, the EPA contractors conducted site assessments at many impoundments and is requiring appropriate remedial action at any facility that is found to have a unit posing a risk for potential failure. The EPA is posting utility responses to the assessment on its web site as the responses are received. After industry groups filed a suit in the D.C. Circuit, challenging the 2015 rule, former EPA Administrator Pruitt issued a letter on September 13, 2017 indicating the agency's decision to reconsider the rule in response to industry petitions. On August 22, 2018, the D.C. Circuit remanded the rule at EPA's request. On August 28, 2020, EPA issued a final revised rule that modifies standards regarding beneficial use and assessing environmental harm, and extends deadlines for regulated entities to come into compliance. The revised rules are subject to legal challenge. Future regulations resulting from the EPA coal combustion refuse assessments may impact the ability of the Company's utility customers to continue to use coal in their power plants.

Comprehensive Environmental Response, Compensation and Liability Act. The Comprehensive Environmental Response, Compensation and Liability Act, which we refer to as CERCLA, and similar state laws affect coal mining operations by, among other things, imposing cleanup requirements for threatened or actual releases of hazardous substances that may endanger public health or welfare or the environment. Under CERCLA and similar state laws, joint and several liability may be imposed on waste generators, site owners and lessees and others regardless of fault or the legality of the original disposal activity. Although the EPA excludes most wastes generated by coal mining and processing operations from the hazardous waste laws, such wastes can, in certain circumstances, constitute hazardous substances for the purposes of CERCLA. In addition, the disposal, release or spilling of some products used by coal companies in operations, such as chemicals, could trigger the liability provisions of the statute. Thus, coal mines that we currently own or have previously owned or operated, and sites to which we sent waste materials, may be subject to liability under CERCLA and similar state laws. In particular, we may be liable under CERCLA or similar state laws for the cleanup of hazardous substance contamination at sites where we own surface rights.

Endangered Species. The Endangered Species Act and other related federal and state statutes protect species threatened or endangered with possible extinction. Protection of threatened, endangered and other special status species may have the effect of prohibiting or delaying us from obtaining mining permits and may include restrictions on timber harvesting, road building and other mining or agricultural activities in areas containing the affected species. A number of species indigenous to our properties are protected under the Endangered Species Act or other related laws or regulations. Based on the species that have been identified to date and the current application of applicable laws and regulations, however, we do not believe there are any species protected under the Endangered Species Act that would materially and adversely affect our ability to mine coal from our properties in accordance with current mining plans. We have been able to continue our operations within the existing spatial, temporal and other restrictions associated with special status species. In its final rule published on December 16, 2020, the FWS adopted a regulatory definition of "habitat" for the first time, which could have important consequences for future designations of "critical habitat" under the Endangered Species Act. Designation of critical habitat by the FWS can affect projects that require federal agency permits or funding, because section 7 of the Endangered Species Act requires federal agencies to ensure, through consultation with the FWS, that their actions are not likely to adversely modify or destroy designated critical habitat. Should more stringent protective measures be developed and applied to threatened, endangered or other special status species or to their critical habitat, then we could experience increased operating costs or difficulty in obtaining future mining permits.

Use of Explosives. Our surface mining operations are subject to numerous regulations relating to blasting activities. Pursuant to these regulations, we incur costs to design and implement blast schedules and to conduct pre-blast surveys and blast monitoring. In addition, the storage of explosives is subject to strict regulatory requirements established by four different federal regulatory agencies. For example, pursuant to a rule issued by the Department of Homeland Security in 2007, facilities in possession of chemicals of interest, including ammonium nitrate at certain threshold levels, must complete a screening review in order to help determine whether there is a high level of security risk such that a security vulnerability assessment and site security plan will be required.

Other Environmental Laws. We are required to comply with numerous other federal, state and local environmental laws in addition to those previously discussed. These additional laws include, for example, the Safe Drinking Water Act, the Toxic Substance Control Act and the Emergency Planning and Community Right-to-Know Act.

Human Capital Resources

At December 31, 2020, Arch and its subsidiaries currently employ more than 3,200 people in the United States and three employees overseas. Management believes that it has good relations with its employees.

Arch's responsible and respectful corporate culture has allowed it to attract and retain an experienced, talented and high-performing workforce. The company and its subsidiaries had an average voluntary retention rate of 95% in 2020. Approximately 41% of the company's workforce had at least 10 years of company service in 2020.

Health and Safety. Safety is a deeply engrained value at Arch. We have consistently led our large, integrated peers in safety performance, as measured by lost-time incident rate.

During the past five years, Arch has averaged 0.92 lost-time incidents per 200,000 employee-hours worked. In 2020, Arch averaged 0.93 lost-time incidents per 200,000 employee-hours worked, versus 2.60 for our 10 largest North American peers.

Across the organization, employees engage in a proactive, behavior-based approach to safety. Every field employee participates in safety training on an ongoing basis, and nearly 100 percent of our field employees have been trained as safety observers. If an at-risk behavior or a barrier to safe behavior is identified, employees are empowered to engage and to apply their training to resolve the potentially unsafe condition or practice immediately.

Since launching the behavior-based program in 2007, Arch's operating subsidiaries have recorded a total of 1.25 million safety observations and in so doing have created a deep, employee-driven safety culture. Most importantly, the process has resulted in the successful modification of at-risk behaviors and has served as a platform for reinforcing positive behaviors. In addition, Arch operations conduct safety meetings in advance of every shift, to ensure that every employee begins every workday sharply focused on working safely.

During the year, Arch's subsidiary operations also claimed two Sentinels of Safety awards, the nation's highest distinction for mine safety; the Department of Interior's Good Neighbor Award, the nation's highest honor for community outreach and engagement; the Milestones of Safety Award, the state of West Virginia's top safety honor; and the Greenlands Award, the state of West Virginia's top reclamation honor. Leer and Leer South – the company's flagship operations set the company standard by claiming three of these major awards.

Our safety focus is also evident in our response to the COVID-19 pandemic. We have instituted many policies and procedures, in alignment with CDC guidelines state and local mandates, to protect our employees during the COVID-19 outbreak. These policies and procedures include, but are not limited to, staggering shift times to limit the number of people in common areas at one time, limiting meetings and meeting sizes, wearing masks, continual cleaning and disinfecting of high touch and high traffic areas, including door handles, bath rooms, bath houses, access elevators, mining equipment, and other areas, limiting contractor access to our properties, limiting business travel, and instituting work from home for administrative employees. We plan to keep these policies and procedures in place and continually evaluate further enhancements for as long as necessary.

Training and Development. We recognize the importance of furthering education and development of its employees through the various stages of their careers. To that end, we offers free access to thousands of courses that are designed for personal and career development through an online education platform. A number of these courses are tailored so employees can earn Continuing Education Units (CEU), Professional Development Hours (PDH), and Professional Engineering (PE) Units to fulfill accreditation requirements. Additionally, employees are eligible for a tuition reimbursement benefit through a program designed to encourage and support development of employee skills by providing financial assistance for an approved course of study. In the past five years, Arch's tuition reimbursement program totaled more than $1 million. These programs reflect our view that ongoing employee development is good business as well as a valuable benefit that can help attract and retain talented and skilled people.

We also invest significantly in the development of its next generation of leaders. Over the past five years, Arch has designed and conducted ongoing multi-day leadership workshops designed to educate high-potential corporate and subsidiary employees about our strategic direction, financial position, asset base and corporate culture, as well as to enhance leadership skillsets. More than 450 high-potential employees have participated in those workshops, with the company's senior management team and other senior leaders participating in the training sessions.

In addition, we hold a safety and environmental stewardship summit at our headquarters location in Saint Louis each year. More than 240 employees from all subsidiary mine sites in addition to the senior leadership team and corporate employees participate in this summit each year, which creates opportunities for sharing best practices across the operations while reinforcing the company's deep commitment to excellence in these critical areas of performance.

Executive Officers of the Registrant

The following is a list of our executive officers, their ages as of February 12, 2021 and their positions and offices during the last five years:

Name	Age	Position
Paul T. Demzik	59	Mr. Demzik has served as our Senior Vice President and Chief Commercial Officers since January 2019. From June 2013 to January 2019, Mr. Demzik served as Head of Thermal Coal Trading with Anglo American Marketing Limited in London and served as President of Peabody COALTRADE, LLC from July 2005 to July 2012.
John T. Drexler	51	Mr. Drexler has served as our Senior Vice President and Chief Operating Officer since 2020. Mr. Drexler served as our Senior Vice President and Chief Financial Officer from 2008 to 2020 and our Vice President-Finance and Accounting from 2006 to 2008. From 2005 to 2006, Mr. Drexler served as our Director of Planning and Forecasting. Prior to 2005, Mr. Drexler held several other positions within our finance and accounting department. Mr. Drexler also serves on the board of Knight Hawk Holdings, LLC.
John W. Eaves	63	Mr. Eaves has served as our Executive Chairman of the Board of Directors since retiring as Chief Executive Officer in 2020. Mr. Eaves was our Chief Executive Officer from 2012 to 2020. Mr. Eaves served as our Chairman of the Board from 2015 to 2016 and our President and Chief Operating Officer from 2006 to 2012. From 2002 to 2006, Mr. Eaves served as our Executive Vice President and Chief Operating Officer. Mr. Eaves currently serves on the board of the CF Industries Holdings, Inc. Mr. Eaves was previously a Director of Advanced Emissions Solutions, Inc., The National Association of Manufacturers, The National Mining Association, and former Chairman of the National Coal Council.
Matthew C. Giljum	49	Mr. Giljum has served as our Chief Financial Officer since 2020. Mr. Giljum served as our Vice President of Finance and Treasurer from 2015 to 2020. Prior to that role, he served as the company's Vice President of Finance, as well as a number of other positions of increasing responsibility in the company's finance department.
Rosemary L. Klein	53	Ms. Klein has served as our Senior Vice President - Law, General Counsel and Secretary since October 2020. Prior to that she served as special counsel in the Company's legal department since 2015. Prior to joining the Company in 2015, Ms. Klein served as general counsel and corporate secretary - and held other senior leadership roles - at several multinational, publicly held corporations, including Solutia Inc. and Spartech Corporation.
Paul A. Lang	60	Mr. Lang has served as our President and Chief Executive Officer since 2020. Mr. Lang served as our President and Chief Operating Officer since April 2015 and has served as our Executive Vice President and Chief Operating Officer since April 2012 and as our Executive Vice President-Operations from August 2011 to April 2012. Mr. Lang served as Senior Vice President-Operations from 2006 through August 2011, as President of Western Operations from 2005 through 2006 and President and General Manager of Thunder Basin Coal Company from 1998 to 2005. Mr. Lang is a member of the Board of The National Mining Association. Mr. Lang has also served as Director of Knight Hawk Holdings, LLC and served on the development board of the Mining Department of the Missouri University of Science & Technology, and is the former chairman of the University of Wyoming’s School of Energy Resources Council.
Deck S. Slone	57	Mr. Slone has served as our Senior Vice President-Strategy and Public Policy since June 2012. Mr. Slone served as our Vice President-Government, Investor and Public Affairs from 2008 to June 2012. Mr. Slone served as our Vice President-Investor Relations and Public Affairs from 2001 to 2008. In the past Mr. Slone served as the chairman of the National Coal Council, the co-chair of the Carbon Utilization Research Council, and the Chair of the National Mining Association’s Energy Policy Task Force.
John A. Ziegler, Jr.	54	Mr. Ziegler has served as our Senior Vice President & Chief Administrative Officer since January 2019. Mr. Ziegler served as our Chief Commercial Officer since March 2014. Mr. Ziegler served as our Vice President-Human Resources from April 2012 to March 2014. From October 2011 to April 2012, Mr. Ziegler served as our Senior Director-Compensation and Benefits. From 2005 to October 2011 Mr. Ziegler served as Vice President-Contract Administration, President of Sales, then finally Senior Vice President, Sales and Marketing and Marketing Administration. Mr. Ziegler joined Arch Coal in 2002 as Director-Internal Audit. Prior to joining Arch Coal, Mr. Ziegler held various finance and accounting positions with bioMerieux and Ernst & Young.

Available Information

We file annual, quarterly and current reports, and amendments to those reports, proxy statements and other information with the Securities and Exchange Commission. You may access and read our filings without charge through the SEC's website, at *sec.gov*.

We also make the documents listed above available without charge through our website, *archrsc.com*, as soon as practicable after we file or furnish them with the SEC. You may also request copies of the documents, at no cost, by telephone at (314) 994-2700 or by mail at Arch Resources, Inc., One CityPlace Drive, Suite 300, St. Louis, Missouri, 63141 Attention: Senior Vice President-Strategy and Public Policy. The information on our website is not part of this Annual Report on Form 10-K.

GLOSSARY OF SELECTED MINING TERMS

Certain terms that we use in this document are specific to the coal mining industry and may be technical in nature. The following is a list of selected mining terms and the definitions we attribute to them.

Assigned reserves	Recoverable reserves designated for mining by a specific operation.
Bituminous coal	Coal used primarily to generate electricity and to make coke for the steel industry with a heat value ranging between 10,500 and 15,500 Btus per pound.
Btu	A measure of the energy required to raise the temperature of one pound of water one degree of Fahrenheit.
Coking coal	Coal used to produce coke, the primary source of carbon used in steelmaking.
Compliance coal	Coal which, when burned, emits 1.2 pounds or less of sulfur dioxide per million Btus, requiring no blending or other sulfur dioxide reduction technologies in order to comply with the requirements of the Clean Air Act.
Continuous miner	A machine used in underground mining to cut coal from the seam and load it onto conveyors or into shuttle cars in a continuous operation.
Dragline	A large machine used in surface mining to remove the overburden, or layers of earth and rock, covering a coal seam. The dragline has a large bucket, suspended by cables from the end of a long boom, which is able to scoop up large amounts of overburden as it is dragged across the excavation area and redeposit the overburden in another area.
Hard coal	Coking coal of gross calorific value greater than 5700 kcal/kg on an ash free but moist basis and further disaggregated into anthracite, coking coal and other bituminous coal.
High-Vol A	A coking coal used in steel production with a volatile matter content between 31% and 34.5% on a dry basis.
High-Vol B	A coking coal used in steel production with a volatile matter content between 34.5% and 38% on a dry basis.
Lignite Coal	Coal with the lowest carbon content and a heat value ranging between 4,000 and 8,300 Btus per pound.
Longwall mining	One of two major underground coal mining methods, generally employing two rotating drums pulled mechanically back and forth across a long face of coal.
Low-sulfur coal	Coal which, when burned, emits 1.6 pounds or less of sulfur dioxide per million Btus.
Low-Vol	A coking coal used in steel production with a volatile matter content between 16% and 23% on a dry basis.
Metallurgical coal	Coal used in steel production either as coking coal or pulverized coal injection (PCI).
Preparation plant	A facility used for crushing, sizing and washing coal to remove impurities and to prepare it for use by a particular customer.
Probable reserves	Reserves for which quantity and grade and/or quality are computed from information similar to that used for proven reserves, but the sites for inspection, sampling and measurement are farther apart or are otherwise less adequately spaced.
Proven reserves	Reserves for which (a) quantity is computed from dimensions revealed in outcrops, trenches, workings or drill holes; grade and/or quality are computed from the results of detailed sampling and (b) the sites for inspection, sampling and measurement are spaced so closely and the geologic character is so well defined that size, shape, depth and mineral content of reserves are well established.
Pulverized coal injection coal (PCI)	Coal that is introduced directly into the blast furnace as a source of energy and carbon in the steelmaking process.
Reclamation	The restoration of land and environmental values to a mining site after the coal is extracted. The process commonly includes "recontouring" or shaping the land to its approximate original appearance, restoring topsoil and planting native grass and ground covers.
Recoverable reserves	The amount of proven and probable reserves that can actually be recovered from the reserve base taking into account all mining and preparation losses involved in producing a saleable product using existing methods and under current law.

Reserves	That part of a mineral deposit which could be economically and legally extracted or produced at the time of the reserve determination.
Subbituminous coal	Coal used primarily to generate electricity with a heat value ranging between 8,300 and 13,000 Btus per pound.
Room-and-pillar mining	One of two major underground coal mining methods, utilizing continuous miners creating a network of “rooms” within a coal seam, leaving behind “pillars” of coal used to support the roof of a mine.
Unassigned reserves	Recoverable reserves that have not yet been designated for mining by a specific operation.

ITEM 1A. RISK FACTORS.

Our business involves certain risks and uncertainties. In addition to the risks and uncertainties described below, we may face other risks and uncertainties, some of which may be unknown to us and some of which we may deem immaterial. The following review of important risk factors should not be construed as exhaustive and should be read in conjunction with other cautionary statements that are included herein or elsewhere. If one or more of these risks or uncertainties occur, our business, financial condition or results of operations may be materially and adversely affected.

Summary Risk Factors

Our business is subject to a number of risks, including risks that may prevent us from achieving our business objectives or may adversely affect our business, financial condition, results of operations, cash flows. These risks are discussed more fully below and include, but are not limited to, risks related to:

Risks Related to Our Operations

- The COVID-19 pandemic;
- A decline in coal prices;
- Unfavorable economic and market conditions;
- The effects of foreign and domestic trade policies;
- Competition could put downward pressure on coal prices;
- Our customers are continually evaluating alternative steel production technologies;
- Any decrease in the coal consumption of electric power generators could result in less demand and lower prices for coal;
- Our coal mining operations are subject to operating risks that are beyond our control;
- Our inability to acquire additional coal reserves or our inability to develop coal reserves;
- We may be unable to fund capital expenditures to maintain and grow our business;
- Inaccuracies in our estimates of our coal reserves;
- Credit pressures from banks, surety bond providers, or other counterparties to eliminate exposure to the coal industry;
- Increases in the costs of mining and other industrial supplies;
- Disruptions in the quantities of coal purchased from other third parties;
- Changes in purchasing patterns in the coal industry;
- Our ability to collect payments from our customers;
- A defect in title or the loss of a leasehold interest in certain properties or surface rights;
- The availability, reliability and cost-effectiveness of transportation facilities and fluctuations in transportation costs;
- The loss of, or a significant reduction in, purchases by our largest customers;
- We may incur losses as a result of certain marketing, trading and asset optimization strategies;
- If we sustain cyber-attacks or other security breaches that disrupt our operations, or that result in the unauthorized release of proprietary or confidential information;
- We may be unable to comply with the restrictions imposed by our Term Loan Debt Facility and other financing arrangements;
- We may be unable to raise the funds necessary to repurchase our convertible notes for cash following a fundamental change, or to pay any cash amounts due upon conversion;

Risks Related to Environmental, Other Regulations and Legislation

- Extensive environmental regulations, including existing and potential future regulatory requirements relating to air emissions, affect our customers and could reduce the demand for coal as a fuel source;
- Increase pressure from political and regulatory authorities, along with environmental activist groups, and lending and investment policies adopted by financial institutions and insurance companies to address concerns about the environmental impacts of coal combustion;
- Our failure to obtain and renew permits necessary for our mining operations could negatively affect our business;
- Federal or state regulatory agencies have the authority to order certain of our mines to be temporarily or permanently closed under certain circumstances;
- Extensive environmental regulations impose significant costs on our mining operations, and future regulations could materially increase those costs or limit our ability to produce and sell coal;
- If the assumptions underlying our estimates of reclamation and mine closure obligations are inaccurate;
- Our operations may impact the environment or cause exposure to hazardous substances, and our properties may have environmental contamination;
- Changes in the legal and regulatory environment could complicate or limit our business activities, increase our operating costs or result in litigation;

Risks Related to Income Taxes

- Our ability to use net operating losses and alternative minimum tax credits is subject to current limitation, and our ability to use net operating losses may be subject to additional limitations;
- U.S. tax legislation may materially adversely affect our financial condition, results of operations and cash flows;

General Risk Factors

- International growth in our operations adds new and unique risks to our business; and
- Our ability to operate our business effectively could be impaired if we lose key personnel or fail to attract qualified personnel.

The COVID-19 pandemic has adversely affected, and will continue to adversely affect, our business, financial condition, liquidity and results of operations.

The coronavirus disease 2019 (“COVID-19”) pandemic has resulted in a widespread health crisis that has adversely affected businesses, economies and financial markets worldwide. The full impact of COVID-19 is unknown and rapidly evolving. Our business, financial condition, liquidity and results of operations have been, and may continue to be, adversely affected by the COVID-19 pandemic. Our profitability and the value of our coal reserves depend upon the prices we receive for our coal, which are largely dependent on prevailing market prices. Measures taken to address and limit the spread of the disease—such as stay-at-home orders, social distancing guidelines, and travel restrictions—have adversely affected the economies and financial markets of many countries, resulting in an economic downturn that has in turn negatively impacted, and may continue to negatively impact, global demand and prices for coal, as well as a widespread increase in unemployment that may further reduce demand and prices for coal. These conditions may lead to extreme volatility of coal prices, severely limited liquidity and credit availability and declining valuations of assets, which have adversely affected and will continue affecting our business, financial condition, liquidity and results of operations.

In addition, the COVID-19 pandemic, and measures taken by governments, organizations, the Company and our customers to reduce its effects could potentially impact our employees, customers and suppliers. To date, multiple local, state and national governments have issued orders requiring businesses that do not conduct essential services to temporarily close their physical workplaces to employees and customers. Though we are currently deemed an essential business and, as a result, are exempt from these orders, the impact of the COVID-19 pandemic and measures to prevent its spread could materially and adversely affect our businesses in a number of ways. In the fourth quarter of 2020, we experienced a significant increase in the number of COVID-19 cases in our workforce, in parallel to the trends seen in the counties in which we operate. For more information about the impact of the positive COVID-19 cases on our operations, see Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations—Operational Performance." The COVID-19 pandemic may significantly disrupt our workforce if a significant percentage of our employees are unable to work due to illness, quarantines, government actions, facility closures or fear of contracting COVID-19, which may result in more idling of continuous miner production shifts. Additionally, in the event that customers, contractors, employees or others were to allege that they contracted COVID-19, or otherwise suffered compensable losses arising out of a COVID-19 exposure or infection, because of actions we took or failed to take, we could face claims, lawsuits and potential legal liability. In addition to the reasonableness of our actions and efforts to comply with applicable COVID-19 guidance, our exposure and ultimate liability would depend upon the relationship between us and the person asserting claims, the nature of the claims asserted, applicability of workers' compensation, the availability of other insurance coverage and limitations on liability currently being considered, if enacted, at the state and federal level. Such disruptions and risks may continue or increase in the future, and could adversely affect, our business, financial condition, liquidity and results of operations.

The COVID-19 pandemic may also have the effect of heightening many of the other risks described in this "Risk Factors" section, including, but not limited to, those relating to coal prices; economic and market conditions; decreases in coal consumption; our ability to fund necessary capital expenditures; disruptions in the availability of mining and other industrial supplies; changes in purchasing patterns of our customers and their effects on our coal supply agreements; our reliance on key managers and employees; increase in cybersecurity risk due to remote working; and our ability to access the capital markets and obtain financing, insurance, and surety bonds upon favorable terms, among others.

The full extent to which the COVID-19 pandemic will impact our results is unknown and evolving, and will depend on future developments, which are highly uncertain and cannot be predicted. These include the severity, duration and spread of COVID-19, the success of actions taken by governments and health organizations to combat the disease and treat its effects, including additional remedial legislation, and the extent to which, and when, general economic and operating conditions recover. Accordingly, any resulting financial impact cannot be reasonably estimated at this time but such amounts may be material.

Risks Related to Our Operations

Coal prices are subject to change based on a number of factors and can be volatile. If there is a decline in prices, it could materially and adversely affect our profitability and the value of our coal reserves.

Our profitability and the value of our coal reserves depend upon the prices we receive for our coal. The contract prices we may receive in the future for coal depend upon factors beyond our control, including the following:

- the domestic and foreign supply of and demand for coal;
- the domestic and foreign demand for steel and electricity;
- competition for production of steel from electric arc furnaces, which may limit demand for coking coal;
- the quantity and quality of coal available from competitors;
- competition for production of electricity from non-coal sources, including the price and availability of alternative fuels;
- domestic and foreign air emission standards for coal-fueled power plants and blast furnaces and the ability to meet these standards;
- adverse weather, climatic or other natural conditions, including unseasonable weather patterns;
- domestic and foreign economic conditions, including economic slowdowns and the exchange rates of U.S. dollars for foreign currencies;
- domestic and foreign legislative, regulatory and judicial developments, environmental regulatory changes or changes in energy policy and energy conservation measures that would adversely affect the coal

industry, such as legislation limiting carbon emissions or providing for increased funding and incentives for alternative energy sources;
- the imposition of tariffs, quotas, trade barriers and other trade protection measures;
- the proximity to, capacity of and cost of transportation and port facilities; and
- technological advancements, including those related to hydrogen based steel production alternative energy sources, those intended to convert coal-to-liquids or gas and those aimed at capturing, using and storing carbon dioxide.

Declines in the prices we receive for our future coal sales contracts, could materially and adversely affect us by decreasing our profitability, cash flows, liquidity and the value of our coal reserves.

Unfavorable economic and market conditions have adversely affected and may continue to affect our revenues and profitability.

Our profitability depends, in large part, on conditions in the markets that we serve, which fluctuate in response to various factors beyond our control. The prices at which we sell our coal are largely dependent on prevailing market prices. We have experienced significant price volatility at times during the past several years as the demand for, and price of, coal has been subject to pressure for a variety of reasons, including reductions in domestic and international demand for metallurgical and thermal coal.

We are currently experiencing downturn related effects due to COVID-19 impacts. These conditions have, led to extreme volatility of prices, severely limited liquidity and credit availability, and resulted in declining valuations of assets. If there are downturns in economic conditions, our and our customers' businesses, financial condition and results of operations could be adversely affected. There can be no assurance that our cost control actions and capital discipline, or any other actions that we may take, will be sufficient to offset any adverse effect these conditions may have on our business, financial condition or results of operations.

The effects of foreign and domestic trade policies, actions or disputes on the level of trade among the countries and regions in which we operate could negatively impact our business, financial condition or results of operations.

Trade barriers such as tariffs imposed by the United States could potentially lead to trade disputes with other foreign governments and adversely impact global economic conditions. For instance, as a result of a near term ban on Australian coal exports to China, traders and buyers have diverted cargoes into other markets around the world, including India and Europe which has negatively impacted the global demand for steel, and in turn, the demand for metallurgical coal. Further, in March 2018, the U.S. imposed a 25% tariff on all imported steel into the United States which could negatively impact the global demand for steel, and in turn, the demand for metallurgical coal. In addition, continued or worsening U.S.-China trade tensions may result in additional tariffs or other protectionist measures that materially, adversely affect foreign demand for our coal.

In addition, potential changes to international trade agreements, trade policies, trade concessions or other political and economic arrangements may benefit coal producers operating in countries other than the United States. We may not be able to compete on the basis of price or other factors with companies that in the future benefit from favorable foreign trade policies or other arrangements.

Competition could put downward pressure on coal prices and, as a result, materially and adversely affect our revenues and profitability.

We compete with numerous other domestic and foreign coal producers for domestic and international sales. Overcapacity and increased production within the coal industry, both domestically and internationally, and decelerating steel demand have at times, and could in the future, materially reduce coal prices and therefore materially reduce our revenues and profitability. In addition, our ability to ship our coal to international customers depends on port capacity, which is limited. Increased competition within the coal industry for international sales could result in us not being able to obtain throughput capacity at port facilities, or the rates for such throughput capacity increasing to a point where it is not economically feasible to export our coal.

The domestic coal industry has experienced consolidation in recent years, including consolidation among some of our major competitors. In addition, substantial overcapacity exists in the thermal coal industry and several other large coal companies have also filed, and others may file, bankruptcy proceedings which could enable them to lower their production costs and thereby reduce the price for coal. Consolidation in the coal industry or current or future bankruptcy proceedings of our coal competitors could adversely affect our competitive position.

In addition to competing with other coal producers, we compete generally with producers of other fuels, such as natural gas and subsidized renewables. Natural gas pricing has declined significantly in recent years. The decline in the price of natural gas has caused demand for coal to decrease and adversely affected the price of our coal. Sustained periods of low natural gas prices have also contributed to utilities phasing out or closing existing coal-fired power plants and continued low prices could eliminate construction of any new coal-fired power plants. This trend has, and could continue to have, a material adverse effect on demand and prices for our coal. Moreover, the construction of new pipelines and other natural gas distribution channels may increase competition within regional markets and thereby decrease the demand for and price of our coal.

Our customers are continually evaluating alternative steel production technologies, which may reduce demand for our product.

Our metallurgical coal is a premium High-Vol metallurgical coal for blast furnace steel producers. Premium High-Vol metallurgical coal commands a significant price premium over other forms of coal because of its value in use in blast furnaces for steel production. Premium High-Vol metallurgical coal is a scarce commodity and has specific physical and chemical properties which are necessary for efficient blast furnace operation. Alternative technologies are continually being investigated and developed with a view to reducing production costs or for other reasons, such as minimizing environmental or social impact. If competitive technologies emerge or are increasingly utilized that use other materials in place of our product or that diminish the required amount of our product, such as electric arc furnaces or pulverized coal injection processes, demand and price for our met coal might fall. Many of these alternative technologies are designed to use lower quality coals or other sources of carbon instead of higher cost High-Vol metallurgical coal. While conventional blast furnace technology has been the most economic large-scale steel production technology for a number of years, and while emergent technologies typically take many years to commercialize, there can be no assurance that over the longer term competitive technologies not reliant on High-Vol metallurgical coal could emerge which could reduce demand and price premiums for High-Vol metallurgical coal.

Any decrease in the coal consumption of electric power generators could result in less demand and lower prices for coal, which could materially and adversely affect our revenues and results of operations.

Thermal coal accounted for 91% of our coal sales by volume and 56% of the coal sales revenue during 2020. The majority of these sales were to electric power generators. The amount of coal consumed for electric power generation is affected primarily by the overall demand for electricity, the availability, quality and price of competing fuels (particularly natural gas) for power generation and governmental regulations which may dictate an alternate source of fuel regardless of economics. Overall economic activity and the associated demand for power by industrial users can have significant effects on overall electricity demand and can be impacted by a number of factors. An economic slowdown can significantly slow the growth of electricity demand and could result in reduced demand for coal. For example, declines in the rate of growth currently being experienced related to the effects due to COVID-19 in countries such as China, India or other developing countries could further negatively impact the demand for U.S. coal and result in a continuing oversupply of coal in the marketplace. Weather patterns can also greatly affect electricity demand. Extreme temperatures, both hot and cold, cause increased power usage and, therefore, increase generating requirements from all sources. Mild temperatures, on the other hand, result in lower electrical demand, which allows generators to choose the source of power generation that is most cost efficient.

Gas-fueled generation has the potential to displace coal-fueled generation, particularly from older, less efficient coal-powered generators and this has occurred to date. We expect that many of the new power plants constructed in the United States to meet increasing demand for electricity generation will be fueled by natural gas because gas-fired plants are cheaper to construct and permits to construct these plants are easier to obtain as natural gas combustion is seen as having a lower environmental impact than coal combustion. In addition, state and federal mandates for increased use of electricity from renewable energy sources also have an impact on the market for our coal. Several states have enacted legislative mandates requiring electricity suppliers to use renewable energy sources to generate a certain percentage of power. There have been numerous proposals to establish a similar uniform national standard, although none of these proposals have been enacted to date. The costs of certain renewable energy sources have become increasingly competitive to coal, and possible advances in technologies and incentives, such as tax credits, to enhance the economics of renewable energy sources could make these sources even more competitive. Any reduction in the amount of coal consumed by electric power generators could reduce the price of coal that we mine and sell, thereby reducing our revenues and materially and adversely affecting our business and results of operations.

Our coal mining operations are subject to operating risks that are beyond our control, which could result in materially increased operating expenses and decreased production levels and could materially and adversely affect our profitability.

We conduct underground and surface mining operations. Certain factors beyond our control, including those listed below, could disrupt our coal mining operations, adversely affect production and shipments and increase our operating costs:

- poor mining conditions resulting from geological, hydrologic or other conditions that may cause instability of highwalls or spoil piles or cause damage to nearby infrastructure or mine personnel;
- a major incident at the mine site that causes all or part of the operations of the mine to cease for some period of time;
- mining, processing and plant equipment failures and unexpected maintenance problems;
- adverse weather and natural disasters, such as heavy rains or snow, flooding and other natural events affecting operations, transportation or customers, and public health crises, such as the COVID-19 pandemic;
- the unavailability of raw materials, equipment (including heavy mobile equipment) or other critical supplies such as tires, explosives, fuel, lubricants and other consumables of the type, quantity and/or size needed to meet production expectations;
- unexpected or accidental surface subsidence from underground mining;
- accidental mine water discharges, fires, explosions or similar mining accidents;
- delays or closures by third-parties that transport coal shipments; and
- competition and/or conflicts with other natural resource extraction activities and production within our operating areas, such as coalbed methane extraction or oil and gas development.

If any of these conditions or events occurs, particularly at our Black Thunder and Leer mining complexes, which accounted for approximately 86% of the coal volume we sold and 70% of the revenue we generated in 2020, our coal mining operations may be disrupted and we could experience a delay or halt of production or shipments or our operating costs could increase significantly. In addition, if our insurance coverage is limited or excludes certain of these conditions or events, then we may not be able to recover for losses incurred as a result of such conditions or events, some of which may be substantial.

Our inability to acquire additional coal reserves or our inability to develop coal reserves in an economically feasible manner may adversely affect our business.

Our profitability depends substantially on our ability to mine and process, in a cost-effective manner, coal reserves that possess the quality characteristics desired by our customers. As we mine, our coal reserves deplete. As a result, our future success depends upon our ability to obtain, through acquisition or development of owned reserves, coal that is economically recoverable. If we fail to acquire or develop additional coal reserves, our existing reserves will eventually be depleted. We may not be able to obtain replacement reserves when we require them. If available, replacement reserves may not be available at favorable prices, or we may not be capable of mining those reserves at costs that are comparable with our existing coal reserves. In certain locations, leases for oil, natural gas and coalbed methane reserves are located on, or adjacent to, some of our reserves, potentially creating conflicting interests between us and lessees of those interests. Other lessees' rights relating to these mineral interests could prevent, delay or increase the cost of developing our coal reserves. These lessees may also seek damages from us based on claims that our coal mining operations impair their interests.

Our ability to obtain coal reserves in the future could also be limited by the availability of cash we generate from our operations or available financing, restrictions under our existing or future financing arrangements, competition from other coal producers, opportunities or the inability to acquire coal properties on commercially reasonable terms. Increased opposition from non-governmental organizations and other third parties may also lengthen, delay or adversely impact the acquisition process. If we are unable to acquire replacement reserves, our future production may decrease significantly and our operating results may be negatively affected. In addition, we may not be able to mine future reserves as profitably as we do at our current operations.

To maintain and grow our business, we will be required to make substantial capital expenditures which we may be unable to fund.

Our business plan and strategy require substantial capital expenditures. Maintaining mines, expanding mines and related infrastructure and developing new mines such as Leer South are capital intensive. Specifically, the exploration, permitting and development of metallurgical coal reserves, the maintenance of machinery, equipment and facilities and compliance with safety, health and environmental laws and regulations require ongoing capital expenditures. We cannot assure you that we will be able to maintain our production levels or generate sufficient cash flow, or that we will have access to sufficient financing to continue our production, exploration, permitting and development activities at or above our present levels and on our current or projected timelines, and we may be required to defer all or a portion of our capital expenditures. If we do not make sufficient or effective capital expenditures, we will be unable to maintain and grow our business. To fund our capital expenditures, we will be required to use cash from our operations, incur debt or sell additional equity securities. Our ability to obtain financing or our ability to access the capital markets for future equity or debt offerings may be limited by our financial condition at the time of any such financing or offering and the covenants in our existing debt agreements, as well as by general economic conditions, contingencies and uncertainties that are beyond our control. Our results of operations, business and financial condition may be materially adversely affected if we cannot make such capital expenditures.

Inaccuracies in our estimates of our coal reserves could result in decreased profitability from lower than expected revenues or higher than expected costs.

Our future performance depends on, among other things, the accuracy of our estimates of our proven and probable coal reserves. We base our estimates of reserves on engineering, economic and geological data assembled, analyzed and reviewed by internal and third-party engineers and consultants. We update our estimates of the quantity and quality of proven and probable coal reserves annually to reflect the production of coal from the reserves, updated geological models and mining recovery data, the tonnage contained in new lease areas acquired and estimated costs of production and sales prices. There are numerous factors and assumptions inherent in estimating the quantities and qualities of, and costs to mine, coal reserves, including many factors beyond our control, including the following:

- quality of the coal;
- geological and mining conditions, which may not be fully identified by available exploration data and/or may differ from our experiences in areas where we currently mine;
- the percentage of coal ultimately recoverable;
- the assumed effects of regulation, including the issuance of required permits, taxes, including severance and excise taxes, and royalties, and other payments to governmental agencies;
- assumptions concerning the timing for the development of the reserves;
- assumptions concerning physical access to the reserves; and
- assumptions concerning equipment and productivity, future coal prices, operating costs, including for critical supplies such as fuel, tires and explosives, capital expenditures and development and reclamation costs.

As a result, estimates of the quantities and qualities of economically recoverable coal attributable to any particular group of properties, classifications of reserves based on risk of recovery, estimated cost of production and estimates of future net cash flows expected from these properties as prepared by different engineers, or by the same engineers at different times, may vary materially due to changes in the above factors and assumptions. Actual production recovered from identified reserve areas and properties, and revenues and expenditures associated with our mining operations, may vary materially from estimates. Any inaccuracy in our estimates related to our reserves could result in decreased profitability from lower than expected revenues and/or higher than expected costs.

The coal industry has experienced increased credit pressures that could result in additional decisions by banks, surety bond providers, or other counterparties to reduce or eliminate their exposure to the coal industry, which could have a material adverse effect on our business and results of operations.

Our financial assurance obligations may increase or become more costly due to a number of factors, and surety bonds and letters of credit may not be available to us, particularly in light of some banks and insurance companies' announced unwillingness to support thermal coal companies. Alternative forms of financial assurance such as self-bonding are generally not available today and may be further restricted or eliminated in the future. Our failure to retain, or inability to obtain surety bonds, bank guarantees or letters of credit, or to provide a suitable alternative, could have a material adverse effect on us. That failure could result from a variety of factors including the following:

- lack of availability, higher expense or unfavorable market terms of new surety bonds, bank guarantees or letters of credit; and
- inability to provide or fund collateral for current and future third-party issuers of surety bonds, bank guarantees or letters of credit.

Because we are required by federal and state law to have these bonds in place before mining can commence or continue, our failure to maintain surety bonds, letters of credit or other guarantees or security arrangements would materially and adversely affect our ability to mine or lease coal. Although some of these credit pressures may be company-specific, many are directed to the coal industry in general due to the current overall negative sentiment toward the thermal coal industry.

As of December 31, 2020, we had posted an aggregate of approximately $646.7 million in surety bonds and $85.5 million of letters of credit outstanding. Any further issuances of letters of credit to satisfy the increased collateral demands or any replacement bonds would immediately reduce the borrowing capacity under the Extended Securitization Facility and Inventory Facility.

Increases in the costs of mining and other industrial supplies, including steel-based supplies, diesel fuel and rubber tires, or the inability to obtain a sufficient quantity of those supplies, could negatively affect our operating costs or disrupt or delay our production.

Our coal mining operations use significant amounts of steel, diesel fuel, explosives, rubber tires and other mining and industrial supplies. The cost of roof bolts we use in our underground mining operations depends on the price of scrap steel. We also use significant amounts of diesel fuel and tires for trucks and other heavy machinery, particularly at our Black Thunder mining complex. There has been some consolidation in the supplier base providing mining materials to the coal industry, such as suppliers of explosives in the U.S. and suppliers of both surface and underground equipment globally, that has limited the number of sources for these materials. If the prices of mining and other industrial supplies, particularly steel based supplies, diesel fuel and rubber tires, increase, our operating costs could be negatively affected. In addition, if we are unable to procure these supplies, our coal mining operations may be disrupted or we could experience a delay or halt in our production.

Disruptions in the quantities of coal purchased from other third parties could temporarily impair our ability to fill customer orders or increase our operating costs.

We purchase coal from third parties that we sell to our customers. Operational difficulties at mines operated by third parties from whom we purchase coal, changes in demand from other coal producers and other factors beyond our control could affect the availability, pricing, and quality of coal purchased by us. Disruptions in the quantities of coal purchased by us could impair our ability to fill our customer orders or require us to purchase coal from other sources in order to satisfy those orders. If we are unable to fill a customer order or if we are required to purchase coal from other sources at higher prices and/or lower quality, in order to satisfy a customer order, we could lose existing customers and our operating costs could increase.

Our profitability depends upon the coal supply agreements we have with our customers. Changes in purchasing patterns in the coal industry could make it difficult for us to extend our existing coal supply agreements or to enter into new agreements in the future.

The success of our businesses depends on our ability to retain our current customers, renew our existing customer contracts and solicit new customers. Our ability to do so generally depends on a variety of factors, including the quality and price of our products, our ability to market these products effectively, our ability to deliver on a timely basis and the level of competition that we face. If current customers do not honor current contract commitments, or if they terminate agreements or exercise *force majeure* provisions allowing for the temporary suspension of performance, our revenues will be adversely affected. Changes in the coal industry may cause some of our customers not to renew, extend or enter into new coal supply agreements or to enter into agreements to purchase fewer tons of coal or on different terms or prices than in the past. In addition, uncertainty caused by federal and state regulations, including under the U.S. Clean Air Act, could deter our customers from entering into coal supply agreements. Also, the availability and price of competing fuels, such as natural gas, could influence the volume of coal a customer is willing to purchase under contract.

Our coal supply agreements typically contain *force majeure* provisions allowing the parties to temporarily suspend performance during specified events beyond their control. Most of our coal supply agreements also contain provisions requiring us to deliver coal that satisfies certain quality specifications, such as heat value, sulfur content, ash content, volatile matter, hardness and ash fusion temperature among others. These provisions in our coal supply agreements could result in negative economic consequences to us, including price adjustments, having to purchase replacement coal in a higher-priced open market, the rejection of deliveries or, in the extreme, contract termination. Our profitability may be negatively affected if we are unable to seek protection during adverse economic conditions or if we incur financial or other economic penalties as a result of these provisions of our coal supply agreements. For more information about our long-term coal supply agreements, you should see the section entitled "Long-Term Coal Supply Arrangements" under Item 1.

Our ability to collect payments from our customers could be impaired if their creditworthiness deteriorates, and our financial position could be materially and adversely affected by the bankruptcy of any of our significant customers.

Our ability to receive payment for coal sold and delivered depends on the continued creditworthiness of our customers. If we determine that a customer is not creditworthy, we may be able to withhold delivery under the customer's coal sales contract. If this occurs, we may decide to sell the customer's coal on the spot market, which may be at prices lower than the contracted price, or we may be unable to sell the coal at all. Furthermore, the bankruptcy of any of our significant customers could materially and adversely affect our financial position.

In addition, our customer base may change with deregulation as utilities sell their power plants to their non-regulated affiliates or third parties that may be less creditworthy, thereby increasing the risk we bear for customer payment default. Some power plant owners may have credit ratings that are below investment grade, or may become below investment grade after we enter into contracts with them. Furthermore, our metallurgical customers operate in a highly competitive and cyclical industry where their creditworthiness could deteriorate rapidly. In addition, competition with other coal suppliers could force us to extend credit to customers and on terms that could increase the risk of payment default. Customers in other countries may also be subject to other pressures and uncertainties that may affect their ability to pay, including trade barriers, exchange controls and local economic and political conditions.

A defect in title or the loss of a leasehold interest in certain properties or surface rights could limit our ability to mine our coal reserves or result in significant unanticipated costs.

We conduct a significant part of our coal mining operations on properties that we lease. A title defect or the loss of a lease or surface rights could adversely affect our ability to mine the associated coal reserves. We may not verify title to our leased properties or associated coal reserves until we have committed to developing those properties or coal reserves. We may not commit to develop properties or coal reserves until we have obtained necessary permits and completed exploration. As such, the title to properties that we intend to lease or coal reserves that we intend to mine may contain defects prohibiting our ability to conduct mining operations. Similarly, our leasehold interests may be subject to superior property rights of other third parties. In order to conduct our mining operations on properties where these defects exist, we may incur unanticipated costs. In addition, some leases require us to produce a minimum quantity of coal and require us to pay minimum production royalties. Our inability to satisfy those requirements may cause the leasehold interest to terminate.

The availability, reliability and cost-effectiveness of transportation facilities and fluctuations in transportation costs could affect the demand for our coal or impair our ability to supply coal to our customers.

We depend upon barge, ship, rail, truck and belt transportation systems, as well as seaborne vessels and port facilities, to deliver coal to our customers. Disruptions in transportation services due to weather-related problems, mechanical difficulties, strikes, lockouts, bottlenecks, route closures and other events beyond our control could impair our ability to supply coal to our customers. Since we do not have long-term contracts with all transportation providers we utilize, decreased performance levels over longer periods of time could cause our customers to look to other sources for their coal needs. In addition, increases in transportation costs, including the price of gasoline and diesel fuel, could make coal a less competitive source of energy when compared to alternative fuels or could make coal produced in one region of the United States less competitive than coal produced in other regions of the United States or abroad. If we experience disruptions in our transportation services or if transportation costs increase significantly and we are unable to find alternative transportation providers, our coal mining operations may be disrupted, we could experience a delay or halt of production or our profitability could decrease significantly. In addition, a growing portion of our coal sales in recent years has been into export markets, and we are actively seeking additional international customers. Our ability to maintain and grow our export sales revenue and margins depends on a number of factors, including the existence of sufficient and cost-effective export terminal capacity for the shipment of coal to foreign markets. At present, there is limited terminal capacity for the export of coal into foreign markets. Our access to existing and future terminal capacity may be adversely affected by, among other factors, regulatory and permit requirements, environmental and other legal challenges, public perceptions and resulting political pressures, foreign and domestic trade policies, operational issues at terminals and competition among domestic coal producers for access to limited terminal capacity. If we are unable to maintain terminal capacity, or are unable to access additional future terminal capacity for the export of our coal on commercially reasonable terms, or at all, our results could be materially and adversely affected.

From time to time we enter into “take or pay” contracts for rail and port capacity related to our export sales. These contracts require us to pay for a minimum quantity of coal to be transported on the railway or through the port regardless of whether we sell and ship any coal. If we fail to acquire sufficient export sales to meet our minimum obligations under these contracts, we are still obligated to make payments to the railway or port facility, which could have a negative impact on our cash flows, profitability and results of operations.

The loss of, or a significant reduction in, purchases by our largest customers could adversely affect our profitability.

For the year ended December 31, 2020, we derived approximately 21% of our total coal revenues from sales to our three largest customers and approximately 45% of our total coal revenues from sales to our ten largest customers. If any of those customers, particularly any of our three largest customers, were to significantly reduce the quantities of coal it purchases from us, or if we are unable to sell coal to those customers on terms as favorable to us, it may have an adverse impact on the results of our business.

We may incur losses as a result of certain marketing, trading and asset optimization strategies.

We seek to optimize our coal production and leverage our knowledge of the coal industry through a variety of marketing, trading and other asset optimization strategies. We maintain a system of complementary processes and controls designed to monitor and control our exposure to market and other risks as a consequence of these strategies. These processes and controls seek to balance our ability to profit from certain marketing, trading and asset optimization strategies with our exposure to potential losses. Our risk monitoring and mitigation techniques, and accompanying judgments cannot anticipate every potential outcome or the timing of such outcomes. In addition, the processes and controls that we use to manage our exposure to market and other risks resulting from these strategies involve assumptions about the degrees of correlation or lack thereof among prices of various assets or other market indicators. These correlations may change significantly in times of market turbulence or other unforeseen circumstances. As a result, we may experience volatility in our earnings as a result of our marketing, trading and asset optimization strategies.

If we sustain cyber-attacks or other security breaches that disrupt our operations, or that result in the unauthorized release of proprietary or confidential information, we could be exposed to significant liability, reputational harm, loss of revenue, increased costs or other risks.

We have become increasingly dependent on information technology systems to operate our business and to comply with regulatory, legal and tax requirements. As our dependence on digital technologies has increased, the risk of cyber incidents, including both deliberate attacks and unintentional events, also has increased. A cyber-attack may involve persons gaining unauthorized access to our digital systems or systems maintained on our behalf for purposes of gathering, monitoring, releasing, misappropriating or corrupting proprietary or confidential information, or causing operational disruption. In addition, certain cyber incidents, such as surveillance, may remain undetected for an extended period. Strategic targets, such as energy-related assets, may be at greater risk of future cyber-attacks than other targets in the United States.

To date, we have not experienced any material losses relating to cyber incidents. However, our systems may be susceptible to cyber incidents or security breaches which could result in unauthorized access to our facilities or to information we are trying to protect. Failure of our systems, whether caused maliciously or inadvertently, may lead to unauthorized physical access to one or more of our facilities or locations, or electronic access to our proprietary or confidential information and could result in, among other things, unfavorable publicity, litigation by parties affected by such breach, disruptions to our operations, loss of customers and financial obligations that may not be covered by our insurance for damages, fines or penalties related to the theft, release or misuse of such information, any of which could have a substantial impact on our results of operations, financial condition or cash flow. As cyber threats continue to evolve, we may be required to expend significant additional resources to modify or enhance our protective measures or to investigate and remediate any system vulnerabilities.

We may be unable to comply with the restrictions imposed by our Term Loan Debt Facility and other financing arrangements.

The agreements governing our outstanding financing arrangements impose a number of restrictions on us. For example, the terms of our credit facilities, leases and other financing arrangements contain financial and other covenants that may create limitations on our ability to borrow the full amount under our credit facilities, effect acquisitions or dispositions and incur additional debt and require us to comply with various affirmative covenants. The Term Loan Debt Facility contains customary affirmative and negative covenants, which include restrictions on (i) indebtedness, (ii) liens, (iii) liquidations, mergers, consolidations and acquisitions, (iv) disposition of assets or subsidiaries, (v) affiliate transactions, (vi) creation or ownership of certain subsidiaries, partnerships and joint ventures, (vii) continuation of or change in business, (viii) restricted payments, (ix) prepayment of subordinated and junior lien indebtedness, (x) restrictions in agreements on dividends, intercompany loans and granting liens on collateral, (xi) loans and investments, (xii) sale and leaseback transactions, (xiii) changes in organizational documents and fiscal year and (xiv) transactions with respect to bonding subsidiaries. Our ability to comply with these provisions may be affected by events beyond our control and our failure to comply could result in an event of default under the Term Loan Debt Facility.

We may be unable to raise the funds necessary to repurchase our Convertible Notes for cash following a fundamental change, or to pay any cash amounts due upon conversion, and our other indebtedness limits our ability to repurchase the notes or pay cash upon their conversion.

Convertible noteholders may, subject to a limited exception, require us to repurchase their notes following a fundamental change (including certain delisting events that we elect to treat as the occurrence of a fundamental change) at a cash repurchase price generally equal to the principal amount of the notes to be repurchased, plus accrued and unpaid interest, if any. In addition, upon conversion we will satisfy part or all of our conversion obligation in cash unless we elect to settle conversions solely in shares of our common stock. We may not have enough available cash or be able to obtain financing at the time we are required to repurchase the notes or pay the cash amounts due upon conversion. In addition, applicable law, regulatory authorities and the agreements governing our other indebtedness may restrict our ability to repurchase the notes or pay the cash amounts due upon conversion. Our failure to repurchase notes or to pay the cash amounts due upon conversion when required would constitute a default under the indenture. A default under the indenture or the fundamental change itself could also lead to a default under agreements governing our other indebtedness, and may result in that other indebtedness becoming immediately payable in full. We may not have sufficient funds to satisfy all amounts due under the other indebtedness and the notes.

Risks Related to Environmental, Other Regulations and Legislation

Extensive environmental regulations, including existing and potential future regulatory requirements relating to air emissions, affect our customers and could reduce the demand for coal as a fuel source and cause coal prices and sales of our coal to materially decline.

Coal contains impurities, including but not limited to sulfur, mercury, chlorine and other elements or compounds, many of which are released into the air when coal is burned. The operations of our customers are subject to extensive environmental regulation particularly with respect to air emissions. For example, the federal Clean Air Act and similar state and local laws extensively regulate the amount of sulfur dioxide, particulate matter, nitrogen oxide, and other compounds emitted into the air from electric power plants, which are the largest end-users of our coal. A series of more stringent requirements relating to particulate matter, ozone, haze, mercury, sulfur dioxide, nitrogen oxide and other air pollutants may be developed and implemented. For instance, the Clean Power Plan, if implemented in the form promulgated under the Obama administration, would severely limit emissions of carbon dioxide which would adversely affect our ability to sell coal. However, in April 2017, the EPA announced that it was initiating a review of the Clean Power Plan consistent with President Trump's Executive Order 13783, and, in October 2017, the EPA published a proposed rule to formally repeal the Clean Power Plan. In June 2019, the EPA issued the final Affordable Clean Energy rule, which revises the agency's interpretation of Clean Air Act section 111(d). The EPA rule offers the power generation industry incentives to invest in coal-fired power plants and provides guidelines for reducing carbon dioxide emissions by making on-site "heat rate improvements." On January 19, 2021, the D.C. Circuit Court of Appeals vacated the Affordable Clean Energy rule and its implied repeal of the Clean Power Plan, remanding to EPA for further proceedings. In the event the matter is not heard by the Supreme Court, it is not clear whether EPA will reinstate the Clean Power Plan or undertake new rulemaking.

In addition, the change in presidential administration could result in a further shift in policy by the EPA. In December 2015, the United States and 195 other countries reached an agreement (the "Paris Agreement") during the 21st Conference of the Parties to the United Nations Framework Convention on Climate Change, a long-term, international framework convention designed to address climate change over the next several decades. The Trump administration formally withdrew the United States from the Paris Agreement, effective November 2020. However, the Biden administration issued an executive order on January 21, 2021, that, among other things, commenced the process of reentering the Paris Agreement. The terms on which the United States may reenter the Paris Agreement, including its emissions pledges, are uncertain at this time. However, any efforts to control and/or reduce greenhouse gas emissions by the United States or other countries that have also pledged "Nationally Determined Contributions," or concerted conservation efforts that result in reduced electricity consumption, could adversely impact coal prices, our ability to sell coal and, in turn, our financial position and results of operations.

In addition, the January 21, 2021, executive order also directed all federal agencies to review and take action to address any federal regulations, orders, guidance documents, policies and any similar agency actions promulgated during the prior administration that may be inconsistent with the administration's policies. The executive order also established an Interagency Working Group on the Social Cost of Greenhouse Gases ("Working Group"), which is called on to, among other things, develop methodologies for calculating the "social cost of carbon," "social cost of nitrous oxide" and "social cost of methane." Recommendations from the Working Group are due beginning June 1, 2021 and final recommendations no later than January 2022. The Biden administration issued a second executive order on January 27, 2021, focused on addressing climate change. Further regulation of air emissions at the federal level, as well as uncertainty regarding the future course of federal regulation, could reduce demand for coal and negatively impact our financial position and results of operations.

We are also subject to state and local regulations, which may be more stringent than federal rules. For example, certain United States cities and states have announced their intention to satisfy their proportionate obligations under the Paris Agreement. In addition, almost one-half of states have taken measures to track and reduce emissions of greenhouse gases, and some states have elected to participate in voluntary regional cap-and-trade programs like the Regional Greenhouse Gas Initiative in the northeastern United States. State and local governments may pass laws mandating the use of alternative energy sources, such as wind power and solar energy, which may decrease demand for our coal products. State and local commitments and regulations could have a material adverse effect on our business, financial condition and results of operations.

Considerable uncertainty is associated with these air emissions initiatives, and the content of regulatory requirements in the United States and other countries continues to evolve and develop, which could require significant emissions control expenditures for many coal-fueled power plants. As a result, these power plants may switch to other fuels that generate fewer of these emissions, may install more effective pollution control equipment that reduces the need for low sulfur coal, or may cease operations, possibly reducing future demand for coal and a reduced need to construct new coal-fueled power plants. Any switching of fuel sources away from coal, closure of existing coal-fired plants or reduced construction of new plants could have a material adverse effect on demand for and prices received for our coal. Alternatively, less stringent air emissions limitations, particularly related to sulfur, to the extent enacted, could make low sulfur coal less attractive, which could also have a material adverse effect on the demand for and prices received for our coal.

You should see Item 1, "Environmental and Other Regulatory Matters" for more information about the various governmental regulations affecting the market for our products.

The demand for our products and market for our securities, as well as our ability to access the capital markets and obtain financing and insurance upon favorable terms may be significantly impacted by increased pressure from political and regulatory authorities, along with environmental activist groups, and lending and investment policies adopted by financial institutions and insurance companies to address concerns about the environmental impacts of coal combustion, including perceived impacts on the global climate. These activities and developments may potentially materially and adversely impact our future financial results, liquidity and growth prospects.

Concerns about the environmental impacts of coal combustion are resulting in increased regulation in many jurisdictions, unfavorable lending policies by government-backed lending institutions and development banks and divestment efforts affecting the investment community, which could significantly affect demand for our products or our securities. Global climate issues continue to attract significant public and scientific attention. For example, the Fourth and Fifth Assessment Reports of the Intergovernmental Panel on Climate Change have expressed concern about the impacts of human activity, especially from fossil fuel combustion, on the global climate. As a result of the public and scientific attention, several governmental bodies increasingly are focusing on climate issues and, more specifically, levels of emissions of carbon dioxide from coal combustion by power plants. The Clean Power Plan would severely limit emissions of carbon dioxide, possibly reducing future demand for coal. However, as discussed above, the EPA has sought to replace the Clean Power Plan with the Affordable Clean Energy rule. On January 19, 2021, the D.C. Circuit Court of Appeals vacated the Affordable Clean Energy rule and its implied repeal of the Clean Power Plan, remanding to EPA for further proceedings; as such, and given that the change in presidential administration could result in a further shift in policy by the EPA, the future of that rule and the Clean Power Plan is uncertain. Additionally, a number of governments pledged to control and reduce greenhouse gas emissions under the Paris Agreement, which may impact demand for coal resources. The Biden administration issued an executive order on January 21, 2021, that, among other things, commenced the process of reentering the Paris Agreement.

Future regulation of greenhouse gas emissions in the United States could occur pursuant to future treaty obligations, statutory or regulatory changes at the federal, state or local level or otherwise. The enactment of laws or the passage of regulations regarding greenhouse gas emissions from the combustion of coal by the U.S., some of its states or other countries, or other actions to limit emissions have resulted in, and may continue to result in, electricity generators switching from coal to other fuel sources or coal-fueled power plant closures. Further, policies limiting available financing for the development of new coal-fueled power plants could adversely impact the global demand for coal in the future. You should see Item 1, "Environmental and Other Regulatory Matters-Climate Change" for more information about governmental regulations relating to greenhouse gas emissions.

There have been recent efforts by members of the general financial and investment communities, such as investment advisors, sovereign wealth funds, public pension funds, universities and other groups, to divest themselves and to promote the divestment of securities issued by companies involved in the fossil fuel extraction market, such as coal producers. In California, for example, legislation was signed into law in October 2015 requiring California's state pension funds to divest investments in companies that generate 50% or more of their revenue from coal mining. Also, in December 2017, the Governor of New York announced that the New York Common Fund would immediately cease all new investments in entities with "significant fossil fuel activities," and the World Bank announced that it would no longer finance upstream oil and gas after 2019, except in "exceptional circumstances." Other activist campaigns have urged banks to cease financing coal-driven businesses. As a result, numerous banks, other financing sources and insurance companies have taken actions to limit available financing and insurance coverage for the development of new coal-fueled power plants and coal mines and utilities that derive a majority of their revenue from thermal coal. However, in January 2021, the Office of the Comptroller of the Currency, a top federal banking regulator, issued a final rule that would require banks to provide "fair access" to financial services to companies regardless of industry. The final rule, set to take effect April 1, 2021, is targeted at major financial institutions that have made pledges not to lend to the fossil fuel industry. The final rule has not yet been published in the Federal Register, and its future is uncertain given the change in presidential administration. The impact of efforts to divest or promote the divestment from the fossil fuel extraction market may adversely affect the demand for and price of our securities and impact our access to the capital and financial markets.

Any future laws, regulations or other policies of the nature described above may adversely impact our business in material ways. The degree to which any particular law, regulation or policy impacts us will depend on several factors, including the substantive terms involved, the relevant time periods for enactment and any related transition periods. We routinely attempt to evaluate the potential impact on us of any proposed laws, regulations or policies, which requires that we make several material assumptions. From time to time, we determine that the impact of one or more such laws, regulations or policies, if adopted and ultimately implemented as proposed, may result in materially adverse impacts on our operations, financial condition or cash flow. In general, it is likely that any future laws, regulations or other policies aimed at reducing greenhouse gas emissions will negatively impact demand for our coal.

Our failure to obtain and renew permits necessary for our mining operations could negatively affect our business.

Mining companies must obtain numerous permits that impose strict regulations on various environmental and operational matters in connection with coal mining. These include permits issued by various federal, state and local agencies and regulatory bodies. The permitting rules, and the interpretations of these rules, are complex, change frequently and are often subject to discretionary interpretations by the regulators, all of which may make compliance more difficult or impractical, and may possibly preclude the continuance of ongoing operations or the development of future mining operations. The public, including non-governmental organizations, anti-mining groups and individuals, have certain statutory rights to comment upon and submit objections to requested permits and environmental impact statements prepared in connection with applicable regulatory processes, and otherwise engage in the permitting process, including bringing citizens' lawsuits to challenge the issuance of permits, the validity of environmental impact statements or the performance of mining activities. Accordingly, required permits may not be issued or renewed in a timely fashion or at all, or permits issued or renewed may be conditioned in a manner that may restrict our ability to efficiently and economically conduct our mining activities, any of which would materially reduce our production, cash flow and profitability.

Federal or state regulatory agencies have the authority to order certain of our mines to be temporarily or permanently closed under certain circumstances, which could materially and adversely affect our ability to meet our customers' demands.

Federal or state regulatory agencies have the authority, under certain circumstances following significant health and safety incidents, such as fatalities, to order a mine to be temporarily or permanently closed. If this occurred, we may be required to incur capital expenditures to re-open the mine. In the event that these agencies order the closing of our mines, our coal sales contracts generally permit us to issue *force majeure* notices which suspend our obligations to deliver coal under these contracts. However, our customers may challenge our issuances of *force majeure* notices. If these challenges are successful, we may have to purchase coal from third-party sources, if it is available, to fulfill these obligations, incur capital expenditures to re-open the mines and/or negotiate settlements with the customers, which may include price reductions, the reduction of commitments, the extension of time for delivery or the termination of customers' contracts. Any of these actions could have a material adverse effect on our business and results of operations.

Extensive environmental regulations impose significant costs on our mining operations, and future regulations could materially increase those costs or limit our ability to produce and sell coal.

The coal mining industry is subject to increasingly strict regulation by federal, state and local authorities with respect to environmental matters such as:

- limitations on land use;
- mine permitting and licensing requirements;
- reclamation and restoration of mining properties after mining is completed and required surety bonds or other instruments to secure those reclamation and restoration obligations;
- management of materials generated by mining operations;
- the storage, treatment and disposal of wastes;
- remediation of contaminated soil and groundwater;
- air quality standards;
- water pollution;
- protection of human health, plant-life and wildlife, including endangered or threatened species;
- protection of wetlands;
- the discharge of materials into the environment;
- the effects of mining on surface water and groundwater quality and availability; and
- the management of electrical equipment containing polychlorinated biphenyls.

The costs, liabilities and requirements associated with the laws and regulations related to these and other environmental matters may be costly and time-consuming and may delay commencement or continuation of exploration or production operations. Failure to comply with these laws and regulations may result in the assessment of administrative, civil and criminal penalties, the imposition of cleanup and site restoration costs and liens, the issuance of injunctions to limit or cease operations, the suspension or revocation of permits and other enforcement measures that could have the effect of limiting production from our operations. We may incur material costs and liabilities resulting from claims for damages to property or injury to persons arising from our operations. If we are pursued for sanctions, costs and liabilities in respect of these matters, our mining operations and, as a result, our profitability could be materially and adversely affected.

New legislation or administrative regulations or new judicial interpretations or administrative enforcement of existing laws and regulations, including proposals related to the protection of the environment that would further regulate and tax the coal industry, may also require us to change operations significantly or incur increased costs, which could have a material adverse effect on our financial condition and results of operations. Please refer to the section entitled "Environmental and Other Regulatory Matters" in Item 1 for more information about the various governmental regulations affecting us.

If the assumptions underlying our estimates of reclamation and mine closure obligations are inaccurate, our costs could be greater than anticipated.

SMCRA and counterpart state laws and regulations establish operational, reclamation and closure standards for all aspects of surface mining, as well as most aspects of underground mining. We base our estimates of reclamation and mine closure liabilities on permit requirements, engineering studies and our engineering expertise related to these requirements. Our management and engineers periodically review these estimates. The estimates can change significantly if actual costs vary from our original assumptions, major operational changes are implemented or if governmental regulations change significantly. We are required to record new obligations as liabilities at fair value under U.S. GAAP. In estimating fair value, we considered the estimated current costs of reclamation and mine closure and applied inflation rates and a third-party profit, as required. The third-party profit is an estimate of the approximate markup that would be charged by contractors for work performed on our behalf. The resulting estimated reclamation and mine closure obligations could change significantly if actual amounts change significantly from our assumptions, which could have a material adverse effect on our results of operations and financial condition.

Our operations may impact the environment or cause exposure to hazardous substances, and our properties may have environmental contamination, which could result in material liabilities to us.

Our operations currently use hazardous materials and generate limited quantities of hazardous wastes from time to time. We could become subject to claims for toxic torts, natural resource damages and other damages as well as for the investigation and cleanup of soil, surface water, groundwater, and other media. Such claims may arise, for example, out of conditions at sites that we currently own or operate, as well as at sites that we previously owned or operated, or at sites that we may acquire. Under certain federal and state environmental laws, our liability for such conditions may be joint and several with other owners/operators, so that we may be held responsible for more than our share of the contamination or other damages, or even for the entire share. Liability under these laws is generally strict. Accordingly, we may incur liability without regard to fault or to the legality of the conduct giving rise to the conditions.

We maintain extensive coal refuse areas and slurry impoundments at a number of our mining complexes. Such areas and impoundments are subject to extensive regulation. Slurry impoundments can fail, which could release large volumes of coal slurry into the surrounding environment. Structural failure of an impoundment can result in extensive damage to the environment and natural resources, such as bodies of water that the coal slurry reaches, as well as liability for related personal injuries and property damages, and injuries to wildlife. Some of our impoundments overlie mined-out areas, which can pose a heightened risk of failure and of damages arising out of failure. If one of our impoundments were to fail, we could be subject to substantial claims for the resulting environmental contamination and associated liability, as well as for fines and penalties.

Drainage flowing from or caused by mining activities can be acidic with elevated levels of dissolved metals, a condition referred to as "acid mine drainage," which we refer to as AMD. The treating of AMD can be costly. Although we do not currently face material costs associated with AMD, it is possible that we could incur significant costs in the future.

These and other similar unforeseen impacts that our operations may have on the environment, as well as exposures to hazardous substances or wastes associated with our operations, could result in costs and liabilities that could materially and adversely affect us.

Changes in the legal and regulatory environment could complicate or limit our business activities, increase our operating costs or result in litigation.

The conduct of our businesses is subject to various laws and regulations administered by federal, state and local governmental agencies in the United States. These laws and regulations may change, sometimes dramatically, as a result of political, economic or social events or in response to significant events. Environmental and other non-governmental organizations and activists, many of which are well funded, continue to exert pressure on regulators and other government bodies to enact more stringent laws and regulations. For instance, increasing attention to global climate change has resulted in an increased possibility of governmental investigations and, potentially, private litigation against us and our customers. For example, claims have been made against certain energy companies alleging that greenhouse gas emissions constitute a public nuisance. While our business is not a party to any such litigation, we could be named in actions making similar allegations. Moreover, the proliferation of successful climate change litigation could adversely impact demand for coal and ultimately have a material adverse effect on our business, financial condition and results of operations. Changes in the legal and regulatory environment in which we operate may impact our results, increase our costs or liabilities, complicate or limit our business activities or result in litigation. Such legal and regulatory environment changes may include changes in such items as: the processes for obtaining or renewing permits; federal

LBA programs; costs associated with providing healthcare benefits to employees; health and safety standards; accounting standards; taxation requirements; competition laws; and trade policies, including policies concerning tariffs, quotas, trade barriers and other trade protection measures.

Risks Related to Income Taxes

Our ability to use net operating losses and alternative minimum tax credits is subject to current limitation, and our ability to use net operating losses may be subject to additional limitations.

The ability to use our net operating losses ("NOLs") in existence immediately prior to our emergence from bankruptcy in 2016 has been limited by the "ownership change" under Section 382 of the Internal Revenue Code (the "Code") that occurred as a result of such emergence (the "Emergence Ownership Change"). The limitation resulting from the Emergence Ownership Change is substantial and applies to all NOLs existing at the time of the Emergence Ownership Change. The limitation resulting from the Emergence Ownership Change may have a significant impact on our ability to offset future taxable income with carryforward NOLs and, accordingly, we may be prevented from fully utilizing our NOL's existing at the time of the Emergence Ownership Change prior to their expiration.

In addition as a result of the discharge of debt in the Chapter 11 Cases, we and our subsidiaries were required to reduce the amount of our NOLs and other tax attributes existing at the end of 2016.

NOLs generated after the Emergence Ownership Change are generally not subject to the limitations resulting from the Emergence Ownership Change. In addition, for U.S. federal income tax purposes, NOLs generated in taxable years beginning after December 31, 2017 are not subject to expiration; however, such NOLs can only be used to offset 80% of our U.S. federal taxable income in any taxable year beginning after December 31, 2020. However, if we undergo an additional "ownership change" under Section 382 of the Code (very generally defined as a greater than 50% change, by value, in equity ownership by certain shareholders or groups of shareholders over a rolling three-year period), such ownership change may impose limitations on our ability to use any NOLs in existence immediately prior to such ownership change. We may experience ownership changes as a result of subsequent shifts in our stock ownership. Future legal or regulatory changes could also limit our ability to utilize our NOLs. To the extent we are not able to offset future taxable income with our NOLs, our net income and cash flows may be adversely affected.

U.S. tax legislation may materially adversely affect our financial condition, results of operations and cash flows.

The recent presidential and congressional elections in the United States could result in further significant changes in, and uncertainty with respect to, tax legislation and regulation directly or indirectly affecting our business. We urge our investors to consult with their legal and tax advisors with respect to the any such future legislation and regulations.

General Risk Factors

International growth in our operations adds new and unique risks to our business.

We have sales offices in Singapore and the United Kingdom. The international expansion of our operations increases our exposure to country and currency risks. In addition, our international offices sell our coal to new customers and customers in new countries, whose business practices and reputations are not as well known to us. We also face new and increased political risks, including the potential for expropriation of assets and limitations on the repatriation of earnings. In the event that we are unable to effectively manage these new risks, our results of operations, financial position or cash flows could be adversely affected by these activities.

Our ability to operate our business effectively could be impaired if we lose key personnel or fail to attract qualified personnel.

We manage our business with a number of key personnel, the loss of whom could have a material adverse effect on us, absent the completion of an orderly transition. In addition, we believe that our future success will depend greatly on our continued ability to attract and retain highly skilled and qualified personnel, particularly personnel with mining experience. Failure to retain or attract key personnel could have a material adverse effect on us.

ITEM 1B. UNRESOLVED STAFF COMMENTS.

None.

ITEM 2. PROPERTIES.

Our Properties

At December 31, 2020, we owned or controlled, primarily through long-term leases, approximately 28,292 acres of coal land in Ohio, 1,060 acres of coal land in Maryland, 10,095 acres of coal land in Virginia, 306,253 acres of coal land in West Virginia, 81,470 acres of coal land in Wyoming, 234,437 acres of coal land in Illinois, 33,047 acres of coal land in Kentucky, 403 acres of coal land in Montana, 358 acres of coal land in Pennsylvania, and 19,146 acres of coal land in Colorado. In addition, we also owned or controlled through long-term leases smaller parcels of property in Alabama, Indiana, Washington, Arkansas, California, Utah and Texas. We lease approximately 57,863 acres of our coal land from the federal government and approximately 15,318 acres of our coal land from various state governments. Certain of our preparation plants or loadout facilities are located on properties held under leases which expire at varying dates over the next 30 years. Most of the leases contain options to renew. Our remaining preparation plants and loadout facilities are located on property owned by us or for which we have a special use permit.

Our executive headquarters occupies leased office space at One CityPlace Drive, in St. Louis, Missouri. Our subsidiaries currently own or lease the equipment utilized in their mining operations. You should see Item 1, “Our Mining Operations” for more information about our mining operations, mining complexes and transportation facilities.

Our Coal Reserves

We estimate that we owned or controlled approximately 1.6 billion tons of proven and probable recoverable reserves at December 31, 2020. Our coal reserve estimates at December 31, 2020 were prepared by our engineers and geologists and reviewed by Weir International, Inc., a mining and geological consultant. Our coal reserve estimates are based on data obtained from our drilling activities and other available geologic data. Our coal reserve estimates are periodically updated to reflect past coal production and other geologic and mining data. Acquisitions or sales of coal properties will also change these estimates. Changes in mining methods or the utilization of new technologies may increase or decrease the recovery basis for a coal seam.

Our coal reserve estimates include reserves that can be economically and legally extracted or produced at the time of their determination. In determining whether our reserves meet this standard, we take into account, among other things, our potential inability to obtain a mining permit, the possible necessity of revising a mining plan, changes in estimated future costs, changes in future cash flows caused by changes in costs required to be incurred to meet regulatory requirements and obtaining mining permits, variations in quantity and quality of coal, and varying levels of demand and their effects on selling prices. We use various assumptions in preparing our estimates of our coal reserves. You should see “Inaccuracies in our estimates of our coal reserves could result in decreased profitability from lower than expected revenues or higher than expected costs” contained in Item 1A, “Risk Factors.”

The following tables present our estimated assigned and unassigned recoverable coal reserves at December 31, 2020:

Total Assigned Reserves
(Tons in millions)

	Total Assigned Recoverable Reserves	Proven	Probable	Sulfur Content (lbs. per million Btus) <1.2	1.2-2.5	>2.5	As Received Btus per lb. (1)	Reserve Control Leased	Owned	Mining Method Surface	Under-ground	Past Reserve Estimates 2018	2019
Wyoming	699	695	4	661	38	—	8,913	699	—	699	—	911	840
Colorado	48	43	5	48	—	—	11,433	48	—	—	48	54	51
Central App.	42	31	11	18	24	—	13,648	32	10	—	42	57	47
Northern App.	97	67	30	5	92	—	13,255	10	87	—	97	73	92
Illinois	—	—	—	—	—	—	—	—	—	—	—	43	40
Total	886	836	50	732	154	—	9,750	789	97	699	187	1,138	1,070

(1) As received Btus per lb. includes the weight of moisture in the coal on an as sold basis.

Total Unassigned Reserves
(Tons in millions)

	Total Unassigned Recoverable Reserves	Proven	Probable	Sulfur Content (lbs. per million Btus) <1.2	1.2-2.5	>2.5	As Received Btus per lb.(1)	Reserve Control Leased	Owned	Mining Method Surface	Under-ground
Wyoming	256	211	45	209	47	—	8,405	256	—	256	—
Central App.	59	51	8	14	34	11	12,459	13	46	41	18
Northern App.	140	74	66	—	137	3	12,942	8	132	—	140
Illinois	266	177	89	—	—	266	11,199	52	214	1	265
Total	721	513	208	223	218	280	10,645	329	392	298	423

(1) As received Btus per lb. includes the weight of moisture in the coal on an as sold basis.

Federal and state legislation controlling air pollution affects the demand for certain types of coal by limiting the amount of sulfur dioxide which may be emitted as a result of fuel combustion and encourages a greater demand for low-sulfur coal. All of our identified coal reserves have been subject to preliminary coal seam analysis to test sulfur content. Of these reserves, approximately 59% consist of compliance coal, or coal which emits 1.2 pounds or less of sulfur dioxide per million Btus upon combustion, while an additional approximately 14% could be sold as low-sulfur coal. The balance is classified as high-sulfur coal. Most of our reserves are suitable for the domestic steam coal markets. A substantial portion of the low-sulfur and compliance coal reserves at a number of our Appalachian mining complexes may also be used as metallurgical coal.

The carrying cost of our coal reserves at December 31, 2020 was $293 million, consisting of $3 million of prepaid royalties and a net book value of coal lands and mineral rights of $290 million.

Title to Coal Property

Title to coal properties held by lessors or grantors to us and our subsidiaries and the boundaries of properties are normally verified at the time of leasing or acquisition. However, in cases involving less significant properties and consistent with industry practices, title and boundaries are not completely verified until such time as our independent operating subsidiaries prepare to mine such reserves. If defects in title or boundaries of undeveloped reserves are discovered in the future, control of and the right to mine such reserves could be adversely affected. You should see "A defect in title or the loss of a leasehold interest in certain property or surface rights could limit our ability to mine our coal reserves or result in significant unanticipated costs" contained in Item 1A, "Risk Factors" for more information.

At December 31, 2020, approximately 30% of our coal reserves were held in fee, with the balance controlled by leases, most of which do not expire until the exhaustion of mineable and merchantable coal. Under current mining plans, substantially all reported leased reserves will be mined out within the period of existing leases or within the time period of assured lease renewals. Royalties are paid to lessors either as a fixed price per ton or as a percentage of the gross sales price of the mined coal. The majority of the significant leases are on a percentage royalty basis. In some cases, a payment is required, payable either at the time of execution of the lease or in annual installments. In most cases, the prepaid royalty amount is applied as a credit against future production royalty obligations.

From time to time, lessors or sublessors of land leased by our subsidiaries have sought to terminate such leases on the basis that such subsidiaries have failed to comply with the financial terms of the leases or that the mining and related operations conducted by such subsidiaries are not authorized by the leases. Some of these allegations relate to leases upon which we conduct operations material to our consolidated financial position, results of operations and liquidity, but we do not believe any pending claims by such lessors or sublessors have merit or will result in the termination of any material lease or sublease.

We leased approximately 75,550 acres of property to other coal operators in 2020. We received royalty income of $5.7 million during 2020 from the mining of approximately 1.7 million tons, $4.5 million during 2019 from the mining of approximately 1.8 million tons and $6.2 million during 2018 from the mining of approximately 2.3 million tons on those properties. We have included reserves at properties leased by us to other coal operators in the reserve figures set forth in this report.

ITEM 3. LEGAL PROCEEDINGS.

We are involved in various claims and legal actions arising in the ordinary course of business, including employee injury claims. After conferring with counsel, it is the opinion of management that the ultimate resolution of these claims, to the extent not previously provided for, will not have a material effect on our consolidated financial condition, results of operations or liquidity.

ITEM 4. MINE SAFETY DISCLOSURES.

The statement concerning mine safety violations or other regulatory matters required by Section 1503(a) of the Dodd-Frank Wall Street Reform and Consumer Protection Act and Item 104 of Regulation S-K is included in Exhibit 95 to this Annual Report on Form 10-K for the period ended December 31, 2020.

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 ("NYSE") under the symbol "ARCH" and has been trading since October 5, 2016 upon our emergence from bankruptcy. No prior established public trading market existed for this newly issued common stock prior to this date. Based upon information provided by our transfer agent, as of January 27, 2021, we had three stockholders of record. As many of our shares are held by brokers and other institutions on behalf of shareholders, we are unable to estimate the total number of beneficial holders of our common stock represented by these record holders.

Holders of our common stock are entitled to receive dividends when they are declared by our Board of Directors. We paid dividends on our common stock totaling $8.2 million in 2020. There is no assurance as to the amount or payment of dividends in the future because they will be subject to ongoing Board review and authorization will be based on a number of factors, including business and market conditions, the Company's future financial performance and other capital priorities.

The following table sets forth for each period indicated the dividends paid per common share and the per share high and low closing prices for our common stock as reported on the NYSE for the periods presented:

	High	Low	Dividends per common share
Year Ended December 31, 2020			
First quarter	$ 73.54	$ 27.32	$ 0.50
Second quarter	40.89	22.82	—
Third quarter	52.90	27.40	—
Fourth quarter	47.22	28.05	—
Year Ended December 31, 2019			
First quarter	$ 93.64	$ 80.69	$ 0.45
Second quarter	99.96	86.71	0.45
Third quarter	93.81	69.31	0.45
Fourth quarter	86.00	70.41	0.45

Stockholder Return Performance Presentation

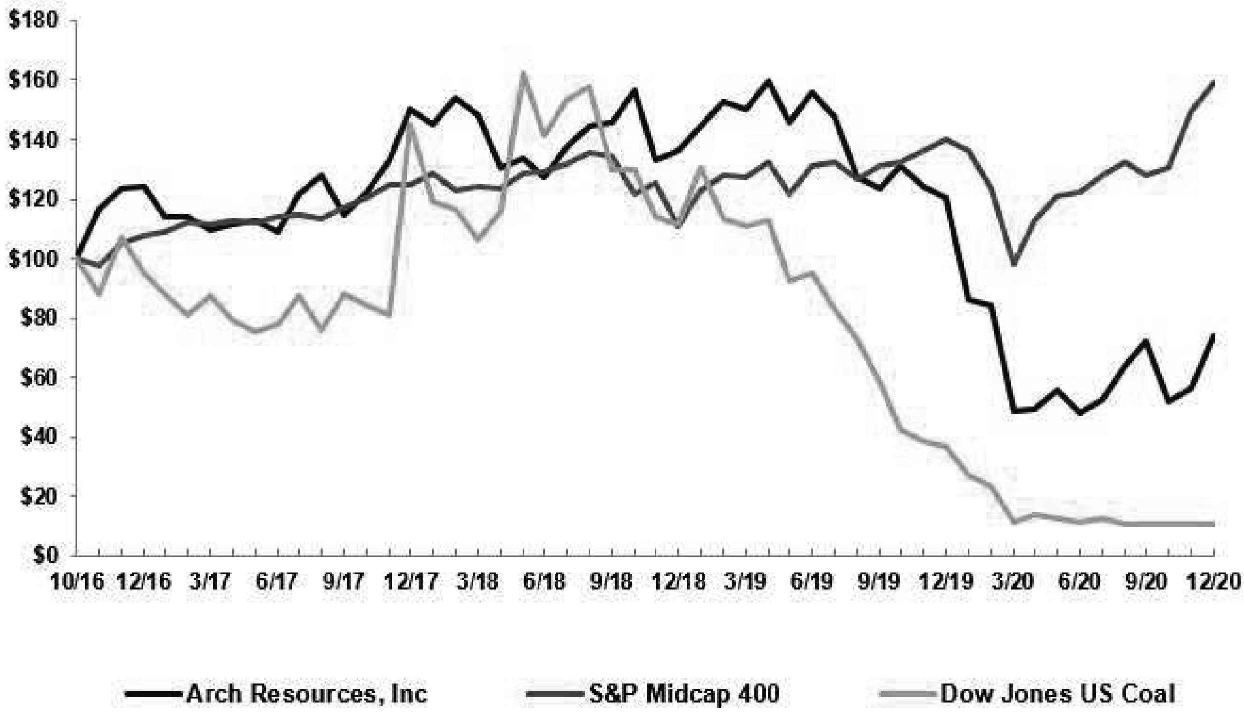
The following graph compares the cumulative 51-month total return of holders of Arch Resources, Inc.'s common stock with the cumulative total returns of the S&P Midcap 400 index and the Dow Jones US Coal Index. The graph assumes that the value of the investment in our common stock, the S&P Midcap 400 index, and the Dow Jones US Coal Index (including reinvestment of dividends) was $100 on October 5, 2016 and tracks it through December 31, 2020.

In years prior to 2019, the total shareholder return of our common stock was compared to the total returns of the S&P Midcap 400 index and a customized group of peer companies. In recent years, the bankruptcy of certain companies deemed to be our peers has caused fluctuations in the companies comprising our peer group from one year to the next.

To mitigate the impact of these fluctuations and provide more consistency to the performance graph disclosure year after year, in 2019, we elected to replace our peer group with the Dow Jones US Coal Index for disclosure purposes.

COMPARISON OF 51 MONTH CUMULATIVE TOTAL RETURN

Among Arch Resources, Inc., the S&P Midcap 400 Index
And the Dow Jones US Coal Index



*$100 invested on 10/5/16 in stock or 9/30/16 in index, including reinvestment of dividends.
Fiscal year ending December 31.

	10/05/16	12/31/16	12/31/17	12/31/18	12/31/19	12/31/20
Arch Resources, Inc.	100.00	123.89	149.93	136.01	120.18	74.11
S&P Midcap 400	100.00	107.42	124.87	111.03	140.11	159.25
Dow Jones US Coal Index	100.00	94.95	145.36	111.67	36.59	10.47

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

Issuer Purchases of Equity Securities

During April 2019, the Board of Directors of Arch Resources, Inc. approved an incremental $250 million to the share repurchase program bringing the total authorization to $1.05 billion. We did not purchase any shares of our common stock under this program for the year ended December 31, 2020.

As of December 31, 2020, we had repurchased 10,088,378 shares at an average share price of $82.01 per share for an aggregate purchase price of approximately $827 million since inception of the stock repurchase program, and the remaining authorized amount for stock repurchases under this program is $223 million.

The timing of any future share repurchases, and the ultimate number of shares purchased, will depend on a number of factors, including business and market conditions, the Company's future financial performance and other capital priorities. The shares will be acquired in the open market or through private transactions in accordance with the Securities and Exchange Commission requirements. The share repurchase program has no termination date, but may be amended, suspended or discontinued at any time and does not commit the Company to repurchase shares of its common stock. The actual number and value of the shares to be purchased will depend on the performance of the Company's stock price and other market conditions.

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

COVID-19

In the first quarter of 2020, COVID-19 emerged as a global level pandemic. The continuing responses to the COVID-19 outbreak include actions that have a significant impact on domestic and global economies, including travel restrictions, gathering bans, stay at home orders, and many other restrictive measures. All of our operations have been classified as essential in the states in which we operate. We have instituted many policies and procedures, in alignment with CDC guidelines along with state and local mandates, to protect our employees during the COVID-19 outbreak. These policies and procedures include, but are not limited to, staggering shift times to limit the number of people in common areas at one time, limiting meetings and meeting sizes, continual cleaning and disinfecting of high touch and high traffic areas, including door handles, bath rooms, bath houses, access elevators, mining equipment, and other areas, limiting contractor access to our properties, limiting business travel, and instituting work from home for administrative employees. We plan to keep these policies and procedures in place and continually evaluate further enhancements for as long as necessary. We recognize that the COVID-19 outbreak and responses thereto will also impact both our customers and suppliers. To date, we have not had any significant issues with critical suppliers, and we continue to communicate with them and closely monitor their developments to ensure we have access to the goods and services required to maintain our operations and continue our Leer South development. Our customers have reacted, and continue to react, in various ways and to varying degrees to declining demand for their products. We have received force majeure letters from certain of our customers, primarily related to our thermal segments. During the year ended December 31, 2020, we concluded commercial negotiations with certain customers deferring over three million tons of Powder River Basin contractual obligations from 2020 to future periods in exchange for over eight million tons of additional commitments in future periods. Approximately 0.25 million tons of North American coking coal contracted for 2020 have been deferred to 2021. Our current view of our customer demand situation is discussed in greater detail in the "Overview" section below.

In the fourth quarter of 2020, particularly November and December, we experienced a significant increase in the number of COVID-19 cases in our workforce, in parallel to the trends seen in the counties in which we operate. By December 31, 2020 approximately 11% of our workforce had tested positive for COVID-19. This increase in case level and related absenteeism resulted in the idling of 57 continuous miner production shifts during November and December of 2020, 52 of which were at our metallurgical operations. Our current view of our operational situation is discussed in greater detail in the "Operational Performance" section below.

Overview

Our results for the year ended December 31, 2020 were impacted by continued weakness in metallurgical and thermal coal markets. During the course of 2020, the initial responses to the COVID-19 pandemic in March and April precipitated significant demand destruction that further weakened already depressed thermal and metallurgical coal markets. These initial impacts were mitigated to some degree in certain areas of the national and global economy by August, stemming further declines in demand at that time. Unfortunately, a fourth quarter resurgence of COVID-19 cases again drew responses that negatively impacted our markets, though not as severely as the initial responses.

The initial industrial shutdowns, particularly in the automotive and oil and gas sectors, that drove significant reductions in steel demand and the idling of multiple blast furnaces globally, began to reverse in the third quarter of 2020, leading to increasing steel demand and the restarting of many idled blast furnaces. In particular, domestic auto production returned to pre-shutdown levels in July, but has declined slightly since. The return of industrial production to pre-pandemic levels has been, and will continue to be uneven; for example, oil and gas drilling activity, although increasing slowly, remains significantly depressed as compared to pre-pandemic levels. The return of overall industrial production to pre-COVID-19 levels is also likely to be lengthy and, as we have seen in the fourth quarter of 2020, is subject to setbacks should COVID-19 become resurgent. During 2020, demand destruction elicited a supply side response, as significant high cost coking coal mine idlings and slowdowns were announced in North America and globally. The overall production volume removed from the markets this year is significant. While some of the curtailed production has returned or can return to the market with the right price signal, we believe that the cash cost of a significant portion of the currently curtailed coking coal production exceeds current prompt pricing. To date, due to our low cost structure, we have avoided idling any of our coking coal operations. Longer term, we believe continued limited global capital investment in new coking coal production capacity, economic pressure on higher cost production sources, and production responses to the COVID-19 pandemic will provide support to coking coal markets as demand continues to return to the steel production supply chain.

During the fourth quarter of 2020, a major trade dispute escalated between China, a major importer of coking coal, and Australia, the world's largest exporter of coking coal. Specifically, China has effectively banned the import of coking coal from Australia. This disrupted historical trade patterns, and led to pricing anomalies in the international coking coal markets. Through most of the fourth quarter of the year ended December 31, 2020, the prompt index price for United States east coast High-Vol A (HVA), our main product, Low-Vol (LV), and even High-Vol B (HVB) coking coal exceeded the prompt index price for Australian east coast Premium Low Volatile (PLV) coking coal. Recently the PLV index has rapidly risen significantly, returning to a more historically normal price relationship between products. Uncertainty and volatility in pricing and pricing relationships are likely until the larger trade dispute between China and Australia is settled. While most of our committed but unpriced coking coal volume is linked to the United States east coast HVA, LV, or HVB indexes, we do have approximately 1.1 million tons of committed but unpriced coking coal linked to the PLV or other Asia/Pacific indexes for 2021.

Demand for domestic thermal coal remained significantly below the prior year due to historically low natural gas prices, COVID-19 related commercial and industrial demand declines and the continued increase in subsidized renewable generation sources, particularly wind. Natural gas pricing recovered in the second half of 2020 from historically low levels seen in the first half of 2020, and as a result coal fired generation, particularly Powder River Basin fired generation, was competitive in many regions of the country during the second half of the year. Production levels of natural gas were below the prior year's levels, but storage levels remained significantly above last year's levels. Additionally, generator coal stockpiles declined during the second half of 2020, but remain above historical averages based on days of burn. International thermal coal market pricing that had remained at levels that were uneconomic for all of our thermal operations for most of the year, increased significantly late in the year. By late December prompt international thermal coal pricing reached levels that can support economic exports from our West Elk operation. Similar to metallurgical markets discussed above, actions taken to combat the spread of COVID-19 across many regions of the national and global economy continue to negatively impact thermal coal demand and supply. As a result, we expect domestic and global thermal markets to remain challenged.

On September 29, 2020, the U.S. District Court ruled against our proposed joint venture with Peabody Energy Corporation that would have combined our Powder River Basin and Colorado mining operations with Peabody's. Following the ruling, we announced the termination of our joint venture efforts due to the significant investment of time and resources that would be required to conduct an appeal. In light of the unfavorable ruling and decision to terminate efforts on the joint venture, we continue to pursue other strategic alternatives for our thermal assets. These alternatives include, among other things, potential divestiture. We also continue to evaluate opportunities to shrink our operational footprint at those mines, reduce their asset retirement obligations, and establish self-funding mechanisms to address those long-term liabilities. In alignment with our desire to shrink our operational footprint and associated liabilities, we have committed to closing our Coal Creek operation in the Powder River Basin once all currently committed sales have been shipped by the end of 2022 or sooner. Operationally we will maintain our focus on aligning our thermal production rates with declining domestic thermal coal demand, adjusting our thermal operating plans in order to minimize future cash requirements, and streamlining our entire organizational structure to reflect our long-term strategic direction as a leading producer of metallurgical products for the steelmaking industry.

On December 31, 2020, we sold our Viper operation in Illinois, which had been part of our Other Thermal segment, to Knight Hawk Holdings, LLC in whom we hold an equity investment. Viper's results for the full year of 2020 are included in our full year 2020 results, and in all preceding periods' results presented herein. For further information on the sale of Viper, and our equity investment in Knight Hawk Holdings, LLC, please see Note 4, "Divestitures", and Note 11, "Equity Method Investments and Membership Interests in Joint Ventures" to the Consolidated Financial Statements.

In the fourth quarter of 2019 we sold our Coal-Mac operation, which had been part of our Other Thermal segment. Coal-Mac's results for the first eleven and a half months of 2019 are included in our full year 2019 results, and in all preceding periods' results presented herein. For further information on the sale of Coal-Mac LLC, please see Note 4, "Divestitures" to the Consolidated Financial Statements.

The following discussion and analysis are for the year ended December 31, 2020, compared to the same period in 2019 unless otherwise stated. For a discussion and analysis of the year ended December 31, 2019, compared to the same period in 2018, please refer to Management's Discussion and Analysis of Financial Condition and Results of Operations included in Part II, Item 7 of our Annual Report on Form 10-K for the year ended December 31, 2019, filed with the SEC on February 11, 2020.

Results of Operations

Year Ended December 31, 2020 and 2019

Revenues. Our revenues include sales to customers of coal produced at our operations and coal purchased from third parties. Transportation costs are included in cost of coal sales and amounts billed by us to our customers for transportation are included in revenues.

Coal sales. The following table summarizes information about our coal sales for the years ended December 31, 2020 and 2019:

	Year Ended December 31,		
	2020	2019	(Decrease) / Increase
		(In thousands)	
Coal sales	$ 1,467,592	$ 2,294,352	$ (826,760)
Tons sold	63,343	90,305	(26,962)

On a consolidated basis, coal sales in 2020 decreased $826.8 million or 36.0% from 2019, and tons sold decreased 27.0 million tons or 29.9%. Coal sales from Metallurgical operations decreased $349.0 million due primarily to lower realized pricing and secondarily decreased volume. Powder River Basin coal sales decreased $253.6 million due to lower volume, and Other Thermal coal sales decreased $237.7 million due to lower volume and pricing. In the year ended December 31, 2019, our Coal-Mac operation in our Other Thermal Segment, which was sold in December 2019, provided approximately $111.8 million in coal sales and 2.1 million tons sold in our Other Thermal Segment. See discussion in "Operational Performance" for further information about segment results.

Costs, expenses and other. The following table summarizes costs, expenses and other components of operating income for the years ended December 31, 2020 and 2019:

	Year Ended December 31,		
	2020	2019	Increase (Decrease) in Net Income
		(In thousands)	
Cost of sales (exclusive of items shown separately below)	$ 1,378,479	$ 1,873,017	$ 494,538
Depreciation, depletion and amortization	121,552	111,621	(9,931)
Accretion on asset retirement obligations	19,887	20,548	661
Change in fair value of coal derivatives and coal trading activities, net	5,219	(18,601)	(23,820)
Selling, general and administrative expenses	82,397	95,781	13,384
Costs related to proposed joint venture with Peabody Energy	16,087	13,816	(2,271)
Asset impairment and restructuring	221,380	—	(221,380)
Gain on property insurance recovery related to Mountain Laurel longwall	(23,518)	—	23,518
(Gain) loss on divestitures	(1,505)	13,312	14,817
Preference Rights Lease Application settlement income	—	(39,000)	(39,000)
Other operating income, net	(22,246)	(19,012)	3,234
Total costs, expenses and other	$ 1,797,732	$ 2,051,482	$ 253,750

Cost of sales. Our cost of sales for the year ended December 31, 2020 decreased $494.5 million or 26.4% versus 2019. In the prior year period, our Coal-Mac operation, which was sold in December 2019, accounted for approximately $111.3 million in cost of sales. The decline in cost of sales at ongoing operations consists primarily of reduced repairs and supplies costs of approximately $188.5 million, including approximately $39.5 million in reduced diesel fuel costs, reduced transportation costs of approximately $99.9 million, reduced operating taxes and royalties of approximately $78.8 million, and reduced compensation costs of approximately $25.8 million. These cost decreases were partially offset by increased purchased coal cost of approximately $10.7 million. See discussion in "Operational Performance" for further information about segment results.

Depreciation, depletion and amortization. Our depreciation, depletion and amortization costs for the year ended December 31, 2020 increased versus 2019 primarily due to increased depreciation of plant and equipment, amortization of development, and depletion in our Metallurgical segment.

Change in fair value of coal derivatives and coal trading activities, net. The significant benefit in the year ended December 31, 2019 is primarily related to mark-to-market gains on coal derivatives that we had entered to hedge our price risk for anticipated international thermal coal shipments, while we had mark-to-market losses on such coal derivatives for the year ended December 31, 2020.

Selling, general and administrative expenses. Selling, general and administrative expenses in the year ended December 31, 2020 decreased versus the year ended December 31, 2019 due primarily to decreased compensation costs of approximately $14.1 million, which includes the impact of reduced headcount from our voluntary separation program initiated in the first quarter of 2020.

Costs related to proposed joint venture with Peabody Energy. On June 18, 2019, we entered into a definitive implementation agreement (the "Implementation Agreement") with Peabody, to establish a joint venture that would have combined the companies' Powder River Basin and Colorado mining operations. All costs associated with execution of the Implementation Agreement are reflected herein. On September 29, 2020 the U.S. District Court for the Eastern District of Missouri ruled against the proposed joint venture, and we announced the termination of our joint venture efforts due to the significant investment of time and resources that would be required to conduct an appeal. For further information on our proposed joint venture with Peabody Energy see Note 6, "Joint Venture with Peabody Energy" to the Consolidated Financial Statements.

Asset impairment and restructuring. In the third quarter of 2020, we determined that we had indicators of impairment related to three of our thermal operations, Coal Creek, West Elk, and Viper. Additionally, we determined we had indicators of impairment related to our equity investment in Knight Hawk, Holdings LLC. Our analyses of future expected cash flows from these assets indicated full impairment of our listed thermal operations and partial impairment of our equity investment in Knight Hawk Holdings, LLC. In the fourth quarter of 2020, we determined to close our Coal Creek operation by the end of 2022, or as soon as all current sales obligations have been fulfilled. This resulted in the acceleration of our asset retirement obligation and the write off of repair parts and supplies inventory. Included in asset impairment costs and restructuring for the year ended December 31, 2020 are approximately $13.4 million of employee severance expense related to voluntary separation plans that were accepted by 254 employees of our thermal operations and corporate staff. For further information on our Asset Impairment costs, see Note 5, "Asset impairment and restructuring" to the Consolidated Financial Statements.

Gain on property insurance recovery related to Mountain Laurel longwall. In the year ended December 31, 2020 we received $23.5 million of insurance proceeds related to the loss of certain longwall shields at our Mountain Laurel operation in November of 2019. For further information on our gain on property insurance recovery, see Note 7, "Gain on Property Insurance Recovery Related to Mountain Laurel Longwall" to the Consolidated Financial Statements.

Preference Rights Lease Application (PRLA) settlement income. Our PRLA settlement income relates to a settlement in 2019 with the United States Department of Interior over a long-standing dispute on the valuation and disposition of a PRLA Arch controlled in northwestern New Mexico. For further information on our PRLA settlement income see Note 8, "Preference Rights Lease Application Settlement Income" to the Consolidated Financial Statements.

(Gain) Loss on Divestitures. During the year ended December 31, 2020, we recorded a $1.4 million gain on the sale of our idle Dal-Tex and Briar Branch properties to Condor Holdings LLC. On December 31, 2020 we sold our Viper operation to Knight Hawk Holdings, LLC, resulting in a gain of approximately $0.1 million. During the year ended December 31, 2019, we sold Coal-Mac LLC to Condor Holdings LLC, incurring a loss of approximately $9.0 million. During the year ended December 31, 2017, we sold Lone Mountain Processing LLC and Cumberland River Coal LLC to Revelation Energy LLC, generating a gain of approximately $21.3 million. In the year ended December 31, 2019, we recorded a subsequent loss on the sale of Lone Mountain of approximately $4.3 million related to recognition of certain contingent workers' compensation liabilities, both occupational disease and traumatic, that may accrue to us as a result of the bankruptcy filing by Revelation Energy LLC. For further information on these gains and losses, see Note 4, "Divestitures" to the Consolidated Financial Statements.

Other operating income, net. The increase in other operating income, net in 2020 versus 2019 results primarily from the favorable impact of certain coal derivative settlements of approximately $8.8 million, and increased outlease royalty income of $1.8 million, partially offset by reduced transloading income of approximately $4.3 million and a gain on sale of certain right of way rights in the prior year period of approximately $2.3 million.

Non-operating expense. The following table summarizes non-operating expense for the years ended December 31, 2020 and 2019:

	Year Ended December 31,		
	2020	2019	Increase (Decrease) in Net Income
		(In thousands)	
Non-service related pension and postretirement benefit costs	$ (3,884)	$ (2,053)	$ (1,831)
Reorganization items, net	26	24	2
Total non-operating expenses	$ (3,858)	$ (2,029)	$ (1,829)

Non-service related pension and postretirement benefit costs. The increase in non-service related pension and postretirement benefit costs in the year ended December 31, 2020 versus the year ended December 31, 2019 is primarily due to lower postretirement benefit gain amortization in 2020.

Provision for (benefit from) income taxes. The following table summarizes our provision for income taxes for the years ended December 31, 2020 and 2019:

	Year Ended December 31,		
	2020	2019	Increase (Decrease) in Net Income
		(In thousands)	
Provision for (benefit from) income taxes	$ (7)	$ 248	$ 255

See Note 15, to the Consolidated Financial Statements "Taxes," for a reconciliation of the statutory federal income tax provision (benefit) at the statutory rate to the actual benefit from taxes.

Operational Performance

Year Ended December 31, 2020 and 2019

Our mining operations are evaluated based on Adjusted EBITDA, per-ton cash operating costs (defined as including all mining costs except depreciation, depletion, amortization, accretion on asset retirements obligations, and pass-through transportation expenses divided by segment tons sold), and on other non-financial measures, such as safety and environmental performance. Adjusted EBITDA is defined as net income (loss) attributable to the Company before the effect of net interest expense, income taxes, depreciation, depletion and amortization, the amortization of sales contracts, the accretion on asset retirement obligations, and non-operating income (expense). Adjusted EBITDA may also be adjusted for items that may not reflect the trend of future results by excluding transactions that are not indicative of our core operating performance. Adjusted EBITDA is not a measure of financial performance in accordance with generally accepted accounting principles, and items excluded from Adjusted EBITDA are significant in understanding and assessing our financial condition. Therefore, Adjusted EBITDA should not be considered in isolation, nor as an alternative to net income (loss), income (loss) from operations, cash flows from operations or as a measure of our profitability, liquidity or performance under generally accepted accounting principles. Furthermore, analogous measures are used by industry analysts to evaluate the Company's operating performance. Investors should be aware that our presentation of Adjusted EBITDA may not be comparable to similarly titled measures used by other companies.

The following table shows operating results of coal operations for the years ended December 31, 2020 and 2019.

	Year Ended December 31, 2020	Year Ended December 31, 2019	Variance
Powder River Basin			
Tons sold (in thousands)	52,366	74,531	(22,165)
Coal sales per ton sold	$ 12.38	$ 12.08	$ 0.30
Cash cost per ton sold	$ 11.48	$ 10.63	$ (0.85)
Cash margin per ton sold	$ 0.90	$ 1.45	$ (0.55)
Adjusted EBITDA (in thousands)	$ 50,246	$ 110,528	$ (60,282)
Metallurgical			
Tons sold (in thousands)	6,979	7,769	(790)
Coal sales per ton sold	$ 74.17	$ 105.33	$ (31.16)
Cash cost per ton sold	$ 61.13	$ 66.07	$ 4.94
Cash margin per ton sold	$ 13.04	$ 39.26	$ (26.22)
Adjusted EBITDA (in thousands)	$ 91,322	$ 305,363	$ (214,041)
Other Thermal			
Tons sold (in thousands)	3,356	7,717	(4,361)
Coal sales per ton sold	$ 31.67	$ 38.07	$ (6.40)
Cash cost per ton sold	$ 36.73	$ 32.85	$ (3.88)
Cash margin per ton sold	$ (5.06)	$ 5.22	$ (10.28)
Adjusted EBITDA (in thousands)	$ (16,211)	$ 41,495	$ (57,706)

This table reflects numbers reported under a basis that differs from U.S. GAAP. See the "Reconciliation of Non-GAAP measures" below for explanation and reconciliation of these amounts to the nearest GAAP figures. Other companies may calculate these per ton amounts differently, and our calculation may not be comparable to other similarly titled measures.

Powder River Basin — Adjusted EBITDA for the year ended December 31, 2020, declined from the year ended December 31, 2019 due to decreased volume. Pricing increased, and cash cost per ton sold increased, driven by the decrease in volume and the reimposition of a higher Federal Black Lung Excise Tax rate. Pricing in 2020 benefitted from our ability to recoup the reimposition of the higher Federal Black Lung Excise Tax rate under certain of our term supply contracts. The volume decline was primarily due to historically low natural gas pricing, COVID-19 related demand destruction, and the continued growth of subsidized renewable generation sources, particularly wind. Natural gas pricing reached historical lows during the first half of 2020, but pricing of the competing fuel was higher and volatile in the second half of 2020, and exceeded prior year prices at times. Natural gas production levels fell below 2019 levels in the second quarter of 2020, and remained below 2019 production levels for the remainder of the year. However, 2020 natural gas storage levels remained above 2019 levels the entire year, and these opposing market forces led to pricing volatility in the second half of 2020. The continued buildout of subsidized renewable generation sources, particularly wind, significantly increased the market share of renewable generation in the year ended December 31, 2020. During 2020, we also experienced reduced electric generation related to demand destruction due to restrictive responses taken to combat the spread of COVID-19. In alignment with our stated objective of shrinking our thermal operational footprint, we are comfortable operating our Powder River Basin operations at our currently committed volumes in 2021. We have further determined to idle our Coal Creek operation by the end of 2022 or earlier when all remaining sales obligations have been fulfilled, and accelerate reclamation activities at the mine.

In 2019 the Federal Black Lung Excise Tax rate reverted to the pre-1986 rates. For 2020 and 2021, Congress reimposed the higher 1986 to 2018 rates of $0.55 per ton sold or 4.4% of gross selling price on all domestic sales. For 2019, the Federal Black Lung Excise Tax rate for surface mines was $0.25 per ton or 2% of gross selling price on all domestic sales.

Metallurgical — Adjusted EBITDA for the year ended December 31, 2020, decreased from the year ended December 31, 2019 due to lower coking coal pricing and shipment volume discussed in the "Overview" section above, partially offset by reduced cash cost per ton sold. The cost improvement was driven by an increase in the percentage of segment tons sold from our low cost Leer mine in 2020. Additionally, operating tax and royalty costs declined in 2020 due to lower pricing and a severance tax credit. Actions taken to combat the spread of COVID-19 impacted our metallurgical segment throughout 2020. In particular, the initial industrial shutdowns and subsequent uneven recovery discussed in the "Overview" section above had a negative impact on the entire steel making supply chain. These impacts include a significant decline in coking coal pricing and deferral of some shipments out of the year ended December 31, 2020. In the fourth quarter, particularly November and December, of 2020 we experienced a significant increase in the number of active COVID-19 cases at our mines. This increase led to necessary absenteeism that required us to idle 52 continuous miner production shifts at our various Metallurgical Segment operations during the last half of the quarter.

Throughout the year ended December 31, 2020 our Leer South longwall development project has stayed on schedule. We currently anticipate initial longwall production in the third quarter of 2021. The addition of a second longwall operation to our Metallurgical Segment is expected to significantly increase our volumes and further reduce our already low average segment cost structure.

Our metallurgical segment sold 6.0 million tons of coking coal and 1.0 million tons of associated thermal coal in the year ended December 31, 2020, as compared to 6.8 million tons of coking coal and 1.0 million tons of associated thermal coal in the prior year. Longwall operations accounted for approximately 60% of our shipment volume in the year ended December 31, 2020 and 71% of our shipment volume in the prior year.

Other Thermal— Adjusted EBITDA for the year ended December 31, 2020 declined from the year ended December 31, 2019 due to reduced sales volume, lower pricing, and increased cash cost per ton sold. All of these metrics are impacted by the inclusion in the year ended December 31, 2019 of our former Coal-Mac operation, which was sold in December 2019. Coal-Mac provided approximately 2.1 million tons sold in the year ended December 31, 2019. Tons sold from ongoing operations declined approximately 2.2 million tons in the year ended December 31, 2020, as low natural gas pricing, increased renewable generation, and uneconomic international pricing impacted volume. In addition, in late March of 2020 we temporarily idled our Viper mine due to nonperformance of the mine's primary customer. The customer restarted deliveries in early May, and we reopened the mine at approximately the same time. In late December of 2020, prompt international thermal coal pricing increased to levels that can support economic exports from our West Elk operation but the international thermal coal pricing is volatile.

On December 31, 2020, we sold our Other Thermal operation, Viper, to Knight Hawk Holdings, LLC. For further information on the sale of Viper, please see Note 4, "Divestitures" to the Consolidated Financial Statements.

In December of the year ended December 31, 2019, we sold our Other Thermal operation, Coal-Mac LLC, to Condor Holdings LLC. For further information on the sale of Coal-Mac LLC, please see Note 4, "Divestitures" to the Consolidated Financial Statements.

Reconciliation of NON-GAAP measures

Non-GAAP Segment coal sales per ton sold

Non-GAAP Segment coal sales per ton sold is calculated as segment coal sales revenues divided by segment tons sold. Segment coal sales revenues are adjusted for transportation costs, and may be adjusted for other items that, due to generally accepted accounting principles, are classified in “other income” on the consolidated income statements, but relate to price protection on the sale of coal. Segment coal sales per ton sold is not a measure of financial performance in accordance with generally accepted accounting principles. We believe segment coal sales per ton sold provides useful information to investors as it better reflects our revenue for the quality of coal sold and our operating results by including all income from coal sales. The adjustments made to arrive at these measures are significant in understanding and assessing our financial condition. Therefore, segment coal sales revenues should not be considered in isolation, nor as an alternative to coal sales revenues under generally accepted accounting principles.

Year Ended December 31, 2020 **(In thousands)**	**Powder River Basin**	**Metallurgical**	**Other Thermal**	**Idle and Other**	**Consolidated**
GAAP Revenues in the Condensed Consolidated Statements of Operations	$ 662,135	$ 641,536	$ 139,497	$ 24,424	$ 1,467,592
Less: Adjustments to reconcile to Non-GAAP Segment coal sales revenue					
Coal risk management derivative settlements classified in "other income"	—	(577)	(8,632)	—	(9,209)
Coal sales revenues from idled or otherwise disposed operations not included in segments	—	—	—	24,322	24,322
Transportation costs	13,625	124,494	41,852	102	180,073
Non-GAAP Segment coal sales revenues	$ 648,510	$ 517,619	$ 106,277	$ —	$ 1,272,406
Tons sold	52,366	6,979	3,356		
Coal sales per ton sold	$ 12.38	$ 74.17	$ 31.67		

Year Ended December 31, 2019 **(In thousands)**	**Powder River Basin**	**Metallurgical**	**Other Thermal**	**Idle and Other**	**Consolidated**
GAAP Revenues in the Condensed Consolidated Statements of Operations	$ 915,750	$ 990,550	$ 377,202	$ 10,850	$ 2,294,352
Less: Adjustments to reconcile to Non-GAAP Segment coal sales revenue					
Coal risk management derivative settlements classified in "other income"	—	(1,122)	(6,782)	—	(7,904)
Coal sales revenues from idled or otherwise disposed operations not included in segments	—	—	—	10,820	10,820
Transportation costs	15,079	173,352	90,151	30	278,612
Non-GAAP Segment coal sales revenues	$ 900,671	$ 818,320	$ 293,833	—	$ 2,012,824
Tons sold	74,531	7,769	7,717		
Coal sales per ton sold	$ 12.08	$ 105.33	$ 38.07		

Non-GAAP Segment cash cost per ton sold

Non-GAAP Segment cash cost per ton sold is calculated as segment cash cost of coal sales divided by segment tons sold. Segment cash cost of coal sales is adjusted for transportation costs, and may be adjusted for other items that, due to generally accepted accounting principles, are classified in “other income” on the consolidated income statements, but relate directly to the costs incurred to produce coal. Segment cash cost per ton sold is not a measure of financial performance in accordance with generally accepted accounting principles. We believe segment cash cost per ton sold better reflects our controllable costs and our operating results by including all costs incurred to produce coal. The adjustments made to arrive at these measures are significant in understanding and assessing our financial condition. Therefore, segment cash cost of coal sales should not be considered in isolation, nor as an alternative to cost of sales under generally accepted accounting principles.

Year Ended December 31, 2020 **(In thousands)**	**Powder River Basin**	**Metallurgical**	**Other Thermal**	**Idle and Other**	**Consolidated**
GAAP Cost of sales in the Condensed Consolidated Statements of Operations	$ 613,177	$ 551,133	$ 165,090	$ 49,079	$ 1,378,479
Less: Adjustments to reconcile to Non-GAAP Segment cash cost of coal sales					
Diesel fuel risk management derivative settlements classified in "other income"	(1,788)	—	—	—	(1,788)
Transportation costs	13,625	124,494	41,852	102	180,073
Cost of coal sales from idled or otherwise disposed operations not included in segments	—	—	—	41,322	41,322
Other (operating overhead, certain actuarial, etc.)	—	—	—	7,655	7,655
Non-GAAP Segment cash cost of coal sales	601,340	426,639	123,238	—	1,151,217
Tons sold	52,366	6,979	3,356		
Cash Cost Per Ton Sold	$ 11.48	$ 61.13	$ 36.73		

Year Ended December 31, 2019 **(In thousands)**	**Powder River Basin**	**Metallurgical**	**Other Thermal**	**Idle and Other**	**Consolidated**
GAAP Cost of sales in the Condensed Consolidated Statements of Operations	$ 803,996	$ 686,673	$ 343,656	$ 38,692	$ 1,873,017
Less: Adjustments to reconcile to Non-GAAP Segment cash cost of coal sales					
Diesel fuel risk management derivative settlements classified in "other income"	(3,036)	—	—	—	(3,036)
Transportation costs	15,079	173,353	90,151	30	278,613
Cost of coal sales from idled or otherwise disposed operations not included in segments	—	—	—	28,712	28,712
Other (operating overhead, certain actuarial, etc.)	—	—	—	9,950	9,950
Non-GAAP Segment cash cost of coal sales	$ 791,953	513,320	253,505	—	1,558,778
Tons sold	74,531	7,769	7,717		
Cash Cost Per Ton Sold	$ 10.63	$ 66.07	$ 32.85		

Reconciliation of Segment Adjusted EBITDA to Net Income (loss)

The discussion in "Results of Operations" above includes references to our Adjusted EBITDA for each of our reportable segments. Adjusted EBITDA is defined as net income (loss) attributable to the Company before the effect of net interest expense, income taxes, depreciation, depletion and amortization, the amortization of sales contracts, and the accretion on asset retirement obligations. Adjusted EBITDA may also be adjusted for items that may not reflect the trend of future results by excluding transactions that are not indicative of our core operating performance. We use Adjusted EBITDA to measure the operating performance of our segments and allocate resources to our segments. Adjusted EBITDA is not a measure of financial performance in accordance with generally accepted accounting principles, and items excluded from Adjusted EBITDA are significant in understanding and assessing our financial condition. Therefore, Adjusted EBITDA should not be considered in isolation, nor as an alternative to net income (loss), income (loss) from operations, cash flows from operations or as a measure of our profitability, liquidity or performance under generally accepted accounting principles. Investors should be aware that our presentation of Adjusted EBITDA may not be comparable to similarly titled measures used by other companies. The table below shows how we calculate Adjusted EBITDA.

	Year Ended December 31, 2020	Year Ended December 31, 2019
Net income (loss)	$ (344,615)	$ 233,799
Provision for (benefit from) income taxes	(7)	248
Interest expense, net	10,624	6,794
Depreciation, depletion and amortization	121,552	111,621
Accretion on asset retirement obligations	19,887	20,548
Costs related to proposed joint venture with Peabody Energy	16,087	13,816
Asset impairment and restructuring	221,380	—
Gain on property insurance recovery related to Mountain Laurel longwall	(23,518)	—
(Gain) loss on divestitures	(1,505)	13,312
Preference Rights Lease Application settlement income	—	(39,000)
Net loss resulting from early retirement of debt and debt restructuring	—	—
Non-service related pension and postretirement benefit costs	3,884	2,053
Reorganization items, net	(26)	(24)
Adjusted EBITDA	23,743	363,167
EBITDA from idled or otherwise disposed operations	15,858	12,926
Selling, general and administrative expenses	82,397	95,781
Other	3,359	(14,488)
Segment Adjusted EBITDA from coal operations	$ 125,357	$ 457,386

Other includes primarily income from our equity investments, certain changes in the fair value of coal derivatives and coal trading activities, certain changes in fair value of heating oil derivatives we use to manage our exposure to diesel fuel pricing, net EBITDA provided by our land company, and certain miscellaneous revenue.

For the year ended December 31, 2020, amounts included in Other decreased EBITDA by approximately $3.4 million versus increasing EBITDA approximately $14.5 million in the year ended December 31, 2019. The decrease in EBITDA was primarily related to unfavorable change in value of coal derivatives of approximately $16.4 million, and unfavorable transloading income and expense of approximately $2.3 million.

Liquidity and Capital Resources

Our primary sources of liquidity are proceeds from coal sales to customers and certain financing arrangements. Excluding significant investing activity, we intend to satisfy our working capital requirements and fund capital expenditures and debt-service obligations with cash generated from operations and cash on hand. As we continue to evaluate the impacts of COVID-19 and the responses thereto on our business, we remain focused on prudently managing costs, including capital expenditures, maintaining a strong balance sheet, and ensuring adequate liquidity.

Given the volatile nature of coal markets, and the significant challenges and uncertainty surrounding the COVID-19 outbreak, we believe it is increasingly important to take a prudent approach to managing our balance sheet and liquidity, as demonstrated by the suspension of our dividend and share repurchases. Due to the current economic uncertainties related to COVID-19 and the related disruption in the financial markets, we may be limited in accessing capital markets or obtaining additional bank financing or the cost of accessing this financing could become more expensive. We believe our current liquidity level is sufficient to fund our business; however, given the uncertainty in the global economy and our primary markets, we believe it is prudent to explore opportunities to secure additional capital to further enhance our liquidity position as we drive forward with our Leer South development. In the future, we will continue to evaluate our capital allocation initiatives in light of the current state of, and our outlook for coal markets; the amount of our planned production that has been committed and priced; the capital needs of the business; other strategic opportunities; and developments in the COVID-19 outbreak and the responses thereto.

On March 7, 2017, we entered into a senior secured term loan credit agreement in an aggregate principal amount of $300 million (the “Term Loan Debt Facility”) with Credit Suisse AG, Cayman Islands Branch, as administrative agent and collateral agent and the other financial institutions from time to time party thereto. The Term Loan Debt Facility was issued at 99.50% of the face amount and will mature on March 7, 2024. The term loans provided under the Term Loan Debt Facility (the “Term Loans”) are subject to quarterly principal amortization payments in an amount equal to $750,000. Proceeds from the Term Loan Debt Facility were used to repay all outstanding obligations under our previously existing term loan credit agreement, dated as of October 5, 2016.

On April 3, 2018, we entered into the Second Amendment (the “Second Amendment”) to the Term Loan Debt Facility. The Second Amendment reduced the interest rate on the Term Loans to, at our option, either (i) the London interbank offered rate (“LIBOR”) plus an applicable margin of 2.75%, subject to a 1.00% LIBOR floor, or (ii) a base rate plus an applicable margin of 1.75%. For further information regarding the Term Loan Debt Facility Note 14, “Debt and Financing Arrangements” to the Consolidated Financial Statements.

We have entered into a series of interest rate swaps to fix a portion of the LIBOR interest payments due under the term loan. As interest payments are made on the term loan, amounts in accumulated other comprehensive income will be reclassified into earnings through interest expense to reflect a net interest on the term loan equal to the effective yield of the fixed rate of the swap plus 2.75% which is the spread on the LIBOR term loan as amended. For further information regarding the interest rate swaps see Note 14, “Debt and Financing Arrangements” to the Consolidated Financial Statements.

On September 30, 2020, we extended and amended our existing trade accounts receivable securitization facility provided to Arch Receivable Company, LLC, a special-purpose entity that is a wholly owned subsidiary of Arch Resources (“Arch Receivable”) (the “Extended Securitization Facility”), which supports the issuance of letters of credit and requests for cash advances. The amendment to the Extended Securitization Facility changed the facility size from $160 million to $110 million and extended the maturity date to September 29, 2023. Additionally, the amendment eliminated the provision that accelerated maturity of the facility upon falling below a specified level of liquidity and modified the pricing for the Extended Securitization Facility. Pursuant to the Extended Securitization Facility, we also agreed to a revised schedule of fees payable to the administrator and the providers of the Extended Securitization Facility. For further information regarding the Extended Securitization Facility see Note 14, “Debt and Financing Arrangements” to the Consolidated Financial Statements.

On September 30, 2020, we amended the senior secured inventory-based revolving credit facility in an aggregate principal amount of $50 million (the “Inventory Facility”) with Regions Bank (“Regions”) as administrative agent and collateral agent, as lender and swingline lender (in such capacities, the “Lender”) and as letter of credit issuer. Availability under the Inventory Facility is subject to a borrowing base consisting of (i) 85% of the net orderly liquidation value of eligible coal inventory, (ii) the lesser of (x) 85% of the net orderly liquidation value of eligible parts and supplies inventory and (y) 35% of the amount determined pursuant to clause (i), and (iii) 100% of our Eligible Cash (defined in the Inventory Facility), subject to reduction for reserves imposed by Regions. The amendment of the Inventory Facility extended the maturity date to September 29, 2023, eliminated the provision that accelerated maturity of the facility upon falling below a specified level of liquidity, and reduced the minimum liquidity requirement from $175 million to $100 million. Additionally, the amendment includes provisions that reduce the advance rates for coal inventory and parts and supplies, depending on liquidity. For further information regarding the Inventory Facility, see Note 14, “Debt and Financing Arrangements” to the Consolidated Financial Statements.

On March 4, 2020, we entered into an equipment financing arrangement accounted for as debt (“Equipment Financing”). We received $53.6 million in exchange for conveying an interest in certain equipment in operation at our Leer Mine and entered into a 48 month master lease arrangement for use of that equipment. Upon maturity, all interests in the equipment will revert back to us. For further information regarding this equipment financing arrangement, see Note 14, “Debt and Financing Arrangements” to the Consolidated Financial Statements.

On July 2, 2020, the West Virginia Economic Development Authority (the “Issuer”) issued $53.1 million aggregate principal amount of Solid Waste Disposal Facility Revenue Bonds (Arch Resources Project), Series 2020 (the “Tax Exempt Bonds”) pursuant to an Indenture of Trust dated as of June 1, 2020 (the “Indenture”) between the Issuer and Citibank, N.A., as trustee (the “Trustee”). The proceeds of the Tax Exempt Bonds are loaned to us as we make qualifying expenditures pursuant to a Loan Agreement dated as of June 1, 2020 between the Issuer and us. The Tax Exempt Bonds are payable solely from payments to be made by us under the Loan Agreement as evidenced by a Note from us to the Trustee. The proceeds of the Tax Exempt Bonds were used to finance certain costs of the acquisition, construction, reconstruction, and equipping of solid waste disposal facilities at our Leer South development, and for capitalized interest and certain costs related to issuance of the Tax Exempt Bonds. As of December 31, 2020, we have received $47.1 million of the total Tax Exempt Bonds proceeds. The remaining $6.0 is held in trust and is recorded on our balance sheet as restricted cash. The remainder of the funds will be released as qualified expenditures are made over the first half of 2021. For further information regarding these Tax Exempt Bonds, see Note 14, “Debt and Financing Arrangements” to the Consolidated Financial Statements.

On November 3, 2020, we issued $155.3 million in aggregate principal amount of 5.25% convertible senior notes due 2025 (“Convertible Notes” or “Convertible Debt”). The net proceeds from the issuance of the Convertible Notes, after deducting offering related costs of $5.1 million and cost of a “Capped Call Transaction” as defined below of $17.5 million, were approximately $132.7 million. The Convertible Notes bear interest at the annual rate of 5.25%, payable semiannually in arrears on May 15 and November 15 of each year, beginning on May 15, 2021, and will mature on November 15, 2025, unless earlier converted or repurchased by us.

The Convertible Notes will be convertible into cash, shares of our common stock or a combination thereof, at our election, at an initial conversion rate of 26.7917 shares of common stock per $1,000 principal amount of Convertible Notes, which is equivalent to an initial conversion price of approximately $37.325 per share, subject to adjustment pursuant to the terms of the Indenture governing the Convertible Notes (the "Indenture"). The Convertible Notes may be converted at any time after, and including, July 15, 2025 until the close of business on the second scheduled trading day immediately before the maturity date. For further information regarding the Convertible Notes, see Note 14, “Debt and Financing Arrangements” to the Consolidated Financial Statements.

In connection with the offering of the Convertible Notes on October 29, 2020, we entered into privately negotiated convertible note hedge transactions (collectively, the “Capped Call Transactions”). The Capped Call Transactions cover, subject to customary anti-dilution adjustments, the number of shares of our common stock that initially underlie the Convertible Notes.

The Capped Call Transactions are expected generally to reduce the potential dilution and/or offset any cash payments we are required to make in excess of the principal amount due upon conversion of the Convertible Notes in the event that the market price of our common stock is greater than the conversion price but lower than the strike price of the Capped Call Transactions, which was initially $37.325 per share (subject to adjustment under the terms of the Capped Call Transactions). The number of shares underlying the Capped Call Transactions is 4.2 million. The cost of the Capped Call Transaction was approximately $17.5 million. For further information regarding the Capped Call Transactions, see Note 14, “Debt and Financing Arrangements” to the Consolidated Financial Statements.

On April 27, 2017, our Board of Directors authorized a capital return program consisting of a share repurchase program and a quarterly cash dividend. The share repurchase plan has a total authorization of $1.05 billion of which we have used $827.4 million. During the year ended December 31, 2020, we did not repurchase any shares of our stock. We paid a dividend of $0.50 per common share on March 13, 2020 to stockholders of record at the close of business on March 3, 2020. On April 23, 2020 we announced the suspension of our quarterly dividend due to the significant economic uncertainty surrounding the COVID-19 virus and the steps being taken to control the virus. Since March 13, 2020, we have not paid any further dividends on shares of our stock. The timing and amount of any future dividends or of any future share purchases and the ultimate number of shares to be purchased will depend on a number of factors, including business and market conditions, our future financial performance, and other capital priorities. Any shares acquired would be in the open market or through private transactions in accordance with Securities and Exchange Commission requirements.

On December 31, 2020 we had total liquidity of approximately $315 million including $284 million in unrestricted cash and equivalents, and short term investments in debt securities, with the remainder provided by availability under our credit facilities, and funds withdrawable from brokerage accounts. The table below summarizes our availability under our credit facilities as of December 31, 2020:

	Face Amount	Borrowing Base	Letters of Credit Outstanding	Availability	Contractual Expiration
			(Dollars in thousands)		
Securitization Facility	$ 110,000	$ 81,800	$ 56,325	$ 25,475	September 29, 2023
Inventory Facility	50,000	33,307	29,196	4,111	September 29, 2023
Total	$ 160,000	$ 115,107	$ 85,521	$ 29,586	

The following is a summary of cash provided by or used in each of the indicated types of activities:

(In thousands)	Year Ended December 31, 2020	2019
Cash provided by (used in):		
Operating activities	$ 61,106	$ 419,714
Investing activities	(226,009)	(239,111)
Financing activities	205,328	(292,520)

Cash Flow

Cash provided by operating activities decreased in the year ended December 31, 2020 versus the year ended December 31, 2019 mainly due to the deterioration of results from operations discussed in the "Overview" and "Operational Performance" sections above. Offsetting that slightly was a reduction in working capital requirements of approximately $21 million.

Cash used in investing activities decreased in the year ended December 31, 2020 versus the year ended December 31, 2019 primarily due to an approximately $10 million increase in net proceeds from short term investments, and approximately $24 million in property insurance proceeds on our Mountain Laurel longwall claim, partially offset by increased capital expenditures of approximately $19 million. Capital spending in the year ended December 31, 2020 includes approximately $206 million, excluding capitalized interest, related to our Leer South mine development.

Cash was provided by financing activities in the year ended December 31, 2020 increased versus the year ended December 31, 2019 primarily due to suspension of treasury stock purchases and dividend payments, and proceeds from the new $54 million Equipment Financing, proceeds of approximately $53 million from the new Tax Exempt Bond issuance, and net proceeds of approximately $132.7 million from issuance of the Convertible Notes. For further information regarding the Equipment Financing, Tax Exempt Bonds, and the Convertible Notes, see Note 14, "Debt and Financing Arrangements" to the Consolidated Financial Statements.

Contractual Obligations

	Payments Due by Period				
	2021	2022-2023	2024-2025	after 2025	Total
	(Dollars in thousands)				
Long-term debt, including related interest	$ 31,774	$ 73,350	$ 528,968	$ —	$ 634,092
Leases	4,577	9,022	9,707	4,614	27,920
Coal lease rights	3,748	6,062	5,543	38,131	53,484
Coal purchase obligations	5,574	—	—	—	5,574
Unconditional purchase obligations	95,039	—	—	—	95,039
Total contractual obligations	$ 140,712	$ 88,434	$ 544,218	$ 42,745	$ 816,109

The related interest on long-term debt was calculated using rates in effect at December 31, 2020 for the remaining term of outstanding borrowings.

Coal lease rights represent non-cancelable royalty lease agreements, as well as lease bonus payments due.

Unconditional purchase obligations include open purchase orders and other purchase commitments, which have not been recognized as a liability. The commitments in the table above relate to contractual commitments for the purchase of materials and supplies, payments for services and capital expenditures.

The table above excludes our asset retirement obligations. Our consolidated balance sheet reflects a liability of $257.8 million including amounts classified as a current liability for asset retirement obligations that arise from SMCRA and similar state statutes, which require that mine property be restored in accordance with specified standards and an approved reclamation plan. Asset retirement obligations are recorded at fair value when incurred and accretion expense is recognized through the expected date of settlement. Determining the fair value of asset retirement obligations involves a number of estimates, as discussed in the section entitled “Critical Accounting Policies” below, including the timing of payments to satisfy the obligations. The timing of payments to satisfy asset retirement obligations is based on numerous factors, including mine closure dates. Please see Note 16, “Asset Retirement Obligations” to our Consolidated Financial Statements for further information about our asset retirement obligations.

The table above also excludes certain other obligations reflected in our consolidated balance sheet, including estimated funding for pension and postretirement benefit plans and worker’s compensation obligations. The timing of contributions to our pension plans varies based on a number of factors, including changes in the fair value of plan assets and actuarial assumptions. Please see the section entitled “Critical Accounting Policies” below for more information about these assumptions. We expect to make no contributions to our pension plans in 2021.

Please see Note 20, “Workers’ Compensation Expense”, and Note 21, “Employee Benefit Plans” to our Consolidated Financial Statements for more information about the amounts we have recorded for workers’ compensation and pension and postretirement benefit obligations respectively.

Off-Balance Sheet Arrangements

In the normal course of business, we are a party to certain off-balance sheet arrangements. These arrangements include guarantees, indemnifications, financial instruments with off-balance sheet risk, such as bank letters of credit and performance or surety bonds. Liabilities related to these arrangements are not reflected in our consolidated balance sheets, and we do not expect any material adverse effects on our financial condition, results of operations or cash flows to result from these off-balance sheet arrangements.

We use a combination of surety bonds, letters of credit and cash to secure our financial obligations for reclamation, workers’ compensation, coal lease obligations and other obligations as follows as of December 31, 2020:

	Reclamation Obligations	Lease Obligations	Workers’ Compensation Obligations	Other	Total
			(Dollars in thousands)		
Surety bonds	$ 552,401	$ 31,691	$ 53,778	$ 8,872	$ 646,742
Letters of credit	20,000	—	64,167	1,354	85,521
Cash on deposit with others	590	—	5,000	—	5,590

Critical Accounting Policies

We prepare our financial statements in accordance with accounting principles that are generally accepted in the United States. The preparation of these financial statements requires management to make estimates and judgments that affect the reported amounts of assets, liabilities, revenues and expenses as well as the disclosure of contingent assets and liabilities. Management bases our estimates and judgments on historical experience and other factors that are believed to be reasonable under the circumstances. Additionally, these estimates and judgments are discussed with our audit committee on a periodic basis. Actual results may differ from the estimates used under different assumptions or conditions. We have provided a description of all significant accounting policies in the notes to our Consolidated Financial Statements. We believe that of these significant accounting policies, the following may involve a higher degree of judgment or complexity:

Derivative Financial Instruments

We utilize derivative instruments to manage exposures to commodity prices and interest rate risk on long-term debt. Additionally, we may hold certain coal derivative instruments for trading purposes. Derivative financial instruments are recognized in the balance sheet at fair value. Certain coal contracts may meet the definition of a derivative instrument, but because they provide for the physical purchase or sale of coal in quantities expected to be used or sold by us over a reasonable period in the normal course of business, they are not recognized on the balance sheet.

Certain derivative instruments are designated as the hedge instrument in a hedging relationship. In a cash flow hedge, we hedge the risk of changes in future cash flows related to the underlying item being hedged. Changes in the fair value of the derivative instrument used as a hedge instrument in a cash flow hedge are recorded in other comprehensive income. Amounts in other comprehensive income are reclassified to earnings when the hedged transaction affects earnings and are classified in a manner consistent with the transaction being hedged.

We formally document all relationships between hedging instruments and hedged items, as well as our risk management objectives for undertaking various hedge transactions. We evaluate the effectiveness of our hedging relationships both at the hedge inception and on an ongoing basis.

Impairment of Long-lived Assets

We review our long-lived assets for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. These events and circumstances include, but are not limited to, a current expectation that a long-lived asset will be disposed of significantly before the end of its previously estimated useful life, a significant adverse change in the extent or manner in which we use a long-lived asset or a change in its physical condition.

When such events or changes in circumstances occur, a recoverability test is performed comparing projected undiscounted cash flows from the use and eventual disposition of an asset or asset group to its carrying amount. If the projected undiscounted cash flows are less than the carrying amount, an impairment is recorded for the excess of the carrying amount over the estimate fair value, which is generally determined using discounted future cash flows. If we recognize an impairment loss, the adjusted carrying amount of the asset becomes the new cost basis. For a depreciable long-lived asset, the new cost basis will be depreciated (amortized) over the remaining estimated useful life of the asset.

We make various assumptions, including assumptions regarding future cash flows in our assessments of long-lived assets for impairment. The assumptions about future cash flows and growth rates are based on the current and long-term business plans related to the long-lived assets. Discount rate assumptions are based on an assessment of the risk inherent in the future cash flows of the long-lived assets. These assumptions require significant judgments on our part, and the conclusions that we reach could vary significantly based upon these judgments.

In the third quarter of 2020, we determined that we had indicators of impairment related to three of our thermal operations, Coal Creek, West Elk, and Viper. Additionally, we determined we had indicators of impairment related to our equity investment in Knight Hawk Holdings, LLC. Our analyses of future expected cash flows from these assets indicated full impairment of our listed thermal operations and partial impairment of our equity investment in Knight Hawk Holdings, LLC. In the fourth quarter of 2020, we determined to close our Coal Creek operation by the end of 2022, or as soon as all current sales obligations have been fulfilled. This resulted in the acceleration of our Asset Retirement Obligation (ARO) and the write off of repair parts and supplies inventory for Coal Creek.

Please see the Note 5, “Asset impairment and restructuring” to our Consolidated Financial Statements for more information about the amounts we have recorded for Asset Impairment.

Asset Retirement Obligations

Our asset retirement obligations arise from SMCRA and similar state statutes, which require that mine property be restored in accordance with specified standards and an approved reclamation plan. Significant reclamation activities include reclaiming refuse and slurry ponds, reclaiming the pit and support acreage at surface mines, and sealing portals at deep mines. Our asset retirement obligations are initially recorded at fair value, or the amount at which the obligations could be settled in a current transaction between willing parties. This involves determining the present value of estimated future cash flows on a mine-by-mine basis based upon current permit requirements and various estimates and assumptions, including estimates of disturbed acreage, reclamation costs and assumptions regarding equipment productivity. We estimate disturbed acreage based on approved mining plans and related engineering data. Since we plan to use internal resources to perform the majority of our reclamation activities, our estimate of reclamation costs involves estimating third-party profit margins, which we base on our historical experience with contractors that perform certain types of reclamation activities. We base productivity assumptions on historical experience with the equipment that we expect to utilize in the reclamation activities. In order to determine fair value, we discount our estimates of cash flows to their present value. We base our discount rate on the rates of treasury bonds with maturities similar to expected mine lives, adjusted for our credit standing.

Accretion expense is recognized on the obligation through the expected settlement date. On at least an annual basis, we review our entire reclamation liability and make necessary adjustments for permit changes as granted by state authorities, changes in the timing and extent of reclamation activities, and revisions to cost estimates and productivity assumptions, to reflect current experience. Any difference between the recorded amount of the liability and the actual cost of reclamation will be recognized as a gain or loss when the obligation is settled. We expect our actual cost to reclaim our properties will be less than the expected cash flows used to determine the asset retirement obligation. At December 31, 2020, our balance sheet reflected asset retirement obligation liabilities of $257.8 million, including amounts classified as a current liability. As of December 31, 2020, we estimate the aggregate uninflated and undiscounted cost of final mine closures to be approximately $395.7 million.

See the roll forward of the asset retirement obligation liability in Note 16, “Asset Retirement Obligations” to the Consolidated Financial Statements.

Employee Benefit Plans

We have non-contributory defined benefit pension plans covering certain of our salaried and hourly employees. Benefits are generally based on the employee’s years of service and compensation. The actuarially-determined funded status of the defined benefit plans is reflected in the balance sheet.

The calculation of our net periodic benefit costs (pension expense) and benefit obligation (pension liability) associated with our defined benefit pension plans requires the use of a number of assumptions. These assumptions are summarized in Note 21, “Employee Benefit Plans”, to the Consolidated Financial Statements. Changes in these assumptions can result in different pension expense and liability amounts, and actual experience can differ from the assumptions.

- The expected long-term rate of return on plan assets is an assumption reflecting the average rate of earnings expected on the funds invested or to be invested to provide for the benefits included in the projected benefit obligation. We establish the expected long-term rate of return at the beginning of each fiscal year based upon historical returns and projected returns on the underlying mix of invested assets. The pension plan’s investment targets are 27% equity and 73% fixed income securities. Investments are rebalanced on a periodic basis to approximate these targeted guidelines. The long-term rate of return assumptions are less than the plan’s actual life-to-date returns.

- The discount rate represents our estimate of the interest rate at which pension benefits could be effectively settled. Assumed discount rates are used in the measurement of the projected, accumulated and vested benefit obligations and the service and interest cost components of the net periodic pension cost. The determination of the discount rate was updated from our actuary’s proprietary Yield Curve model, under which the expected benefit payments of the plan are matched against a series of spot rates from a market basket of high quality fixed income securities.

The differences generated from changes in assumed discount rates and returns on plan assets are amortized into earnings using the corridor method, whereby the unrecognized (gains)/losses in excess of 10% of the greater of the beginning of the year projected benefit obligation or market-related value of assets are amortized over the average remaining life expectancy of the plan participants.

We also currently provide certain postretirement medical and life insurance coverage for eligible employees. Generally, covered employees who terminate employment after meeting eligibility requirements are eligible for postretirement coverage for themselves and their dependents. The salaried employee postretirement benefit plans are contributory, with retiree contributions adjusted periodically, and contain other cost-sharing features such as deductibles and coinsurance.

Actuarial assumptions are required to determine the amounts reported as obligations and costs related to the postretirement benefit plan. The discount rate assumption reflects the rates available on high-quality fixed-income debt instruments at year-end and is calculated in the same manner as discussed above for the pension plan.

Income Taxes

We provide for deferred income taxes for temporary differences arising from differences between the financial statement and tax basis of assets and liabilities existing at each balance sheet date using enacted tax rates expected to be in effect when the related taxes are expected to be paid or recovered. We initially recognize the effects of a tax position when it is more than 50 percent likely, based on the technical merits, that that position will be sustained upon examination, including resolution of the related appeals or litigation processes, if any. Our determination of whether or not a tax position has met the recognition threshold considers the facts, circumstances, and information available at the reporting date.

The Company assesses the need for a valuation allowance by evaluating future taxable income, available tax planning strategies and the reversal of temporary differences. A valuation allowance is difficult to avoid when a company is in a cumulative loss position, as it constitutes significant negative evidence with regards to future taxable income. A cumulative loss position is defined as a cumulative pre-tax loss for the current and two preceding years.

As of December 31, 2018, the Company was in a cumulative loss position and held a full valuation allowance against its net deferred tax assets.

In 2019, the Company was no longer in a cumulative loss position. However, based on significant near-term uncertainty in market pricing and uncertainty surrounding other planned changes in our operating structure, the Company maintained a full valuation allowance.

As of December 31, 2020, the Company maintained the full valuation allowance, based on continued pricing uncertainty, ongoing operational changes and the significant pre-tax loss reported for the year.

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK.

We manage our commodity price risk for our non-trading, thermal coal sales through the use of long-term coal supply agreements, and to a limited extent, through the use of derivative instruments. Sales commitments in the metallurgical coal market are typically not long-term in nature, and we are therefore subject to fluctuations in market pricing.

Our commitments for 2021 are as follows:

	2021	
	Tons	$per ton
Metallurgical	(in millions)	
Committed, North America Priced Coking	1.8	$ 91.00
Committed, North America Unpriced Coking	—	
Committed, Seaborne Priced Coking	0.6	81.48
Committed, Seaborne Unpriced Coking	3.9	
Committed, Priced Thermal	0.5	20.84
Committed, Unpriced Thermal	0.2	
Thermal		
Committed, Priced	46.8	$ 12.80
Committed, Unpriced	3.0	

We are also exposed to commodity price risk in our coal trading activities, which represents the potential future loss that could be caused by an adverse change in the market value of coal. Our coal trading portfolio included forward, swap and put and call option contracts at December 31, 2020. The estimated future realization of the value of the trading portfolio is $0.3 million of gains in 2021.

We monitor and manage market price risk for our trading activities with a variety of tools, including Value at Risk (VaR), position limits, management alerts for mark to market monitoring and loss limits, scenario analysis, sensitivity analysis and review of daily changes in market dynamics. Management believes that presenting high, low, end of year and average VaR is the best available method to give investors insight into the level of commodity risk of our trading positions. Illiquid positions, such as long-dated trades that are not quoted by brokers or exchanges, are not included in VaR.

VaR is a statistical one-tail confidence interval and down side risk estimate that relies on recent history to estimate how the value of the portfolio of positions will change if markets behave in the same way as they have in the recent past. While presenting VaR will provide a similar framework for discussing risk across companies, VaR estimates from two independent sources are rarely calculated in the same way. Without a thorough understanding of how each VaR model was calculated, it would be difficult to compare two different VaR calculations from different sources. The level of confidence is 95%. The time across which these possible value changes are being estimated is through the end of the next business day. A closed-form delta-neutral method used throughout the finance and energy sectors is employed to calculate this VaR. VaR is back tested to verify usefulness. As of December 31, 2020, VaR was immaterial to the financial statements.

We are also exposed to the risk of fluctuations in cash flows related to our purchase of diesel fuel. We expect to use approximately 30 to 35 million gallons of diesel fuel for use in our operations during 2021. We may enter into forward physical purchase contracts, as well as purchased heating oil options, to reduce volatility in the price of diesel fuel for our operations. At December 31, 2020, we had no purchased heating oil call options. These positions reduce our risk of cash flow fluctuations related to these fuel purchases but the positions are not accounted for as hedges.

We are exposed to market risk associated with interest rates due to our existing level of indebtedness. At December 31, 2020, of our $559.8 million principal amount of debt outstanding, approximately $288.8 million of outstanding borrowings have interest rates that fluctuate based on changes in the market rates. An increase in the interest rates related to these borrowings of 25 basis points would not result in a material annualized increase in interest expense based on interest rates in effect at December 31, 2020, because we have fixed the majority of the LIBOR portion of the interest rate on our term loan using interest rate swaps. As of December 31, 2020, the LIBOR rate was well below the 1% floor established in our term loan agreement. See Note 14, "Debt and Financing Arrangements" to the Consolidated Financial Statements for additional information on the interest rate swaps.

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA.

The Consolidated Financial Statements and consolidated financial statement schedule of Arch Resources, Inc. and subsidiaries are included in this Annual Report on Form 10-K beginning on page F-1.

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

None.

ITEM 9A. CONTROLS AND PROCEDURES.

We performed an evaluation under the supervision and with the participation of our management, including our chief executive officer and chief financial officer, of the effectiveness of the design and operation of our disclosure controls and procedures as of December 31, 2020, as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended. Based on that evaluation, our management, including our chief executive officer and chief financial officer, concluded that the disclosure controls and procedures were effective as of such date. There were no changes in our internal control over financial reporting during the fiscal quarter ended December 31, 2020 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

We incorporate by reference the opinion of independent registered public accounting firm and management's report on internal control over financial reporting included within the Financial Statement section of this Annual Report on Form 10-K.

ITEM 9B. OTHER INFORMATION.

None.

PART III

ITEM 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE.

Except for the disclosures contained in Part I of this report under the caption “Executive Officers of the Registrant”, the information required under this item is incorporated herein by reference to “Director Qualifications, Diversity and Biographies,” “Section 16(a) Beneficial Ownership Reporting Compliance,” “Corporate Governance Guidelines and Code of Business Conduct,” “Nomination Process for Election of Directors” and “Board Meetings and Committees” in our Proxy Statement for the 2021 Annual Meeting of Stockholders, which is expected to be filed with the SEC within 120 days after the close of our fiscal year.

ITEM 11. EXECUTIVE COMPENSATION.

The information required under this item is incorporated herein by reference to “Executive Compensation,” “Director Compensation,” “Compensation Committee Interlocks and Insider Participation” and “Personnel and Compensation Committee Report” in our Proxy Statement for the 2021 Annual Meeting of Stockholders, which is expected to be filed with the SEC within 120 days after the close of our fiscal year.

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

The information required under this item is incorporated herein by reference to “Equity Compensation Plan Information,” “Security Ownership of Directors and Executive Officers” and “Security Ownership of Certain Beneficial Owners” in our Proxy Statement for the 2021 Annual Meeting of Stockholders, which is expected to be filed with the SEC within 120 days after the close of our fiscal year.

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

The information required under this item is incorporated herein by reference to ‘Certain Relationships and Related Transactions” and “Director Independence” in our Proxy Statement for the 2021 Annual Meeting of Stockholders, which is expected to be filed with the SEC within 120 days after the close of our fiscal year.

ITEM 14. PRINCIPAL ACCOUNTING FEES AND SERVICES.

The information required under this item is incorporated herein by reference to “Fees Paid to Auditors” in our Proxy Statement for the 2021 Annual Meeting of Stockholders, which is expected to be filed with the SEC within 120 days after the close of our fiscal year.

PART IV

ITEM 15. EXHIBITS AND FINANCIAL STATEMENT SCHEDULES.

Financial Statements

Reference is made to the index set forth on page F-1 of this report.

Financial Statement Schedules

The following financial statement schedule of Arch Resources, Inc. is at the page indicated:

Schedule	Page
Valuation and Qualifying Accounts	F-53

All other financial statement schedules listed under SEC rules but not included in this report are omitted because they are not applicable or the required information is provided in the notes to our consolidated financial statements.

Exhibits

Reference is made to the Exhibit Index on the following page.

ITEM 16. FORM 10-K SUMMARY.

None.

Exhibits to be included in 10-K

	Description
2.1	Debtors' Fourth Amended Joint Plan of Reorganization Under Chapter 11 of the Bankruptcy Code (incorporated by reference to Exhibit 2.2 of Arch Resources' Current Report on Form 8-K filed on September 15, 2016).
2.2	Order Confirming Debtors' Fourth Amended Joint Plan of Reorganization Under Chapter 11 of the Bankruptcy Code on September 13, 2016 (incorporated by reference to Exhibit 2.1 of Arch Resources' Current Report on Form 8-K filed on September 15, 2016).
3.1	Restated Certificate of Incorporation of Arch Resources, Inc. (incorporated by reference to Exhibit 3.2 of Arch Resources's Current Report on Form 8-K filed on May 15, 2020.
3.2	Restated Bylaws of Arch Resources, Inc. (incorporated by reference to Exhibit 3.3 of Arch Resources's Current Report on Form 8-K filed on May 15, 2020.
4.1	Form of specimen Class A Common Stock certificate (incorporated by reference to Exhibit 4.1 of Arch Resources's Current Report on Form 8-K filed on October 11, 2016).
4.2	Form of specimen Class B Common Stock certificate (incorporated by reference to Exhibit 4.2 of Arch Resources's Current Report on Form 8-K filed on October 11, 2016).
4.3	Form of specimen Series A Warrant certificate (incorporated by reference to Exhibit A of Exhibit 10.5 of Arch Resources's Current Report on Form 8-K filed on October 11, 2016).
4.4	Description of Registrant's Securities Registered Pursuant to Section 12 of the Securities Exchange Act of 1934, as amended (incorporated by reference to Exhibit 4.4 to Arch Resources's Annual Report on Form 10-K for the year ended 2019).
4.5	Indenture, dated as of November 3, 2020, between Arch Resources, Inc. and UMB Bank, National Association, as trustee (incorporated by reference to Exhibit 4.1 of Arch Resources's Current Report on Form 8-K filed on November 4, 2020).
4.6	Form of certificate representing the 5.25% Convertible Senior Notes due 2025 (incorporated by reference to Exhibit 4.2 of Arch Resources's Current Report on Form 8-K filed on November 4, 2020).
10.1	Credit Agreement, dated as of March 7, 2017, among Arch Resources, Inc. as borrower, the lenders from time to time party thereto and Credit Suisse AG, Cayman Islands Branch, in its capacities as administrative agent and as collateral agent (incorporated by reference to Exhibit 10.1 of Arch Resources's Current Report on Form 8-K filed on March 8, 2017).
10.2	First Amendment to Credit Agreement, dated as of September 25, 2017, among Arch Resources, Inc. as borrower, the lenders from time to time party thereto and Credit Suisse AG, Cayman Islands Branch, in its capacities as administrative agent and collateral agent (incorporated by reference to Exhibit 10.1 of Arch Resources's Current Report on Form 8-K filed on September 25, 2017).
10.3	Second Amendment to Credit Agreement, dated as of April 3, 2018, among Arch Resources, Inc. as borrower, the lenders from time to time party thereto and Credit Suisse AG, Cayman Islands Branch, in its capacities as administrative agent and collateral agent (incorporated by reference to Exhibit 10.1 of Arch Resources's Current Report on Form 8-K filed on April 3, 2018).
10.4	Credit Agreement, dated as of April 27, 2017, among Arch Resources, Inc. and certain of its subsidiaries, as borrowers, the lenders from time to time party thereto and Regions Bank, in its capacities as administrative agent and collateral agent (incorporated by reference to Exhibit 10.1 of Arch Resources's Current Report on Form 8-K filed on May 2, 2017).
10.5	First Amendment to Credit Agreement dated November 19, 2018 by and among Arch Resources, Inc. and certain of its subsidiaries, as borrowers, the lenders from time to time party thereto and Regions Bank, it its capacities as administrative agent and collateral agent (incorporated by reference to Exhibit 10.5 to Arch Resources's Annual Report on Form 10K for the year ended 2018).
10.6	Waiver Letter Agreement and Second Amendment to Credit Agreement dated June 17, 2020 by and among Arch Resources, Inc. and certain of its subsidiaries, as borrowers, the lenders from time to time party thereto Regions Bank, in its capacities as administrative agent and collateral agent (incorporated by reference to Exhibit 10.6 of Arch Resources's Quarterly Report on Form 10-Q for the period ended September 30, 2020).

10.7 Third Amendment to Credit Agreement dated September 30, 2020, by and among Arch Resources, Inc. and certain of its subsidiaries, as borrowers, the lenders from time to time party thereto Regions Bank, in its capacities as administrative agent and collateral agent (incorporated by reference to Exhibit 10.7 of Arch Resources's Quarterly Report on Form 10-Q for the period ended September 30, 2020).

10.8 Third Amended and Restated Receivables Purchase Agreement, dated October 5, 2016, among Arch Receivable Company, LLC, as seller, Arch Coal Sales Company, Inc., as initial servicer, PNC Bank, National Association as administrator and issuer of letters of credit thereunder and the other parties party thereto, as securitization purchasers (incorporated by reference to Exhibit 10.2 of Arch Resources's Current Report on Form 8-K filed on October 11, 2016).

10.9 First Amendment to Third Amended and Restated Receivables Purchase Agreement, dated as of April 27, 2017, among Arch Receivable Company, LLC, as seller, Arch Coal Sales Company, Inc., as servicer, PNC Bank, National Association as administrator and issuer of letters of credit thereunder and the other parties party thereto, as securitization purchasers (incorporated by reference to Exhibit 10.2 of Arch Resources's Current Report on Form 8-K filed on May 2, 2017).

10.10 Second Amendment to Third Amended and Restated Receivables Purchase Agreement, dated as of August 27, 2018, among Arch Receivable Company, LLC, as seller, Arch Coal Sales Company, Inc., as servicer, PNC Bank, National Association as administrator and issuer of letters of credit thereunder and the other parties party thereto, as securitization purchasers (incorporated by reference to Exhibit 10.7 of Arch Resources's Quarterly Report on Form 10-Q for the period ended September 30, 2018).

10.11 Third Amendment to Third Amended and Restated Receivables Purchase Agreement, dated as of May 1, 2019, among Arch Receivable Company, LLC, as seller, Arch Coal Sales Company, Inc., as servicer, PNC Bank, National Association as administrator and issuer of letters of credit thereunder and the other parties party thereto, as securitization purchasers (incorporated by reference to Exhibit 10.9 of Arch Resources's Quarterly Report on Form 10-Q for the period ended June 30, 2019).

10.12 Fourth Amendment to Third Amended and Restated Receivables Purchase Agreement, dated September 30, 2020, among Arch Receivable Company, LLC, as seller, Arch Coal Sales Company, Inc., as servicer, PNC Bank, National Association as administrator and issuer of letters of credit thereunder and the other parties party thereto, as securitization purchasers (incorporated by reference to Exhibit 10.12 of Arch Resources's Quarterly Report on Form 10-Q for the period ended September 30, 2020).

10.13 Second Amended and Restated Purchase and Sale Agreement among Arch Resources, Inc. and certain subsidiaries of Arch Resources, Inc., as originators (incorporated by reference to Exhibit 10.3 of Arch Resources's Current Report on Form 8-K filed on October 11, 2016).

10.14 First Amendment to the Second Amended and Restated Purchase and Sale Agreement, dated as of December 21, 2016, among Arch Coal, Inc. and certain subsidiaries of Arch Coal, Inc., as originators (incorporated by reference to Exhibit 10.7 of Arch Resources's Quarterly Report on Form 10-Q for the period ended September 30, 2017).

10.15 Second Amendment to the Second Amended and Restated Purchase and Sale Agreement, dated as of April 27, 2017, among Arch Resources, Inc. and certain subsidiaries of Arch Resources, Inc., as originators (incorporated by reference to Exhibit 10.3 of Arch Resources's Current Report on Form 8-K filed on May 2, 2017).

10.16 Third Amendment to Second Amended and Restated Purchase and Sale Agreement, dated as of September 14, 2017, among Arch Resources, Inc. and certain subsidiaries of Arch Resources, Inc., as originators.

10.17 Fourth Amendment to Second Amended and Restated Purchase and Sale Agreement, dated as of December 13, 2019, among Arch Resources, Inc. and certain subsidiaries of Arch Resources, Inc., as originators.

10.18 Fifth Amendment and Waiver to Second Amended and Restated Purchase and Sale Agreement dated June 17, 2020, among Arch Resources, Inc. and certain subsidiaries of Arch Resources, Inc., as originators.

10.19 Sixth Amendment to Second Amended and Restated Purchase and Sale Agreement dated December 31, 2020, among Arch Resources, Inc. and certain subsidiaries of Arch Resources, Inc., as originators.

10.20 Second Amended and Restated Sale and Contribution Agreement between Arch Resources, Inc., as the transferor, and Arch Receivable Company, LLC (incorporated by reference to Exhibit 10.4 of Arch Resources's Current Report on Form 8-K filed on October 11, 2016).

10.21	First Amendment to the Second Amended and Restated Sale and Contribution Agreement, dated as of April 27, 2017, between Arch Resources, Inc., as the transferor, and Arch Receivable Company, LLC (incorporated by reference to Exhibit 10.4 of Arch Resources's Current Report on Form 8-K filed on May 2, 2017).
10.22	Warrant Agreement, dated as of October 5, 2016, between Arch Resources, Inc. and American Stock Transfer & Trust Company, LLC, as Warrant Agent (incorporated by reference to Exhibit 10.5 of Arch Resources's Current Report on Form 8-K filed on October 11, 2016).
10.23	Indemnification Agreement between Arch Resources and the directors and officers of Arch Resources and its subsidiaries (form) (incorporated by reference to Exhibit 10.6 of Arch Resources's Current Report on Form 8-K filed on October 11, 2016).
10.24	Registration Rights Agreement between Arch Resources and Monarch Alternative Capital LP and certain other affiliated funds (incorporated by reference to Exhibit 10.1 of Arch Resources's Current Report on Form 8-K filed on November 21, 2016).
10.25	Coal Lease Agreement dated as of March 31, 1992, among Allegheny Land Company, as lessee, and UAC and Phoenix Coal Corporation, as lessors, and related guarantee (incorporated herein by reference to the Current Report on Form 8-K filed by Ashland Coal, Inc. on April 6, 1992).
10.26	Federal Coal Lease dated as of January 24, 1996 between the U.S. Department of the Interior and the Thunder Basin Coal Company (incorporated herein by reference to Exhibit 10.20 to Arch Resources's Annual Report on Form 10-K for the year ended December 31, 1998).
10.27	Federal Coal Lease Readjustment dated as of November 1, 1967 between the U.S. Department of the Interior and the Thunder Basin Coal Company (incorporated herein by reference to Exhibit 10.21 to Arch Resources's Annual Report on Form 10-K for the year ended December 31, 1998).
10.28	Federal Coal Lease effective as of May 1, 1995 between the U.S. Department of the Interior and Mountain Coal Company (incorporated herein by reference to Exhibit 10.22 to Arch Resources's Annual Report on Form 10-K for the year ended December 31, 1998).
10.29	Federal Coal Lease dated as of January 1, 1999 between the Department of the Interior and Ark Land Company (incorporated herein by reference to Exhibit 10.23 to Arch Resources's Annual Report on Form 10-K for the year ended December 31, 1998).
10.30	Federal Coal Lease effective as of March 1, 2005 by and between the United States of America and Ark Land LT, Inc. covering the tract of land known as "Little Thunder" in Campbell County, Wyoming (incorporated by reference to Exhibit 99.1 to the Current Report on Form 8-K filed by Arch Resources on February 10, 2005).
10.31	Modified Coal Lease (WYW71692) executed January 1, 2003 by and between the United States of America, through the Bureau of Land Management, as lessor, and Triton Coal Company, LLC, as lessee, covering a tract of land known as "North Rochelle" in Campbell County, Wyoming (incorporated by reference to Exhibit 10.24 to Arch Resources's Annual Report on Form 10-K for the year ended December 31, 2004).
10.32	Coal Lease (WYW127221) executed January 1, 1998 by and between the United States of America, through the Bureau of Land Management, as lessor, and Triton Coal Company, LLC, as lessee, covering a tract of land known as "North Roundup" in Campbell County, Wyoming (incorporated by reference to Exhibit 10.25 to Arch Resources's Annual Report on Form 10-K for the year ended December 31, 2004).
10.33*	Form of Employment Agreement for Executive Officers of Arch Resources, Inc. (incorporated herein by reference to Exhibit 10.4 to Arch Resources's Annual Report on Form 10-K for the year ended December 31, 2011).
10.34*	Arch Resources, Inc. Deferred Compensation Plan (incorporated herein by reference to Exhibit 10.26 to Arch Resources's Annual Report on Form 10-K for the year ended December 31, 2014).
10.35*	Arch Resources, Inc. Outside Directors' Deferred Compensation Plan (incorporated herein by reference to Exhibit 10.4 of Arch Resources's Current Report on Form 8-K filed on December 12, 2008).
10.36*	Arch Resources, Inc. Supplemental Retirement Plan (as amended on December 5, 2008) (incorporated herein by reference to Exhibit 10.2 to Arch Resources's Current Report on Form 8-K filed on December 12, 2008).
10.37*	Arch Resources, Inc. 2016 Omnibus Incentive Plan (incorporated herein by reference to Exhibit 99.1 to Arch Resources's Registration Statement on Form S-8 filed on November 1, 2016).

10.38*	Form of Restricted Stock Unit Contract (Time-Based Vesting) (incorporated herein by reference to Exhibit 10.1 to Arch Resources's Current Report on Form 8-K filed on November 30, 2016).
10.39*	Form of Restricted Stock Unit Contract (Performance-Based Vesting) (incorporated herein by reference to Exhibit 10.2 to Arch Resources's Current Report on Form 8-k filed on November 30, 2016).
10.40	Stock Repurchase Agreement dated September 13, 2017, among Arch Resources, Inc. and Monarch Alternative Solutions Master Fund Ltd, Monarch Capital Master Partners III LP, MCP Holdings Master LP, Monarch Debt Recovery Master Fund Ltd and P Monarch Recovery Ltd. (incorporated by reference to Exhibit 10.1 of Arch Resources's Current Report on Form 8-K filed on September 19, 2017).
10.41	Stock Repurchase Agreement dated December 8, 2017, among Arch Resources, Inc. and Monarch Alternative Solutions Master Fund Ltd, Monarch Capital Master Partners III LP, MCP Holdings Master LP and Monarch Debt Recovery Master Fund Ltd. (incorporated by reference to Exhibit 10.1 of Arch Resources's Current
10.42*	Form of Cash Retention Award Agreement for the Chief Executive Officer, Chief Operating Officer and Chief Financial Officer of the Company (incorporated by reference to Exhibit 10.37 to Arch Resources's annual Report on Form 10-K for the year ended 2018).
10.43	Form of Confirmation of Base Capped Call Transaction (incorporated by reference to Exhibit 10.1 of Arch Resources's Current Report on Form 8-K filed on November 4, 2020).
21.1	Subsidiaries of the registrant.
23.1	Consent of Ernst & Young LLP.
23.2	Consent of Weir International, Inc.
24.1	Power of Attorney
31.1	Rule 13a-14(a)/15d-14(a) Certification of Paul A. Lang.
31.2	Rule 13a-14(a)/15d-14(a) Certification of Matthew C. Giljum.
32.1**	Section 1350 Certification of Paul A. Lang.
32.2**	Section 1350 Certification of Matthew C. Giljum.
95	Mine Safety Disclosure Exhibit
101	The following financial statements from the Company's Annual Report on Form 10-K for the year ended December 31, 2020, formatted in Inline XBRL: (1) Consolidated Statements of Operations, (2) Consolidated Statements of Comprehensive Income (Loss), (3) Consolidated Balance Sheets, (4) Consolidated Statements of Cash Flows, (5) Consolidated Statements of Stockholders' Equity and (6) Notes to Consolidated Financial Statements, tagged as blocks of text and including detailed tags.
104	Cover Page Interactive Data File (formatted as Inline XBRL and contained in Exhibit 101).

* Denotes a management contract or compensatory plan or arrangement.

** Furnished herein

Signatures

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

Arch Resources, Inc.

/s/ Paul A. Lang

Paul A. Lang
Chief Executive Officer, Director
February 12, 2021

Signatures	Capacity	Date
/s/ Paul A. Lang Paul A. Lang	Chief Executive Officer, Director (Principal Executive Officer)	February 12, 2021
/s/ Matthew C. Giljum Matthew C. Giljum	Senior Vice President and Chief Financial Officer (Principal Financial Officer)	February 12, 2021
/s/ John W. Lorson John W. Lorson	Vice President and Chief Accounting Officer (Principal Accounting Officer)	February 12, 2021
* John W. Eaves	Executive Chairman	February 12, 2021
* James N. Chapman	Director	February 12, 2021
* Patrick J. Bartels, Jr.	Director	February 12, 2021
* Sherman K. Edmiston III	Director	February 12, 2021
* Patrick A. Kriegshauser	Director	February 12, 2021
* Richard A. Navarre	Director	February 12, 2021
* Holly Keller Koeppel	Director	February 12, 2021
* Robert B. Hamill	Director	February 12, 2021

*By /s/ Rosemary L. Klein
Rosemary L. Klein,
Attorney-in-Fact

FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

Index to Consolidated Financial Statements

Report of Independent Registered Public Accounting Firm

To the Stockholders and the Board of Directors of Arch Resources, Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Arch Resources, Inc. and subsidiaries (the Company) as of December 31, 2020 and 2019, the related consolidated statements of operations, comprehensive income (loss), stockholders' equity and cash flows for each of the three years in the period ended December 31, 2020, and the related notes and the financial statement schedule listed in the Index at Item 15 (collectively referred to as the "financial statements"). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company at December 31, 2020 and 2019, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2020, in conformity with U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 31, 2020, based on criteria established in Internal Control-Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework), and our report dated February 12, 2021, expressed an unqualified opinion thereon.

Basis for Opinion

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

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matter

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

Asset Retirement Obligation (ARO) Liability

Description of Critical Audit Matter	At December 31, 2020, the Company's asset retirement obligations totaled $257.8 million. As discussed in Note 2 and Note 16 of the consolidated financial statements, the Company's obligations associated with the retirement of long-lived assets are recognized at fair value at the time the obligations are incurred. Upon initial recognition of a liability, a corresponding amount is capitalized as part of the carrying value of the related long-lived asset. The Company reviews its asset retirement obligations at least annually and makes necessary adjustments for permit changes as granted by state authorities and for revisions of estimates of the timing and extent of reclamation activities and cost estimates. Management's estimate involves a high degree of subjectivity and auditing the significant assumptions utilized by management in estimating the fair value of the liability requires judgement. In particular, the obligation's fair value is determined using a discounted cash flow technique and is based upon mining permit requirements and various assumptions including discount rates, market risk premium, estimates of disturbed acreage, life of the mine, reclamation costs and assumptions regarding equipment productivity.
How we addressed the Matter in our Audit	We obtained an understanding, evaluated the design and tested the operating effectiveness of the controls over the Company's accounting for asset retirement obligations, including controls over management's review of the significant assumptions described above. We assessed the work of the Company's engineering specialists in identifying asset retirement obligation activities against legislative requirements and assessing their timing and likely cost. We compared the Company's methodology to calculate the asset retirement obligations with our industry practice and understanding of the business. We evaluated management's assumptions by validating the underlying inputs within the calculations and recosting studies, including those listed above. We involved a specialist to assist in our evaluation of the accuracy of management's assumptions within the Company's asset retirement obligation estimate including reviewing mine closure regulatory requirements, mine plans and engineering drawings for consistency with permit requirements and conducting virtual observations of mining and reclamation areas.

/s/ Ernst & Young LLP

We have served as the Company's auditor since 1997.

St. Louis, Missouri

February 12, 2021

Report of Independent Registered Public Accounting Firm

To the Stockholders and the Board of Directors of Arch Resources, Inc.

Opinion on Internal Control over Financial Reporting

We have audited Arch Resources, Inc. and subsidiaries internal control over financial reporting as of December 31, 2020, based on criteria established in Internal Control— Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) (the COSO criteria). In our opinion, Arch Resources, Inc. and subsidiaries (the Company) maintained, in all material respects, effective internal control over financial reporting as of December 31, 2020, based on the COSO criteria.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated balance sheets of the Company as of December 31, 2020 and 2019, the related consolidated statements of operations, comprehensive income(loss), stockholders' equity and cash flows for each of the three years in the period ended December 31, 2020, and the related notes and financial statement schedule listed in the Index at Item 15, and our report dated, February 12, 2021 expressed an unqualified opinion thereon.

Basis for Opinion

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

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects.

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

Definition and Limitations of Internal Control Over Financial Reporting

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

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

/s/ Ernst & Young LLP

St. Louis, Missouri
February 12, 2021

REPORT OF MANAGEMENT

The management of Arch Resources, Inc. (the “Company”) is responsible for the preparation of the consolidated financial statements and related financial information in this annual report. The financial statements are prepared in accordance with accounting principles generally accepted in the United States and necessarily include some amounts that are based on management’s informed estimates and judgments, with appropriate consideration given to materiality.

The Company maintains a system of internal accounting controls designed to provide reasonable assurance that financial records are reliable for purposes of preparing financial statements and that assets are properly accounted for and safeguarded. The concept of reasonable assurance is based on the recognition that the cost of a system of internal accounting controls should not exceed the value of the benefits derived. The Company has a professional staff of internal auditors who monitor compliance with and assess the effectiveness of the system of internal accounting controls.

The Audit Committee of the Board of Directors, comprised of independent directors, meets regularly with management, the internal auditors, and the independent auditors to discuss matters relating to financial reporting, internal accounting control, and the nature, extent and results of the audit effort. The independent auditors and internal auditors have full and free access to the Audit Committee, with and without management present.

MANAGEMENT’S REPORT ON INTERNAL CONTROL OVER FINANCIAL REPORTING

The management of Arch Resources, Inc. (the “Company”) is responsible for establishing and maintaining adequate internal control over financial reporting, as defined in Securities Exchange Act Rule 13a-15(f). Our internal control over financial reporting is a process designed under the supervision of our principal executive officer and principal financial officer to provide reasonable assurance regarding the reliability of financial reporting and the preparation of consolidated financial statements for external purposes in accordance with accounting principles generally accepted in the United States of America.

Because of its inherent limitations, internal control over financial reporting may not detect or prevent misstatements. Projections of any evaluation of the 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 processes may deteriorate.

Under the supervision and with the participation of the Company’s management, including its principal executive officer and principal financial officer, the Company conducted an evaluation of the effectiveness of its internal control over financial reporting as of December 31, 2020 based on the criteria set forth in *Internal Control-Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission. Based on its evaluation, management concluded that the Company’s internal control over financial reporting is effective as of December 31, 2020.

The Company’s independent registered public accounting firm, Ernst & Young LLP, has issued an audit opinion on the Company’s internal control over financial reporting as of December 31, 2020.

Arch Resources, Inc. and Subsidiaries
Consolidated Statements of Operations
(in thousands, except per share data)

	Year Ended December 31, 2020	Year Ended December 31, 2019	Year Ended December 31, 2018
Revenues	$ 1,467,592	$ 2,294,352	$ 2,451,787
Costs, expenses and other operating			
Cost of sales (exclusive of items shown separately below)	1,378,479	1,873,017	1,925,202
Depreciation, depletion and amortization	121,552	111,621	130,670
Accretion on asset retirement obligations	19,887	20,548	27,970
Change in fair value of coal derivatives and coal trading activities, net	5,219	(18,601)	9,118
Selling, general and administrative expenses	82,397	95,781	100,300
Costs related to proposed joint venture with Peabody Energy	16,087	13,816	—
Asset impairment and restructuring	221,380	—	—
Gain on property insurance recovery related to Mountain Laurel longwall	(23,518)	—	—
(Gain) loss on divestitures	(1,505)	13,312	—
Preference Rights Lease Application settlement income	—	(39,000)	—
Other operating income, net	(22,246)	(19,012)	(20,611)
	1,797,732	2,051,482	2,172,649
Income (loss) from operations	(330,140)	242,870	279,138
Interest expense, net			
Interest expense	(14,432)	(16,485)	(20,471)
Interest and investment income	3,808	9,691	6,782
	(10,624)	(6,794)	(13,689)
Income (loss) before nonoperating expenses	(340,764)	236,076	265,449
Nonoperating (expenses) income			
Non-service related pension and postretirement benefit (costs) credits	(3,884)	(2,053)	(3,202)
Net loss resulting from early retirement of debt and debt restructuring	—	—	(485)
Reorganization items, net	26	24	(1,661)
	(3,858)	(2,029)	(5,348)
Income (loss) before income taxes	(344,622)	234,047	260,101
Provision for (benefit from) income taxes	(7)	248	(52,476)
Net income (loss)	$ (344,615)	$ 233,799	$ 312,577
Net income (loss) per common share			
Basic earnings (loss) per share	$ (22.74)	$ 14.42	$ 15.90
Diluted earnings (loss) per share	$ (22.74)	$ 13.52	$ 15.15
Weighted average shares outstanding			
Basic weighted average shares outstanding	15,153	16,218	19,663
Diluted weighted average shares outstanding	15,153	17,298	20,629

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

Arch Resources, Inc. and Subsidiaries
Consolidated Statements of Comprehensive Income (Loss)
(in thousands)

	Year Ended December 31, 2020	Year Ended December 31, 2019	Year Ended December 31, 2018
Net income (loss)	$ (344,615)	$ 233,799	$ 312,577
Derivative instruments			
Comprehensive income (loss) before tax	(1,328)	(5,892)	2,681
Income tax benefit (provision)	—	—	—
	(1,328)	(5,892)	2,681
Pension, postretirement and other post-employment benefits			
Comprehensive income (loss) before tax	(39,732)	(32,038)	20,591
Income tax benefit (provision)	—	—	—
	(39,732)	(32,038)	20,591
Available-for-sale securities			
Comprehensive income (loss) before tax	(330)	323	(343)
Income tax benefit (provision)	—	—	—
	(330)	323	(343)
Total other comprehensive income (loss)	(41,390)	(37,607)	22,929
Total comprehensive income (loss)	$ (386,005)	$ 196,192	$ 335,506

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

Arch Resources, Inc. and Subsidiaries
Consolidated Balance Sheets
(in thousands, except per share data)

	December 31, 2020	December 31, 2019
Assets		
Current assets		
Cash and cash equivalents	$ 187,492	$ 153,020
Short-term investments	96,765	135,667
Restricted cash	5,953	—
Trade accounts receivable	110,869	168,125
Other receivables	3,053	21,143
Inventories	126,008	130,898
Other current assets	58,000	97,894
Total current assets	588,140	706,747
Property, plant and equipment		
Coal lands and mineral rights	406,095	450,539
Plant and equipment	734,194	639,399
Deferred mine development	288,693	252,108
	1,428,982	1,342,046
Less accumulated depreciation, depletion and amortization	(421,679)	(357,537)
Property, plant and equipment, net	1,007,303	984,509
Other assets		
Equity investments	71,783	105,588
Other noncurrent assets	55,246	70,912
Total other assets	127,029	176,500
Total assets	$ 1,722,472	$ 1,867,756
Liabilities and Stockholders' Equity		
Current Liabilities		
Accounts payable	$ 103,743	$ 133,060
Accrued expenses and other current liabilities	155,256	157,167
Current maturities of debt	31,097	20,753
Total current liabilities	290,096	310,980
Long-term debt	477,215	290,066
Asset retirement obligations	230,732	242,432
Accrued pension benefits	2,879	5,476
Accrued postretirement benefits other than pension	94,388	80,567
Accrued workers’ compensation	244,695	215,599
Other noncurrent liabilities	98,906	82,100
Total liabilities	1,438,911	1,227,220
Stockholders' equity		
Common stock, $0.01 par value, authorized 300,000 shares, issued 25,323 and 25,220 shares at December 31, 2020 and December 31, 2019, respectively	253	252
Paid-in capital	767,484	730,551
Retained earnings	378,906	731,425
Treasury stock, 10,088 shares at December 31, 2020 and December 31, 2019, respectively, at cost	(827,381)	(827,381)
Accumulated other comprehensive income (loss)	(35,701)	5,689
Total stockholders’ equity	283,561	640,536
Total liabilities and stockholders’ equity	$ 1,722,472	$ 1,867,756

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

Arch Resources, Inc. and Subsidiaries
Consolidated Statements of Cash Flows
(in thousands)

	Year Ended December 31, 2020	Year Ended December 31, 2019	Year Ended December 31, 2018
Operating activities			
Net income (loss)	$ (344,615)	$ 233,799	$ 312,577
Adjustments to reconcile to cash from operating activities:			
Depreciation, depletion and amortization	121,552	111,621	130,670
Accretion on asset retirement obligations	19,887	20,548	27,970
Deferred income taxes	14,430	13,501	18,701
Employee stock-based compensation expense	17,435	21,989	17,519
Amortization relating to financing activities	5,599	3,691	4,179
Gain on property insurance recovery related to Mountain Laurel longwall	(23,518)	—	—
Loss (Gain) on disposals and divestitures, net	(3,727)	8,304	(625)
Non-cash asset impairment and restructuring	198,007	—	—
Preference Rights Lease Application settlement income	—	(39,000)	—
Changes in:			
Receivables	63,657	30,713	(22,903)
Inventories	(9,126)	(15,251)	3,490
Income taxes, net	22,859	38,152	(46,971)
Coal derivative assets and liabilities, including margin account	(1,045)	10,117	(779)
Accounts payable, accrued expenses and other current liabilities	(46,066)	(28,222)	(14,208)
Asset retirement obligations	(16,144)	(11,455)	(9,743)
Pension, postretirement and other postemployment benefits	588	(209)	(4,703)
Other	41,333	21,416	2,789
Cash provided by operating activities	61,106	419,714	417,963
Investing activities			
Capital expenditures	(285,821)	(266,356)	(95,272)
Minimum royalty payments	(1,248)	(1,249)	(584)
Proceeds from disposals and divestitures	1,007	6,135	1,083
Purchases of short-term investments	(120,624)	(205,216)	(143,328)
Proceeds from sales of short-term investments	158,708	233,074	136,630
Investments in and advances to affiliates, net	(1,549)	(5,499)	(2,481)
Proceeds from property insurance recovery related to Mountain Laurel longwall	23,518	—	—
Cash used in investing activities	(226,009)	(239,111)	(103,952)
Financing activities			
Payments on term loan	(3,000)	(3,000)	(3,000)
Proceeds from equipment financing	53,611	—	—
Proceeds from tax exempt bonds	53,090	—	—
Proceeds from convertible debt	155,250	—	—
Purchase of capped call related to convertible debt	(17,543)	—	—
Net payments on other debt	(15,922)	(5,373)	(6,077)
Debt financing costs	(9,718)	—	(1,257)
Dividends paid	(8,245)	(30,220)	(31,269)
Purchases of treasury stock	—	(244,998)	(280,871)
Payments for taxes related to net share settlement of equity awards	(2,195)	(8,961)	—
Other	—	32	(202)
Cash provided by (used in) financing activities	205,328	(292,520)	(322,676)
Increase (decrease) in cash and cash equivalents, including restricted cash	40,425	(111,917)	(8,665)
Cash and cash equivalents, including restricted cash, beginning of period	153,020	264,937	273,602
Cash and cash equivalents, including restricted cash, end of period	$ 193,445	$ 153,020	$ 264,937
SUPPLEMENTAL CASH FLOW INFORMATION			
Cash paid during the period for interest	$ 19,602	$ 16,627	$ 17,493
Restricted Cash	$ 5,953	$ —	215
Cash refunded during the period for income taxes, net	$ 37,535	$ 52,272	$ 24,330

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

Arch Resources, Inc. and Subsidiaries
Consolidated Statements of Stockholders' Equity
Three Years Ended December 31, 2020

	Common Stock	Paid-In Capital	Treasury Stock, at Cost	Retained Earnings (Accumulated Deficit)	Accumulated Other Comprehensive Income (Loss)	Total
	(In thousands, except per share data)					
BALANCE AT DECEMBER 31, 2017	$ 250	$ 700,125	$ (302,109)	$ 247,232	$ 20,367	$ 665,865
Dividends on common shares	—	—	—	(32,143)	—	(32,143)
Employee stock-based compensation	—	17,519	—	—	—	17,519
Purchase of 3,238,615 shares of common stock under share repurchase program	—	—	(281,774)	—	—	(281,774)
Common stock withheld related to net share settlement of equity awards		(161)	—	—	—	(161)
Warrants exercised	—	9	—	—	—	9
Total comprehensive income (loss)	—	—	—	312,577	22,929	335,506
BALANCE AT DECEMBER 31, 2018	$ 250	$ 717,492	$ (583,883)	$ 527,666	$ 43,296	$ 704,821
Dividends on common shares	—	—	—	(30,040)	—	(30,040)
Employee stock-based compensation	—	21,989	—	—	—	21,989
Issuance of 172,720 shares of common stock under long-term incentive plan	2	—	—	—	—	2
Common stock withheld related to net share settlement of equity awards	—	(8,962)	—	—	—	(8,962)
Warrants exercised	—	32	—	—	—	32
Purchase of 2,872,548 shares of common stock under share repurchase program	—	—	(243,498)	—	—	(243,498)
Total comprehensive income	—	—	—	233,799	$ (37,607)	196,192
BALANCE AT DECEMBER 31, 2019	$ 252	$ 730,551	$ (827,381)	$ 731,425	$ 5,689	$ 640,536
Dividends on common shares	—	—	—	(7,904)	—	(7,904)
Employee stock-based compensation	—	17,435	—	—	—	17,435
Issuance of Convertible Debt, net of fees	—	39,237	—	—	—	39,237
Purchase of capped call related to convertible debt	—	(17,543)	—	—	—	(17,543)
Common stock withheld related to net share settlement of equity awards	1	(2,196)	—	—	—	(2,195)
Total comprehensive income (loss)	—	—	—	(344,615)	$ (41,390)	(386,005)
BALANCE AT DECEMBER 31, 2020	$ 253	$ 767,484	$ (827,381)	$ 378,906	$ (35,701)	$ 283,561

1. Basis of Presentation

The accompanying consolidated financial statements include the accounts of Arch Resources, Inc. ("Arch Resources") and its subsidiaries and controlled entities (the "Company"). Unless the context indicates otherwise, the terms "Arch" and the "Company" are used interchangeably in this Annual Report on Form 10-K. The Company's primary business is the production of metallurgical and thermal coal from underground and surface mines located throughout the United States, for sale to steel producers, utility companies, and industrial accounts both in the United States and around the world. The Company currently operates mining complexes in West Virginia, Wyoming and Colorado. All subsidiaries are wholly-owned. Intercompany transactions and accounts have been eliminated in consolidation.

Effective May 15, 2020, Arch Coal, Inc. announced that its name changed to Arch Resources, Inc.

2. Accounting Policies

The accompanying consolidated financial statements have been prepared in accordance with accounting principles generally accepted in the United States for financial reporting and U.S. Securities and Exchange Commission regulations.

Accounting Estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and revenues and expenses in the accompanying consolidated financial statements and the disclosure of contingent assets and liabilities. Actual results could differ from those estimates.

Cash and Cash Equivalents

Cash and cash equivalents are stated at cost. Cash equivalents consist of highly-liquid investments with an original maturity of three months or less when purchased and investments in commercial paper which the Company classifies as cash and cash equivalents.

Restricted Cash

Amounts included in restricted cash represent cash held in trust related to the Tax Exempt Bonds. Refer to Note 14 to the Consolidated Financial Statements, "Debt and Financing Arrangements" for further disclosures related to the Company's Tax Exempt Bonds.

Accounts Receivable

Accounts receivable are recorded at amounts that are expected to be collected, based on past collection history, the economic environment and specified risks identified in the receivables portfolio.

Inventories

Coal and supplies inventories are valued at the lower of average cost or market. Coal inventory costs include labor, supplies, equipment costs, transportation costs incurred prior to the transfer of title to customers and operating overhead. The costs of removing overburden, called stripping costs, incurred during the production phase of the mine are considered variable production costs and are included in the cost of the coal extracted during the period the stripping costs are incurred.

Investments and Membership Interests in Joint Ventures

Investments and membership interests in joint ventures are accounted for under the equity method of accounting if the Company has the ability to exercise significant influence, but not control, over the entity. The Company's share of the entity's income or loss is reflected in "Other operating income, net" in the Consolidated Statements of Operations. Information about investment activity is provided in Note 11 to the Consolidated Financial Statements, "Equity Method Investments and Membership Interests in Joint Ventures."

Investments in debt securities and marketable equity securities that do not qualify for equity method accounting are classified as available-for-sale and are recorded at their fair values. Unrealized gains and losses on these investments are recorded in other comprehensive income or loss. A decline in the value of an investment that is considered other-than-temporary would be recognized in operating expenses.

Exploration Costs

Costs to acquire permits for exploration activities are capitalized. Drilling and other costs related to locating coal deposits and evaluating the economic viability of such deposits are expensed as incurred.

Prepaid Royalties

Leased mineral rights are often acquired through royalty payments. When royalty payments represent prepayments recoupable against royalties owed on future revenues from the underlying coal, they are recorded as a prepaid asset, with amounts expected to be recouped within one year classified as current. When coal from these leases is sold, the royalties owed are recouped against the prepayment and charged to cost of sales. An impairment charge is recognized for prepaid royalties that are not expected to be recouped.

Property, Plant and Equipment

Plant and Equipment

Plant and equipment were recorded at fair value at emergence during fresh start accounting; subsequent purchases of property, plant and equipment have been recorded at cost. Interest costs incurred during the construction period for major asset additions are capitalized. The Company capitalized $11.9 million and $2.9 million of interest costs during years ended December 31, 2020 and 2019, respectively. Expenditures that extend the useful lives of existing plant and equipment or increase the productivity of the asset are capitalized. The cost of maintenance and repairs that do not extend the useful life or increase the productivity of the asset is expensed as incurred.

Preparation plants and loadouts are depreciated using the units-of-production method over the estimated recoverable reserves, subject to a minimum level of depreciation. Other plant and equipment are depreciated principally using the straight-line method over the estimated useful lives of the assets, limited by the remaining life of the mine. The useful lives of mining equipment, including longwalls, draglines and shovels, range from 1 to 16 years. The useful lives of buildings and leasehold improvements generally range from 3 to 20 years.

Deferred Mine Development

Costs of developing new mines or significantly expanding the capacity of existing mines are capitalized and amortized using the units-of-production method over the estimated recoverable reserves that are associated with the property being benefited. Costs may include construction permits and licenses; mine design; construction of access roads, shafts, slopes and main entries; and removing overburden to access reserves in a new pit. Additionally, deferred mine development includes the asset cost associated with asset retirement obligations. Coal sales revenue related to incidental production during the development phase will be recorded as coal sales revenue with an offset to cost of coal sales based on the estimated cost per ton sold for the mine when the asset is in place for its intended use.

Coal Lands and Mineral Rights

Rights to coal reserves may be acquired directly through governmental or private entities. A significant portion of the Company's coal reserves are controlled through leasing arrangements. Lease agreements are generally long-term in nature (original terms range from 10 to 50 years), and substantially all of the leases contain provisions that allow for automatic extension of the lease term providing certain requirements are met. Leases of mineral reserves and related land leases are exempt from the provisions of the leasing standard.

The net book value of the Company's coal interests was $290.3 million and $360.9 million at December 31, 2020 and 2019, respectively. Payments to acquire royalty lease agreements and lease bonus payments are capitalized as a cost of the underlying mineral reserves and depleted over the life of proven and probable reserves. Coal lease rights are depleted using the units-of-production method, and the rights are assumed to have no residual value.

The Company currently does not have any future lease bonus payments.

Depreciation, depletion and amortization

The depreciation, depletion and amortization related to long-lived assets is reflected in the Consolidated Statements of Operations as a separate line item. No depreciation, depletion or amortization is included in any other operating cost categories.

Impairment

If facts and circumstances suggest that the carrying value of a long-lived asset or asset group may not be recoverable, the asset or asset group is reviewed for potential impairment. If this review indicates that the carrying amount of the asset will not be recoverable through projected undiscounted cash flows generated by the asset and its related asset group over its remaining life, then an impairment loss is recognized by reducing the carrying value of the asset to its fair value. The Company may, under certain circumstances, idle mining operations in response to market conditions or other factors. Because an idling is not a permanent closure, it is not considered an automatic indicator of impairment. For information on Impairment, see Note 5 to the Consolidated Financial Statements, "Asset impairment and restructuring."

Deferred Financing Costs

The Company capitalizes costs incurred in connection with new borrowings, the establishment or enhancement of credit facilities and the issuance of debt securities. These costs are amortized as an adjustment to interest expense over the life of the borrowing or term of the credit facility using the interest method. Debt issuance costs related to a recognized liability are presented in the balance sheet as a direct reduction from the carrying amount of that liability whereas debt issuance costs related to a credit facility with no balance outstanding are shown as an asset. The unamortized balance of deferred financing costs shown as an asset was $1.9 million at December 31, 2020, with $0.7 million classified as current; the unamortized balance of deferred financing costs shown as an asset at December 31, 2019 was $3.0 million with $2.0 million classified as current. The current amounts are classified within "Other current assets" and the noncurrent amounts are classified within "Other noncurrent assets." For information on the unamortized balance of deferred financing fees related to outstanding debt, see Note 14 to the Consolidated Financial Statements, "Debt and Financing Arrangements."

Revenue Recognition

Revenues include sales to customers of coal produced at Company operations and coal purchased from third parties. The Company recognizes revenue at the time risk of loss passes to the customer at contracted amounts. Transportation costs are included in cost of sales and amounts billed by the Company to its customers for transportation are included in revenues.

Other Operating Income, net

Other operating income, net in the accompanying Consolidated Statements of Operations reflects income and expense from sources other than physical coal sales, including: bookouts, or the practice of offsetting purchase and sale contracts for shipping convenience purposes; contract settlements; royalties earned from properties leased to third parties; income from equity investments (Note 11, "Equity Method Investments and Membership Interests in Joint Ventures"); non-material gains and losses from divestitures and dispositions of assets; and realized gains and losses on derivatives that do not qualify for hedge accounting and are not held for trading purposes (Note 12, "Derivatives"); and land management expenses.

Asset Retirement Obligations

The Company's legal obligations associated with the retirement of long-lived assets are recognized at fair value at the time the obligations are incurred. Accretion expense is recognized through the expected settlement date of the obligation. Obligations are incurred at the time development of a mine commences for underground and surface mines or construction begins for support facilities, refuse areas and slurry ponds. The obligation's fair value is determined using a discounted cash flow technique and is based upon permit requirements and various estimates and assumptions that would be used by market participants, including estimates of disturbed acreage, reclamation costs and assumptions regarding equipment productivity. Upon initial recognition of a liability, a corresponding amount is capitalized as part of the carrying value of the related long-lived asset.

The Company reviews its asset retirement obligation at least annually and makes necessary adjustments for permit changes as granted by state authorities and for revisions of estimates of the amount and timing of costs. For ongoing operations, adjustments to the liability result in an adjustment to the corresponding asset. For idle operations, adjustments to the liability are recognized as income or expense in the period the adjustment is recorded. Any difference between the recorded obligation and the actual cost of reclamation is recorded in profit or loss in the period the obligation is settled. See additional discussion in Note 16 to the Consolidated Financial Statements, "Asset Retirement Obligations."

Loss Contingencies

The Company accrues for cost related to contingencies when a loss is probable and the amount is reasonably determinable. Disclosure of contingencies is included in the financial statements when it is at least reasonably possible that a material loss or an additional material loss in excess of amounts already accrued may be incurred. The amount accrued represents the Company's best estimate of the loss, or, if no best estimate within a range of outcomes exists, the minimum amount in the range.

Derivative Instruments

The Company generally utilizes derivative instruments to manage exposures to commodity prices and interest rate risk on long-term debt. Additionally, the Company may hold certain coal derivative instruments for trading purposes. Derivative financial instruments are recognized on the balance sheet at fair value. Certain coal contracts may meet the definition of a derivative instrument, but because they provide for the physical purchase or sale of coal in quantities expected to be used or sold by the Company over a reasonable period in the normal course of business, they are not recognized on the balance sheet.

Certain derivative instruments are designated as the hedge instrument in a hedging relationship. In a fair value hedge, the Company hedges the risk of changes in the fair value of a firm commitment, typically a fixed-price coal sales contract. Changes in both the hedged firm commitment and the fair value of a derivative used as a hedge instrument in a fair value hedge are recorded in earnings. In a cash flow hedge, the Company hedges the risk of changes in future cash flows related to the underlying item being hedged. Changes in the fair value of the derivative instrument used as a hedge instrument in a cash flow hedge are recorded in other comprehensive income or loss. Amounts in other comprehensive income or loss are reclassified to earnings when the hedged transaction affects earnings and are classified in a manner consistent with the transaction being hedged. The Company formally documents the relationships between hedging instruments and the respective hedged items, as well as its risk management objectives for hedge transactions.

The Company evaluates the effectiveness of its hedging relationships both at the hedge's inception and on an ongoing basis. Any ineffective portion of the change in fair value of a derivative instrument used as a hedge instrument in a fair value or cash flow hedge is recognized immediately in earnings. The ineffective portion is based on the extent to which exact offset is not achieved between the change in fair value of the hedge instrument and the cumulative change in expected future cash flows on the hedged transaction from inception of the hedge in a cash flow hedge or the change in the fair value. Ineffectiveness was insignificant for the periods disclosed within.

See Note 12 to the Consolidated Financial Statements, "Derivatives" for further disclosures related to the Company's derivative instruments.

Fair Value

Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability in an orderly hypothetical transaction between market participants at a given measurement date. Valuation techniques used must maximize the use of observable inputs and minimize the use of unobservable inputs. See Note 17 to the Consolidated Financial Statements, "Fair Value Measurements" for further disclosures related to the Company's recurring fair value estimates.

Income Taxes

Deferred income taxes are provided for temporary differences arising from differences between the financial statement and tax basis of assets and liabilities existing at each balance sheet date using enacted tax rates anticipated to be in effect when the related taxes are expected to be paid or recovered. A valuation allowance is established if it is more likely than not that a deferred tax asset will not be realized. Management reassesses the ability to realize its deferred tax assets annually in the fourth quarter or when circumstances indicate that the ability to realize deferred tax assets has changed. In determining the need for a valuation allowance, the Company considers projected realization of tax benefits based on expected levels of future taxable income, available tax planning strategies and the reversal of temporary differences.

Benefits from tax positions that are uncertain are not recognized unless the Company concludes that it is more likely than not that the position would be sustained in a dispute with taxing authorities, should the dispute be taken to the court of last resort. The Company would measure any such benefit at the largest amount of benefit that is greater than 50 percent likely of being realized upon settlement with taxing authorities.

See Note 15 to the Consolidated Financial Statements, "Taxes" for further disclosures about income taxes.

Benefit Plans

The Company has non-contributory defined benefit pension plans covering most of its salaried and hourly employees. On January 1, 2015 the Company's cash balance and excess pension plans were amended to freeze new service credits for any new or active employees. The Company also currently provides certain postretirement medical and life insurance coverage for eligible employees. The cost of providing these benefits is determined on an actuarial basis and accrued over the employees' period of active service.

The Company recognizes the overfunded or underfunded status of these plans as determined on an actuarial basis on the balance sheet and the changes in the funded status are recognized in other comprehensive income. The Company amortizes actuarial gains and losses over the remaining service attribution periods of the employees using the corridor method. See Note 21 to the Consolidated Financial Statements, "Employee Benefit Plans" for additional disclosures relating to these obligations.

Stock-Based Compensation

The compensation cost of all stock-based awards is determined based on the grant-date fair value of the award, and is recognized over the requisite service period. The grant-date fair value of option awards and restricted stock awards with a market condition is determined using a Monte Carlo simulation. Compensation cost for an award with performance conditions is accrued if it is probable that the conditions will be met. The Company accounts for forfeitures as they occur. See further discussion in Note 19 to the Consolidated Financial Statements, "Stock-Based Compensation and Other Incentive Plans."

Recently Adopted Accounting Guidance

In June 2016, the FASB issued ASU 2016-13, "Financial Instruments-Credit Losses (Topic 326), Measurement of Credit Losses on Financial Instruments" and also issued subsequent amendments to the initial guidance under ASU 2018-19, ASU 2019-04 and ASU 2019-05. The standard modifies the measurement approach for credit losses on financial instruments, including trade receivables, from an incurred loss method to a current expected credit loss method, otherwise known as "CECL." The standard requires the measurement of expected credit losses to be based on relevant information, including historical experience, current conditions and a forecast that is supportable. The standard is effective for fiscal years beginning after December 15, 2019, including interim periods within those fiscal years; early adoption is permitted. The standard must be adopted by applying a cumulative adjustment to retained earnings. The Company adopted the standard in the first quarter of 2020, with minimal impact to the Company's financial results.

In August 2018, the FASB issued ASU 2018-13, "Fair Value Measurement (Topic 820): Disclosure Framework-Changes to the Disclosure Requirements for Fair Value Measurement." The primary focus of ASU 2018-13 is to improve the effectiveness of the disclosures for fair value measurements by requiring public entities to disclose certain new information while modifying some existing disclosure requirements. The FASB issued this ASU as part of its broader disclosure framework project, which aims to improve the effectiveness of disclosures in the notes to the financial statements by focusing on requirements that clearly communicate the most important information to users of the financial statements. The ASU is effective for public companies for fiscal years beginning after December 15, 2019, and interim periods therein with early adoption permitted. The Company adopted with no impact to the Company's financial statements.

In August 2018, the FASB issued ASU 2018-14, "Compensation-Retirement Benefits-Defined Benefit Plans-General (Subtopic 715-20), Disclosure Framework-Changes to the Disclosure Requirements for Defined Benefit Plans." ASU 2018-14 makes minor changes to the disclosure requirements for employers that sponsor defined benefit pension and postretirement benefit plants. The new guidance eliminates requirements for certain disclosures that are no longer considered cost beneficial and adds new ones that the FASB considers pertinent. The FASB issued this ASU as part of its broader disclosure framework project, which aims to improve the effectiveness of disclosures in the notes to the financial statements by focusing on requirements that clearly communicate the most important information to users of the financial statements. The ASU is effective for public companies for fiscal years beginning after December 15, 2020, and interim periods therein with early adoption permitted. The Company adopted with minimal impact to the Company's financial statements.

In March 2020, the FASB issued ASU 2020-04, "Reference Rate Reform (Topic 848): Facilitation of the Effects of Reference Rate Reform on Financial Reporting." The amendments provide optional guidance for a limited time to ease the potential burden in accounting for reference rate reform. The new guidance provides optional expedients and exceptions for applying U.S. GAAP to contracts, hedging relationships and other transactions affected by reference rate reform if certain criteria are met. The amendments apply only to contracts and hedging relationships that reference LIBOR or another reference rate expected to be discontinued due to reference rate reform. These amendments are effective immediately and may be applied prospectively to contract modifications made and hedging relationships entered into or evaluated on or before December 31, 2022. We are currently evaluating our contracts and the optional expedients provided by the new standard.

Recent Accounting Guidance Issued Not Yet Effective

In December 2019, the FASB issued ASU 2019-12, "Income Taxes (Topic 740) Simplifying the Accounting for Income Taxes." ASU 2019-12 eliminates certain exceptions related to the approach for intraperiod tax allocation, the methodology for calculating income taxes in an interim period and the recognition of deferred tax liabilities for outside basis differences. The ASU is effective for public companies for fiscal years beginning after December 15, 2020, and interim periods therein with early adoption permitted. The Company is reviewing the provisions of the standard but does not expect a significant impact to the Company's financial statements.

In August 2020, the FASB issued ASU 2020-06**,** Debt—Debt with Conversion and Other Options (Subtopic 470-20) and Derivatives and Hedging—Contracts in Entity's Own Equity (Subtopic 815-40)—Accounting for Convertible Instruments and Contracts in an Entity's Own Equity. ASU 2020-06 reduces the number of accounting models for convertible debt instruments and convertible preferred stock. For convertible instruments with conversion features that are not required to be accounted for as derivatives under Topic 815, *Derivatives and Hedging*, or that do not result in substantial premiums accounted for as paid-in capital, the embedded conversion features no longer are separated from the host contract. ASU 2020-06 also removes certain conditions that should be considered in the derivatives scope exception evaluation under Subtopic 815-40, *Derivatives and Hedging—Contracts in Entity's Own Equity*, and clarify the scope and certain requirements under Subtopic 815-40. In addition, ASU 2020-06 improves the guidance related to the disclosures and earnings-per-share (EPS) for convertible instruments and contract in entity's own equity. ASU 2020-06 is effective for public business entities that meet the definition of a Securities and Exchange Commission (SEC) filer, excluding entities eligible to be smaller reporting companies as defined by the SEC, for fiscal years beginning after December 15, 2021, including interim periods within those fiscal years. For all other entities, the amendments are effective for fiscal years beginning after December 15, 2023, including interim periods within those fiscal years. Early adoption is permitted, but no earlier than fiscal years beginning after December 15, 2020, including interim periods within those fiscal years. The Board specified that an entity should adopt the guidance as of the beginning of its annual fiscal year. The Company is currently evaluating the impact of this ASU will have on its consolidated financial statements.

3. Accumulated Other Comprehensive Income (Loss)

The following items are included in accumulated other comprehensive income:

	Derivative Instruments	Pension, Postretirement and Other Post-Employment Benefits	Available-for-Sale Securities	Accumulated Other Comprehensive Income (loss)
		(In thousands)		
January 1, 2019	$ 3,328	$ 40,311	$ (343)	$ 43,296
Unrealized gains (losses)	4,648	(27,692)	508	(22,536)
Amounts reclassified from accumulated other comprehensive income (loss)	(10,540)	(4,346)	(185)	(15,071)
Balance at December 31, 2019	$ (2,564)	$ 8,273	$ (20)	$ 5,689
Unrealized losses	(3,076)	(38,533)	(66)	(41,675)
Amounts reclassified from accumulated other comprehensive income (loss)	1,749	(1,199)	(265)	285
Balance at December 31, 2020	$ (3,891)	$ (31,459)	$ (351)	$ (35,701)

The following amounts were reclassified out of accumulated other comprehensive income (loss) during the respective periods:

Details About AOCI Components	December 31, 2020	December 31, 2019	Line Item in the Condensed Consolidated Statements of Operations
Coal hedges	$ 392	$ 9,480	Revenues
Interest rate hedges	(2,141)	1,060	Interest expense
	—	—	Provision for (benefit from) income taxes
	$ (1,749)	$ 10,540	Net of tax
Pension, postretirement and other post-employment benefits			
Amortization of actuarial gains (losses), net [1]	$ 191	$ 3,020	Non-service related pension and postretirement benefit (costs) credits
Amortization of prior service credits	112	—	Non-service related pension and postretirement benefit (costs) credits
Pension settlement	896	1,326	Non-service related pension and postretirement benefit (costs) credits
	$ 1,199	$ 4,346	Total before tax
	—	—	Provision for (benefit from) income taxes
	$ 1,199	$ 4,346	Net of tax
Available-for-sale securities [2]	$ 265	$ 185	Interest and investment income
	—	—	Provision for (benefit from) income taxes
	$ 265	$ 185	Net of tax

[1] Production-related benefits and workers' compensation costs are included in costs to produce coal.

[2] The gains and losses on sales of available-for-sale-securities are determined on a specific identification basis.

4. Divestitures

In December 2020, the Company sold its Viper mine in the Illinois basin to Knight Hawk Holdings, LLC in exchange for an additional 1.5% ownership interest in Knight Hawk. The sale resulted in an increase in the Company's ownership to 49.5% and a gain of $0.1 million was recorded which is reflected within the line item, "(Gain) loss on divestitures," on the Consolidated Statements of Operations. See Note 11 to the Consolidated Financial Statements, "Equity Method Investments and Membership Interests in Joint Venture" for further disclosures about the divestiture.

During the second quarter of 2020, various Dal-Tex and Briar Branch properties in West Virginia were sold to Condor Holdings, LLC. No consideration was received for the sale and a gain of $1.4 million was recorded representing the net liabilities sold, and is reflected within the line item, "(Gain) loss on divestitures," on the Consolidated Statements of Operations.

On December 13, 2019, the Company sold Coal-Mac LLC, an operating mine complex within the Company's Other Thermal segment to Condor Holdings, LLC. The Company received $2.3 million of proceeds offset by $0.2 million in closing fees; and recorded a loss of $9.0 million which is reflected within the line, "(Gain) loss on divestitures," on the Consolidated Statements of Operations.

On September 14, 2017, the Company sold Lone Mountain Processing, LLC and two idled mining companies, Cumberland River Coal LLC and Powell Mountain Energy LLC to Revelation Energy LLC, and recorded a gain on the transaction in that year of $21.3 million. Under the terms of the purchase agreement, Revelation assumed certain traumatic workers compensation claims and pneumoconiosis (occupational disease) benefits. On July 1, 2019, Blackjewel LLC and four affiliates, including Revelation Energy LLC filed for Chapter 11 bankruptcy. As a result of the bankruptcy, the Company recorded a $4.3 million charge for these claims as of September 30, 2019, which is reflected within the line, "(Gain) loss on divestitures," on the Consolidated Statements of Operations.

5. Asset impairment and restructuring

The following table summarizes the amounts reflected on the line "Asset impairment and restructuring" in the Consolidated Statements of Operations:

Description		Year Ended December 31, 2020
		(In thousands)
Coal lands and mineral rights	$	33,197
Plant and equipment		43,197
Deferred development		76,807
Parts and Supplies		8,639
Equity Investment		36,167
Severance Pay - VSP		13,373
Other		10,000
	$	221,380

During the third quarter of 2020, the Company determined that indicators of impairment existed with respect to certain of its thermal long-lived assets or asset groups. The Company's thermal coal segments have experienced reduced demand as a result of sustained low natural gas pricing, reduced utilization and retirement of coal-fired power plants, the increased use of renewable energy sources, and the impact of COVID-19. The reduced demand has led to lower production levels, higher unit costs, and lower realized prices, which have contributed to operating losses at certain of the mine complexes. Further, on September 29, 2020 the U.S. District Court upheld the FTC's decision to block the Company's proposed joint venture. These conditions have resulted in changes to the Company's expectations for projected future volume levels and the overall longevity of the mines. As a result, the Company recorded impairment charges during the three and nine months ended September 30, 2020 of $51.8 million related to the Coal Creek Mine within the Powder River Basin Mining segment, $33.5 million related to the Viper Mine within the Other Thermal Segment, $41.6 million related to the West Elk Mine within the Other Thermal segment and $36.2 million related to the Company's equity method investment in Knight Hawk Holdings, LLC. The impairment charges were calculated based upon discounted cash flows that were based on estimates of future sales volumes, coal prices for unpriced volumes, production costs and a risk-adjusted cost of capital. These estimates generally constitute unobservable Level 3 inputs under the fair value hierarchy.

In the fourth quarter of 2020, the Company recorded additional charges including $32.8 million related to the Company's Coal Creek Mine due to accelerating the mine closing date and the associated reclamation work to be performed. Additionally, the Company recorded a $10.0 million charge related to a land lease obligation from a prior equity investment.

The Company recorded $13.4 million of employee severance expense related to a voluntary separation plan during the year ended December 31, 2020. During the first and second quarters of 2020, 254 employees from the Company's thermal operations and the corporate staff accepted the voluntary separation package.

6. Joint Venture with Peabody Energy

On June 18, 2019, the Company entered into a definitive implementation agreement (the "Implementation Agreement") with Peabody Energy Corporation ("Peabody"), to establish a joint venture that would have combined the respective Powder River Basin and Colorado mining operations of Arch Resources and Peabody. Pursuant to the terms of the Implementation Agreement, the Company would have held a 33.5% economic interest, and Peabody would have held a 66.5% economic interest in the joint venture.

On February 26, 2020, the Federal Trade Commission ("FTC") filed an administrative complaint challenging the proposed joint venture alleging the transaction would eliminate competition between Arch Resources and Peabody, the two major competitors in the market for thermal coal in the Southern Powder River Basin and the two largest coal-mining companies in the United States. The FTC filed a temporary restraining order and preliminary injunction in the U.S. District Court for the Eastern District of Missouri, to maintain the status quo pending an administrative trial on the merits.

Between July 14 and July 23, 2020, the U.S. District Court conducted an evidentiary hearing, during which both sides further presented their evidence and arguments. On September 29, 2020, the U.S. District Court upheld the FTC's decision to block the joint venture. Subsequently, the Company and Peabody jointly terminated the joint venture.

The Company incurred expenses of $16.1 million during the year ended December 31, 2020 associated with the regulatory approval process related to the joint venture. Costs of $13.8 million were incurred for the year ended December 31, 2019.

7. Gain on Property Insurance Recovery Related to Mountain Laurel Longwall

The Company recorded a $23.5 million gain related to a property insurance recovery on the longwall shields at its Mountain Laurel operation. As a result of geologic conditions in the final longwall panel, Mountain Laurel was unable to recover 123 of the longwall system's 176 hydraulic shields.

8. Preference Rights Lease Application Settlement Income

The Company recorded a $39.0 million gain during the third quarter of 2019 related to a settlement with the United States Department of Interior over a long-standing dispute, dating back to the 1970's, on the valuation and disposition of Preference Rights Lease Application that Arch controlled in northwestern New Mexico with a joint venture partner. As part of the settlement, Arch received $67.0 million in the form of royalty credits on its federal coal leases which will be used to settle 50% of the Company's monthly royalty obligations. Additionally, as part of the settlement, Arch made a one-time payment of $27.0 million during October 2019 to its' partner in the venture for its ownership interest in the underlying mineral reserves, as well as paying $1.0 million in closing fees.

The Company utilized $36.0 million of its royalty credits during the year ended December 31, 2020. The Company realized a credit for $13.3 million during the year ended December 31, 2019. The remaining balance outstanding at December 31, 2020 is $17.7 million, which is expected to be realized during 2021.

9. Inventories

Inventories consist of the following:

	December 31, 2020	December 31, 2019
	(In thousands)	
Coal	$ 49,436	$ 46,815
Repair parts and supplies	76,572	84,083
	$ 126,008	$ 130,898

The repair parts and supplies are stated net of an allowance for slow-moving and obsolete inventories of $0.6 million at December 31, 2020 and $2.2 million at December 31, 2019.

10. Investments in Available-for-Sale Securities

The Company has invested in marketable debt securities, primarily highly liquid U.S Treasury securities and investment grade corporate bonds. These investments are held in the custody of a major financial institution. These securities are classified as available-for-sale securities and, accordingly, the unrealized gains and losses are recorded through other comprehensive income.

The Company's investments in available-for-sale marketable securities are as follows:

	December 31, 2020				
	Cost Basis	Gross Unrealized Gains	Gross Unrealized Losses	Allowance for Credit Losses	Fair Value
	(In thousands)				
Available-for-sale:					
U.S. government and agency securities	$ 57,299	$ 11	$ (86)	$ —	$ 57,224
Corporate notes and bonds	39,817	1	(277)	—	39,541
Total Investments	$ 97,116	$ 12	$ (363)	$ —	$ 96,765

	December 31, 2019				
	Cost Basis	Gross Unrealized Gains	Gross Unrealized Losses	Allowance for Credit Losses	Fair Value
	(In thousands)				
Available-for-sale:					
U.S. government and agency securities	$ 35,044	$ 1	$ (16)	$ —	$ 35,029
Corporate notes and bonds	100,643	200	(205)	—	100,638
Total Investments	$ 135,687	$ 201	$ (221)	$ —	$ 135,667

The aggregate fair value of investments with unrealized losses that had been owned for less than a year was $45.3 million and $72.3 million at December 31, 2020 and 2019, respectively. The aggregate fair value of investments with unrealized losses that have been owned for over a year was $8.1 million and $0.0 million at December 31, 2020 and 2019, respectively.

The debt securities outstanding at December 31, 2020 have maturity dates ranging from the first quarter of 2021 through the second quarter of 2022. The Company classifies its investments as current based on the nature of the investments and their availability to provide cash for use in current operations, if needed.

11. Equity Method Investments and Membership Interests in Joint Ventures

The Company accounts for its investments and membership interests in joint ventures under the equity method of accounting if the Company has the ability to exercise significant influence, but not control, over the entity. Equity method investments are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of the investments may not be recoverable.

Below are the equity method investments reflected in the consolidated balance sheets:

(In thousands)	Knight Hawk	DTA	Total
December 31, 2018	$ 90,021	$ 14,655	$ 104,676
Sale of investment in affiliates	(1,879)	—	(1,879)
Advances to (distributions from) affiliates, net	(5,884)	5,500	(384)
Equity in comprehensive income (loss)	7,953	(4,778)	3,175
December 31, 2019	$ 90,211	$ 15,377	$ 105,588
Advances to (distributions from) affiliates, net	(4,235)	1,549	(2,686)
Equity in comprehensive income (loss)	4,576	(1,228)	3,348
Additional interest in Knight Hawk	1,700	—	1,700
Impairment of equity investment	(36,167)	—	(36,167)
December 31, 2020	$ 56,085	$ 15,698	$ 71,783

In December 2020, the Company sold its Viper mine to Knight Hawk Holdings, LLC ("Knight Hawk") in exchange for an additional 1.5% ownership interest in Knight Hawk. The sale resulted in an increase in the Company's ownership to 49.5%.

In December 2019, the Company sold 1% of its ownership interest in Knight Hawk to a third party for $2.0 million.

The Company holds a 35% general partnership interest in Dominion Terminal Associates LLP ("DTA"), which is accounted for under the equity method. DTA operates a ground storage-to-vessel coal transloading facility in Newport News, Virginia for use by the partners. Under the terms of a throughput and handling agreement with DTA, each partner is charged its share of cash operating and debt-service costs in exchange for the right to use the facility's loading capacity and is required to make periodic cash advances to DTA to fund such costs.

The Company is not required to make any future contingent payments related to development financing for any of its equity investees.

12. Derivatives

Interest rate risk management

The Company has entered into interest rate swaps to reduce the variability of cash outflows associated with interest payments on its variable rate term loan. These swaps have been designated as cash flow hedges. For additional information on these arrangements, see Note 14 to the Consolidated Financial Statements, "Debt and Financing Arrangements."

Diesel fuel price risk management

The Company is exposed to price risk with respect to diesel fuel purchased for use in its operations. The Company anticipates purchasing approximately 30 to 35 million gallons of diesel fuel for use in its operations during 2021. To protect the Company's cash flows from increases in the price of diesel fuel for its operations, the Company uses forward physical diesel purchase contracts and purchased heating oil call options. At December 31, 2020, the Company had no heating oil call options outstanding. These positions are not designated as hedges for accounting purposes, and therefore, changes in the fair value are recorded immediately to earnings.

Coal risk management positions

The Company may sell or purchase forward contracts, swaps and options in the over-the-counter coal market in order to manage its exposure to coal prices. The Company has exposure to the risk of fluctuating coal prices related to forecasted sales or purchases of coal or to the risk of changes in the fair value of a fixed price physical sales contract. Certain derivative contracts may be designated as hedges of these risks.

At December 31, 2020, the Company held derivatives for risk management purposes that are expected to settle in the following years:

(Tons in thousands)	2021	2022	Total
Coal sales	193	—	193
Coal purchases	82	—	82

The Company may also enter into natural gas options to protect the Company from decreases in natural gas prices, which could impact thermal coal demand. These options are not designated as hedges.

Coal trading positions

The Company may sell or purchase forward contracts, swaps and options in the over-the-counter coal market for trading purposes. The Company is exposed to the risk of changes in coal prices on the value of its coal trading portfolio. The unrecognized gains of $0.3 million in the trading portfolio are expected to be realized in 2021.

Tabular derivatives disclosures

The Company has master netting agreements with all of its counterparties which allow for the settlement of contracts in an asset position with contracts in a liability position in the event of default or termination. Such netting arrangements reduce the Company’s credit exposure related to these counterparties. For classification purposes, the Company records the net fair value of all the positions with a given counterparty as a net asset or liability in the consolidated balance sheets. The amounts shown in the table below represent the fair value position of individual contracts, and not the net position presented in the accompanying Consolidated Balance Sheets.

The fair value and location of derivatives reflected in the accompanying Consolidated Balance Sheets are as follows:

Fair Value of Derivatives (In thousands)	**December 31, 2020 Asset Derivative**	**December 31, 2020 Liability Derivative**		**December 31, 2019 Asset Derivative**	**December 31, 2019 Liability Derivative**	
Derivatives Designated as Hedging Instruments						
Coal	$ —	$ —		$ 1,351	$ (962)	
Derivatives Not Designated as Hedging Instruments						
Heating oil -- diesel purchases	237	—		133	(112)	
Coal -- held for trading purposes	1,914	(1,595)		18,467	(18,940)	
Coal -- risk management	1,094	(804)		11,662	(5,856)	
Natural gas	—	—		3	—	
Total	$ 3,245	$ (2,399)		$ 30,265	$ (24,908)	
Total derivatives	$ 3,245	$ (2,399)		$ 31,616	$ (25,870)	
Effect of counterparty netting	(2,392)	2,392		(25,759)	25,759	
Net derivatives as classified in the balance sheets	$ 853	$ (7)	$ 846	$ 5,857	$ (111)	$ 5,746

		December 31, 2020	**December 31, 2019**
Net derivatives as reflected on the balance sheets (in thousands)			
Heating oil and coal	Other current assets	$ 853	$ 5,857
Coal	Accrued expenses and other current liabilities	(7)	(111)
		$ 846	$ 5,746

The Company had a current asset representing cash collateral posted to a margin account for derivative positions primarily related to coal derivatives of $1.4 million at December 31, 2020 and a current liability of $4.4 million at December 31, 2019 representing cash collateral owed to a margin account, respectively. These amounts are not included with the derivatives presented in the table above and are included in "accrued expenses and other current liabilities" and "other current assets" in the accompanying Consolidated Balance Sheets.

The effects of derivatives on measures of financial performance are as follows:

Derivatives used in Cash Flow Hedging Relationships (in thousands)

For the noted periods,

		Gain (Loss) Recognized in Other Comprehensive Income (Effective Portion)		
		Year Ended December 31, 2020	**Year Ended December 31, 2019**	**Year Ended December 31, 2018**
Coal sales	[1]	$ 500	$ 10,249	$ (7,517)
Coal purchases	[2]	(496)	(1,231)	1,348
		$ 4	$ 9,018	$ (6,169)

	Gains (Losses) Reclassified from Other Comprehensive Income into Income (Effective Portion)		
	Year Ended December 31, 2020	Year Ended December 31, 2019	Year Ended December 31, 2018
Coal sales	$ (1,850)	$ 10,167	$ (10,912)
Coal purchases	1,458	(686)	2,707
	$ (392)	$ 9,481	$ (8,205)

No ineffectiveness or amounts excluded from effectiveness testing relating to the Company's cash flow hedging relationships were recognized in the results of operations in the respective periods.

Derivatives Not Designated as Hedging Instruments (in thousands)

For the noted periods,

		Gain (Loss) Recognized		
		Year Ended December 31, 2020	Year Ended December 31, 2019	Year Ended December 31, 2018
Coal trading— realized and unrealized	(3)	$ 222	$ (1,013)	$ 135
Coal risk management— unrealized	(3)	(5,517)	19,713	(9,530)
Natural gas trading — realized and unrealized	(3)	76	(99)	277
Change in fair value of coal derivatives and coal trading activities, net total		$ (5,219)	$ 18,601	$ (9,118)
Coal risk management — realized	(4)	$ 9,258	$ 487	$ (8,734)
Heating oil — diesel purchases	(4)	$ (558)	$ (2,291)	$ (505)

Location in income statement:

(1) — Revenues
(2) — Cost of sales
(3) — Change in fair value of coal derivatives and coal trading activities, net
(4) — Other operating income, net

13. Accrued Expenses and Other Current Liabilities

Accrued expenses and other current liabilities consist of the following:

	December 31, 2020	December 31, 2019
	(In thousands)	
Payroll and employee benefits	$ 39,443	$ 50,929
Taxes other than income taxes	56,232	69,061
Interest	2,795	133
Workers' compensation	15,259	16,119
Asset retirement obligations	27,032	10,366
Other	14,495	10,559
	$ 155,256	$ 157,167

14. Debt and Financing Arrangements

	December 31, 2020	December 31, 2019
	(In thousands)	
Term loan due 2024 ($288.8 million face value)	$ 288,033	$ 290,825
Tax Exempt Bonds ($53.1 million face value)	53,090	—
Convertible Debt ($155.3 million face value)	115,367	—
Other	62,695	25,007
Debt issuance costs	(10,873)	(5,013)
	508,312	310,819
Less: current maturities of debt	31,097	20,753
Long-term debt	$ 477,215	$ 290,066

Term Loan Facility

In 2017, the Company entered into a senior secured term loan credit agreement in an aggregate principal amount of $300 million (the "Term Loan Debt Facility") with Credit Suisse AG, Cayman Islands Branch, as administrative agent and collateral agent (in such capacities, the "Agent"), and the other financial institutions from time to time party thereto (collectively, the "Lenders"). The Term Loan Debt Facility was issued at 99.50% of the face amount and will mature on March 7, 2024. The term loans provided under the Term Loan Debt Facility (the "Term Loans") are subject to quarterly principal amortization payments in an amount equal to $750,000.

During 2018, the Company entered into the Second Amendment (the "Second Amendment") to its Term Loan Debt Facility. The Second Amendment further reduced the interest rate on its Term Loan Debt Facility to, at the option of Arch Resources, either (i) the London interbank offered rate ("LIBOR") plus an applicable margin of 2.75%, subject to a 1.00% LIBOR floor, or (ii) a base rate plus an applicable margin of 1.75%. The Second Amendment also resets the 1.00% call premium to apply to repricing events that occur on or prior to October 3, 2018. The LIBOR floor remains at 1.00%. There is no change to the maturities as a result of the Second Amendment.

The Term Loan Debt Facility is guaranteed by all existing and future wholly owned domestic subsidiaries of the Company (collectively, the "Subsidiary Guarantors" and, together with Arch Resources, the "Loan Parties"), subject to customary exceptions, and is secured by first priority security interests on substantially all assets of the Loan Parties, including 100% of the voting equity interests of directly owned domestic subsidiaries and 65% of the voting equity interests of directly owned foreign subsidiaries, subject to customary exceptions.

The Company has the right to prepay Term Loans at any time and from time to time in whole or in part without premium or penalty, upon written notice, except that any prepayment of Term Loans that bear interest at the LIBOR Rate other than at the end of the applicable interest periods therefor shall be made with reimbursement for any funding losses and redeployment costs of the Lenders resulting therefrom.

The Term Loan Debt Facility is subject to certain usual and customary mandatory prepayment events, including 100% of net cash proceeds of (i) debt issuances (other than debt permitted to be incurred under the terms of the New Term Loan Debt Facility) and (ii) non-ordinary course asset sales or dispositions, subject to customary thresholds, exceptions and reinvestment rights.

The Term Loan Debt Facility contains customary affirmative covenants and representations.

The Term Loan Debt Facility also contains customary negative covenants, which, among other things, and subject to certain exceptions, include restrictions on (i) indebtedness, (ii) liens, (iii) liquidations, mergers, consolidations and acquisitions, (iv) disposition of assets or subsidiaries, (v) affiliate transactions, (vi) creation or ownership of certain subsidiaries, partnerships and joint ventures, (vii) continuation of or change in business, (viii) restricted payments, (ix) prepayment of subordinated and junior lien indebtedness, (x) restrictions in agreements on dividends, intercompany loans and granting liens on the collateral, (xi) loans and investments, (xii) sale and leaseback transactions, (xiii) changes in organizational documents and fiscal year and (xiv) transactions with respect to bonding subsidiaries. The Term Loan Debt Facility does not contain any financial maintenance covenant.

The Term Loan Debt Facility contains customary events of default, subject to customary thresholds and exceptions, including, among other things, (i) nonpayment of principal and nonpayment of interest and fees, (ii) a material inaccuracy of a representation or warranty at the time made, (iii) a failure to comply with any covenant, subject to customary grace periods in the case of certain affirmative covenants, (iv) cross-events of default to indebtedness of at least $50 million, (v) cross-events of default to surety, reclamation or similar bonds securing obligations with an aggregate face amount of at least $50 million, (vi) uninsured judgments in excess of $50 million, (vii) any loan document shall cease to be a legal, valid and binding agreement, (viii) uninsured losses or proceedings against assets with a value in excess of $50 million, (ix) certain ERISA events, (x) a change of control or (xi) bankruptcy or insolvency proceedings relating to the Company or any material subsidiary of the Company.

Accounts Receivable Securitization Facility

On September 30, 2020, the Company amended and extended its existing trade accounts receivable securitization facility provided to Arch Receivable Company, LLC, a special-purpose entity that is a wholly owned subsidiary of Arch Resources (“Arch Receivable”) (the “Extended Securitization Facility”), which supports the issuance of letters of credit and requests for cash advances. The amendment to the Extended Securitization Facility reduced the size of the facility from $160 million to $110 million of borrowing capacity and extended the maturity date to September 29, 2023. Additionally, the amendment eliminated the provision that accelerated maturity upon liquidity falling below a specified level. Pursuant to the Extended Securitization Facility, Arch Receivable also agreed to a revised schedule of fees payable to the administrator and the providers of the Extended Securitization Facility.

Under the Extended Securitization Facility, Arch Receivable, Arch Resources and certain of Arch Resources’s subsidiaries party to the Extended Securitization Facility have granted to the administrator of the Extended Securitization Facility a first priority security interest in eligible trade accounts receivable generated by such parties from the sale of coal and all proceeds thereof. As of December 31, 2020, letters of credit totaling $56.3 million were outstanding under the facility with $25.4 million available for borrowings.

Inventory-Based Revolving Credit Facility

On September 30, 2020, the Company and certain of its subsidiaries amended the senior secured inventory-based revolving credit facility in an aggregate principal amount of $50 million (the “Inventory Facility”) with Regions Bank (“Regions”) as administrative agent and collateral agent, as lender and swingline lender (in such capacities, the “Lender”) and as letter of credit issuer. Availability under the Inventory Facility is subject to a borrowing base consisting of (i) 85% of the net orderly liquidation value of eligible coal inventory, (ii) the lesser of (x) 85% of the net orderly liquidation value of eligible parts and supplies inventory and (y) 35% of the amount determined pursuant to clause (i), and (iii) 100% of Arch Resources’s Eligible Cash (defined in the Inventory Facility), subject to reduction for reserves imposed by Regions.

The amendment of the Inventory Facility extended the maturity of the facility to September 29, 2023; eliminated the provision that accelerated maturity upon liquidity falling below a specified level; and reduced the minimum liquidity requirement from $175 million to $100 million. Additionally, the amendment included provisions that reduce the advance rates for coal inventory and parts and supplies, depending on “Liquidity” as defined as of any date of determination, the sum of, without duplication, (a) unrestricted cash or Permitted Investments as of such date of the Parent and its Subsidiaries (other than the Securitization Subsidiaries and Bonding Subsidiaries) that are not Foreign Subsidiaries, (b) withdrawable funds from brokerage accounts of Borrowers as of such date, (c) Availability as of such date, and (d) any unused commitments that are available to be drawn as of such date by the Parent pursuant to the terms of any Permitted Receivables Financing.

Revolving loan borrowings under the Inventory Facility bear interest at a per annum rate equal to, at the option of Arch Resources, either the base rate or the London interbank offered rate plus, in each case, a margin ranging from 2.50% to 3.50% (in the case of LIBOR loans) and 1.00% to 1.50% (in the case of base rate loans) determined using a

Liquidity-based grid. Letters of credit under the Inventory Facility are subject to a fee in an amount equal to the applicable margin for LIBOR loans, plus customary fronting and issuance fees.

All existing and future direct and indirect domestic subsidiaries of Arch Resources, subject to customary exceptions, will either constitute co-borrowers under or guarantors of the Inventory Facility (collectively with Arch Resources, the "Loan Parties"). The Inventory Facility is secured by first priority security interests in the ABL Priority Collateral (defined in the Inventory Facility) of the Loan Parties and second priority security interests in substantially all other assets of the Loan Parties, subject to customary exceptions (including an exception for the collateral that secures the Extended Securitization Facility).

Arch Resources has the right to prepay borrowings under the Inventory Facility at any time and from time to time in whole or in part without premium or penalty, upon written notice, except that any prepayment of such borrowings that bear interest at the LIBOR rate other than at the end of the applicable interest periods therefore shall be made with reimbursement for any funding losses and redeployment costs of the Lender resulting therefrom.

The Inventory Facility is subject to certain usual and customary mandatory prepayment events, including non-ordinary course asset sales or dispositions, subject to customary thresholds, exceptions (including exceptions for required prepayments under Arch Resources's term loan facility) and reinvestment rights.

The Inventory Facility contains certain customary affirmative and negative covenants; events of default, subject to customary thresholds and exceptions; and representations, including certain cash management and reporting requirements that are customary for asset-based credit facilities. The Inventory Facility also includes a requirement to maintain Liquidity equal to or exceeding $100 million at all times. As of December 31, 2020, letters of credit totaling $29.2 million were outstanding under the facility with $4.1 million available for borrowings.

Equipment Financing

On March 4, 2020, the Company entered into an equipment financing arrangement accounted for as debt ("Equipment Financing"). The Company received $53.6 million in exchange for conveying an interest in certain equipment in operation at its Leer Mine and entered into a master lease arrangement for that equipment. The financing arrangement contains customary terms and events of default and provides for 48 monthly payments with an average interest rate of 6.34% maturing on March 4, 2024. Upon maturity, all interests in the subject equipment will revert back to the Company.

Tax Exempt Bonds

On July 2, 2020, the West Virginia Economic Development Authority (the "Issuer") issued $53.1 million aggregate principal amount of Solid Waste Disposal Facility Revenue Bonds (Arch Resources Project), Series 2020 (the "Tax Exempt Bonds") pursuant to an Indenture of Trust dated as of June 1, 2020 (the "Indenture") between the Issuer and Citibank, N.A., as trustee (the "Trustee"). The proceeds of the Tax Exempt Bonds were loaned to the Company pursuant to a Loan Agreement dated as of June 1, 2020 between the Issuer and Arch. The Tax Exempt Bonds are payable solely from payments to be made by the Company under the Loan Agreement as evidenced by a Note from the Company to the Trustee. The proceeds of the Tax Exempt Bonds were used to finance certain costs of the acquisition, construction, reconstruction, and equipping of solid waste disposal facilities at the Company's Leer South development, and for capitalized interest and certain costs related to issuance of the Tax Exempt Bonds.

The Tax Exempt Bonds will bear interest payable each January 1 and July 1, commencing January 1, 2021, at an interest rate of 5% and have a final maturity of July 1, 2045; however, the Tax Exempt Bonds are subject to mandatory tender on July 1, 2025 at a purchase price equal to 100% of the principal amount of the Tax Exempt Bonds, plus accrued interest to July 1, 2025.

The Tax Exempt Bonds are subject to redemption (i) in whole or in part at any time on or after January 1, 2025 at the option of the Issuer, upon the Company's direction at a redemption price of par, plus interest accrued to the redemption date; and (ii) at par plus interest accrued to the redemption date from certain excess Bond proceeds as further described in the Indenture.

The Company's obligations under the Loan Agreement are (i) except as otherwise described below, secured by first priority liens on and security interests in substantially all of the Company's and Subsidiary Guarantors' real property and other assets, subject to certain customary exceptions and permitted liens, and in any event excluding our accounts receivable and inventory; and (ii) jointly and severally guaranteed by the Subsidiary Guarantors, subject to customary exceptions.

The collateral securing the Company's obligations under the Loan Agreement is substantially the same as the collateral securing the obligations under the Term Loan Debt Facility other than with respect to variances in certain real property collateral. The real property securing the Company's obligations under the Loan Agreement includes a subset of the real property collateral securing the obligations under the Term Loan Debt Facility and includes only mortgages on substantially all of the Company's revenue generating metallurgical coal real property and assets, including its mining complexes at Leer, Leer South, Mountain Laurel and Beckley in West Virginia. The Company is required to provide additional mortgages in the future to secure its obligations under the Loan Agreement due to the joint venture with Peabody not consummating.

The Loan Agreement contains certain affirmative covenants and representations, including but not limited to: (i) maintenance of a rating on the Tax Exempt Bonds; (ii) maintenance of proper books of records and accounts; (iii) agreement to add additional guarantors to guarantee the obligations under the Loan Agreement in certain circumstances; (iv) procurement of customary insurance; and (v) preservation of legal existence and certain rights, franchises, licenses and permits. The Loan Agreement also contains certain customary negative covenants, which, among other things, and subject to certain exceptions, include restrictions on (i) release of collateral securing the Company's obligations under the Loan Agreement; (ii) mergers and consolidations and disposition of assets, and (iii) restrictions on actions that may jeopardize the tax-exempt status of the Tax Exempt Bonds.

The Loan Agreement contains customary events of default, subject to customary thresholds and exceptions, including, among other things, (i) nonpayment of principal, purchase price, interest and other fees (subject to certain cure periods), (ii) bankruptcy or insolvency proceedings relating to us; (iii) material inaccuracy of a representation or warranty at the time made, (iv) cross-events of default to indebtedness of at least $50 million, (v) cross defaults to the Indenture, the guaranty related to the Tax Exempt Bonds or any related security documents.

As of December 31, 2020, Arch has utilized $47.1 million of the total bond proceeds. The remaining $6.0 is held in trust and is recorded on the balance sheet as restricted cash. The remainder of the funds will be released as qualified expenditures are made.

Convertible Debt

On November 3, 2020, the Company issued $155.3 million in aggregate principal amount of 5.25% convertible senior notes due 2025 ("Convertible Notes " or "Convertible Debt"). The net proceeds from the issuance of the Convertible Notes, after deducting offering related costs of $5.1 million and cost of a "Capped Call Transaction" as defined below of $17.5 million, were approximately $132.7 million. The Convertible Notes bear interest at the annual rate of 5.25%, payable semiannually in arrears on May 15 and November 15 of each year, beginning on May 15, 2021, and will mature on November 15, 2025, unless earlier converted or repurchased by the Company.

The Convertible Notes will be convertible into cash, shares of the Company's common stock or a combination thereof, at the Company's election, at an initial conversion rate of 26.7917 shares of common stock per $1,000 principal amount of Convertible Notes, which is equivalent to an initial conversion price of approximately $37.325 per share, subject to adjustment pursuant to the terms of the Indenture governing the Convertible Notes (the "Indenture"). The Convertible Notes may be converted at any time after, and including, July 15, 2025 until the close of business on the second scheduled trading day immediately before the maturity date.

The conversion rate of the Convertible Notes may be adjusted in certain circumstances, including in connection with a conversion of the Convertible Notes made following certain fundamental changes and under other circumstances set forth in the Indenture. It is the Company's current intent and policy to settle any conversions of notes through a combination of cash and shares.

The Convertible Notes will be redeemable, in whole or in part, at the Company's option at any time, and from time to time, on or after November 20, 2023 and on or before the 40th scheduled trading day immediately before the maturity date, at a cash redemption price equal to the principal amount of the Convertible Notes to be redeemed, plus accrued and unpaid interest, if any, but only if the last reported sale price per share of the Company's common stock exceeds 130% of the conversion price on (i) each of at least 20 trading days, whether or not consecutive, during the 30 consecutive trading days ending on, and including, the trading day immediately before the date the Company sends the related redemption notice; and (ii) the trading day immediately before the date the Company sends such notice. In addition, calling any Convertible Note for redemption will constitute a make-whole fundamental change with respect to that Convertible Note, in which case the conversion rate applicable to the conversion of that Convertible Note will be increased in certain circumstances if it is converted after it is called for redemption. No sinking fund is provided for the Convertible Notes.

Total interest expense related to the Convertible Notes for the three months ended December 31, 2020 was $2.3 million and was comprised of $1.3 million related to the contractual interest coupon and $1.0 million related to the amortization of the discount on the liability component.

Capped Call Transactions

In connection with the offering of the Convertible Notes, the Company entered into privately negotiated convertible note hedge transactions (collectively, the "Capped Call Transactions"). The Capped Call Transactions cover, subject to customary anti-dilution adjustments, the number of shares of the Company's common stock that initially underlie the Convertible Notes.

The Capped Call Transactions are expected generally to reduce the potential dilution and/or offset any cash payments the Company is required to make in excess of the principal amount due upon conversion of the Convertible Notes in the event that the market price of the Company's common stock is greater than the strike price of the Capped Call Transactions, which was initially $37.325 per share (subject to adjustment under the terms of the Capped Call Transactions). The strike price of $37.325 corresponds to the initial conversion price of the Convertible Notes. The number of shares underlying the Capped Call Transactions is 4.2 million.

The cap price of the Capped Call Transactions is $52.2550 per share, which represents a premium of 75% over the last reported sale price of the Company's common stock on October 29, 2020. The cost of the Capped Call Transactions was approximately $17.5 million.

The Capped Call Transactions are separate transactions, in each case entered into between the Company and the respective Option Counterparty, and are not part of the terms of the Convertible Notes and will not affect any holder's rights under the Convertible Notes. Holders of the Convertible Notes will not have any rights with respect to the Capped Call Transactions. Additionally, the cost of the Capped Call Transactions is not expected to be tax deductible as the Company did not elect to integrate the Capped Call Transactions into the notes for tax purposes.

Accounting Treatment of the Convertible Notes and Related Hedge Transactions

As the Capped Call Transactions meet certain accounting criteria, the Capped Call Transactions were classified as equity and are not accounted for as derivatives. The proceeds from the offering of the Convertible Notes were separated into liability and equity components. On the date of issuance, the liability and equity components of the Convertible Notes were calculated to be approximately $114.5 million and $40.8 million, respectively. The initial $114.5 million liability component was determined based on the fair value of similar debt instruments excluding the conversion feature assuming a hypothetical interest rate of 12.43%. The inputs and assumptions used in the calculated fair value of the liability component of the convertible debt fall within level 2 of the fair value hierarchy. The initial $40.8 million equity component represents the difference between the fair value of the initial $114.5 million in debt and the $155.3 million of gross proceeds. The equity component is included in additional paid-in capital in the Consolidated Balance Sheets and will not be subsequently remeasured as long as it continues to meet the conditions for equity classification. The related initial debt discount of $40.8 million is being amortized over the life of the Convertible Notes as non-cash interest expense using the effective interest method. At December 31, 2020, the convertible notes were not convertible or redeemable.

In connection with the above-noted transactions, the Company incurred approximately $5.9 million of debt issuance costs. These offering expenses were allocated to the liability and equity components in proportion to the allocation of proceeds and accounted for as debt and equity issuance costs, respectively. The Company allocated $4.4 million of debt issuance costs to the liability component, which were capitalized as deferred financing costs within long-term debt. These costs are being amortized as interest expense over the term of the debt (which coincides with the five year life of the Convertible notes) using the effective interest method. The remaining $1.5 million of transaction costs allocated to the equity component were recorded as a reduction of the equity component.

Interest Rate Swaps

The Company has entered into a series of interest rate swaps to fix a portion of the LIBOR interest payments due under the term loan. The interest rate swaps qualify for cash flow hedge accounting treatment and as such, the change in the fair value of the interest rate swaps are recorded on the Company’s Consolidated Balance Sheets as an asset or liability with the effective portion of the gains or losses reported as a component of accumulated other comprehensive income and the ineffective portion reported in earnings. As interest payments are made on the term loan, amounts in accumulated other comprehensive income will be reclassified into earnings through interest expense to reflect a net interest on the term loan equal to the effective yield of the fixed rate of the swap plus 2.75% which is the spread on the revised LIBOR term loan. In the event that an interest rate swap is terminated prior to maturity, gains or losses in accumulated other comprehensive income will remain deferred and reclassified into earnings in the periods which the hedged forecasted transaction affects earnings.

Below is a summary of the Company’s outstanding interest rate swap agreements designated as hedges as of December 31, 2020:

Notional Amount (in millions)		Effective Date	Fixed Rate		Receive Rate	Expiration Date
$	200.0	June 30, 2020	2.249	%	1-month LIBOR	June 30, 2021
$	100.0	June 30, 2021	2.315	%	1-month LIBOR	June 30, 2023

The fair value of the interest rate swaps at December 31, 2020 is a liability of $3.9 million which is recorded within Other noncurrent liabilities with the offset to accumulated other comprehensive income on the Company’s Consolidated Balance Sheets. The Company realized $2.1 million of losses and $1.1 million and $1.2 million of gains during the years ended December 31, 2020, 2019 and 2018, respectively, related to settlements of the interest rate swaps which were recorded to interest expense on the Company’s Consolidated Statements of Operations. The interest rate swaps are classified as level 2 within the fair value hierarchy.

Debt Maturities

The contractual maturities of debt as of December 31, 2020 are as follows:

Year	**(In thousands)**
2021	$ 33,590
2022	16,712
2023	17,631
2024	283,513
2025	208,340
Thereafter	—
	$ 559,786

Financing Costs

The Company paid financing costs of $9.7 million, $0.0 million and $1.3 million during the years ended December 31, 2020, 2019 and 2018, respectively.

15. Taxes

The Company provides for deferred income taxes for temporary differences arising from differences between the financial statement and tax basis of assets and liabilities existing at each balance sheet date using enacted tax rates expected to be in effect when the related taxes are expected to be paid or recovered. The Company initially recognizes the effects of a tax position when it is more than 50 percent likely, based on the technical merits, that the position will be sustained upon examination, including resolution of the related appeals or litigation processes, if any. The Company's determination of whether or not a tax position has met the recognition threshold considers the facts, circumstances, and information available at the reporting date.

The Company assesses the need for a valuation allowance by evaluating future taxable income, available tax planning strategies and the reversal of temporary differences. A valuation allowance is difficult to avoid when a company is in a cumulative loss position, as it constitutes significant negative evidence with regards to future taxable income. A cumulative loss position is defined as a cumulative pre-tax loss for the current and two preceding years.

As of December 31, 2018, the Company was in a cumulative loss position and held a full valuation allowance against its net deferred tax assets.

In 2019, the Company was no longer in a cumulative loss position. However, based on significant near-term uncertainty in market pricing and uncertainty surrounding other planned changes in our operating structure, the Company maintained a full valuation allowance.

As of December 31, 2020, the Company maintained the full valuation allowance, based on continued pricing uncertainty, ongoing operational changes and the significant pre-tax loss reported for the year.

Due to changes in ownership that occurred in connection with the Company's emergence from bankruptcy in 2016, there was a change in ownership for purposes of IRC Section 382. Section 382 provides a combined annual limitation with respect to the ability of a corporation to use its NOLs, AMT credits and capital loss carryforwards generated before the ownership change against future taxable income. The Company's annual limit under IRC section 382 is estimated to be $29.8 million. The Company had a net unrealized built-in gain, based on comparing the fair value and carryover tax basis in assets, at the time of the ownership change, therefore, certain built-in gains recognized within five years after the ownership change will increase the annual IRC section 382 limit for the five year recognition period beginning October 1, 2016 through September 30, 2021. There is uncertainty surrounding which assets with built-in gain will be realized within the five year period following the Company's emergence from bankruptcy and allow the Company to realize the incremental net operating losses and credit in excess of the base 382 limitation. The Company is reflecting a deferred tax asset for the full amount of the net operating losses and credit carryforwards. If at some point in time it becomes evident that some portion of the deferred tax assets will not be realizable, the deferred tax asset, and offsetting valuation allowance will be reduced.

The Company is subject to U.S. federal income tax as well as income tax in multiple state jurisdictions. The tax years 2009 through 2020 remain open to examination for U.S. federal income tax matters and 1999 through 2020 remain open to examination for various state income tax matters.

Significant components of the provision for (benefit from) income taxes are as follows:

(In thousands)	Year Ended December 31, 2020	Year Ended December 31, 2019	Year Ended December 31, 2018
Current:			
Federal	$ 518	$ (36)	$ 86
State	(569)	124	136
Total current	$ (51)	$ 88	$ 222
Deferred:			
Federal	44	667	(52,309)
State	—	(507)	(389)
Total deferred	$ 44	$ 160	$ (52,698)
	$ (7)	$ 248	$ (52,476)

A reconciliation of the statutory federal income tax provision (benefit) at the statutory rate to the actual provision for (benefit from) income taxes follows:

	Year Ended December 31, 2020	Year Ended December 31, 2019	Year Ended December 31, 2018
Income tax provision at statutory rate	$ (72,371)	$ 49,150	$ 54,621
Percentage depletion allowance	(7,763)	(17,743)	(17,725)
State taxes, net of effect of federal taxes	(3,298)	(12,769)	4,480
Change in valuation allowance	76,524	(24,206)	(79,961)
Current expense associated with uncertain tax positions			
Other, net	6,901	5,816	3,754
Provision for (benefit from) income taxes	$ (7)	$ 248	$ (52,476)

Significant components of the Company's deferred tax assets and liabilities that result from carryforwards and temporary differences between the financial statement basis and tax basis of assets and liabilities are summarized as follows:

(In thousands)	December 31, 2020	December 31, 2019
Deferred tax assets:		
Tax loss carryforwards	$ 352,342	$ 294,535
Tax credit carryforwards	3,117	5,297
Investment in partnerships	213,478	190,418
Other	19,377	20,387
Gross deferred tax assets	$ 588,314	$ 510,637
Valuation allowance	(573,995)	(506,316)
Total deferred tax assets	$ 14,319	$ 4,321
Deferred tax liabilities:		
Plant and equipment	1,219	2,063
Convertible Notes	8,845	—
Other	4,218	2,178
Total deferred tax liabilities	$ 14,282	$ 4,241
Net deferred tax asset	$ 37	$ 80

The Company has gross federal NOL carryforwards for regular income tax purposes of $1.3 billion at December 31, 2020. Of these carryforwards, approximately $1.0 billion will expire, if not utilized, in various years through 2038. The future annual usage of these NOLs may be limited under IRC section 382. The remaining carryforwards have no expiration.

During 2018, the Company recorded a benefit from income taxes of $48.8 million related to AMT credits that became refundable between 2019 through 2022 under the Tax Cut and Jobs Act of 2017. As of December 31, 2018, these credits were classified as short and long term receivables based on their expected refund date. A $530.6 million valuation allowance fully offset the net deferred tax assets.

As of December 31, 2019, a $24.2 million benefit was recorded from the release of valuation allowance offsetting federal and state net operating losses used to offset current year taxable income. A $506.3 million valuation allowance fully offset all net deferred tax assets.

On March 27, 2020, the Coronavirus Aid, Relief, and Economic Security Act ("CARES Act") was signed into law. CARES Act provided for an acceleration of the refund timing related to remaining AMT credits as initially established under the Tax Cut and Jobs Act of 2017. During 2020, the Company received all outstanding refunds for AMT credits.

For the year ended December 31, 2020, a $76.5 million tax provision was recorded from the addition of valuation allowance offsetting the federal and state net operating losses generated during the year. This was partially offset by an $8.8 million release of valuation allowance through additional paid-in capital (APIC), as a result of the deferred tax liability recorded through APIC related to Convertible Notes. A $574.0 million valuation allowance fully offsets all net deferred tax assets.

A reconciliation of the beginning and ending amounts of gross unrecognized tax benefits follows:

	(In thousands)
Balance at December 31, 2017	$ 11,383
Additions based on tax positions related to the current year	28,387
Additions for tax positions of prior years	3,228
Reductions for tax positions of prior years	(634)
Reductions as a result of lapses in the statute of limitations	(3,271)
Balance at December 31, 2018	39,093
Additions based on tax positions to the current year	2,980
Reductions for tax positions of prior years	(1,970)
Reductions as a result of lapses in the statute of limitations	(374)
Balance at December 31, 2019	39,729
Additions for tax positions related to the current year	1,583
Additions for tax positions related to the prior year	7,918
Reductions for tax positions of prior years	(732)
Reductions as a result of lapses in the statute of limitations	(382)
Balance at December 31, 2020	$ 48,116

If recognized, the entire amount of the gross unrecognized tax benefits at December 31, 2020 would affect the effective tax rate.

The Company recognizes interest and penalties related to unrecognized tax benefits in income tax expense. The Company had accrued interest and penalties of $2.3 million and $0.8 million at December 31, 2020 and 2019, respectively. In the next 12 months, $0.1 million of gross unrecognized tax benefits are expected to be reduced due to the expiration of the statute of limitations.

16. Asset Retirement Obligations

The Company's asset retirement obligations arise from the Federal Surface Mining Control and Reclamation Act of 1977 and similar state statutes, which require that mine property be restored in accordance with specified standards and an approved reclamation plan. The required reclamation activities to be performed are outlined in the Company's mining permits. These activities include reclaiming the pit and support acreage at surface mines, sealing portals at underground mines, reclaiming refuse areas and slurry ponds and water treatment.

The following table describes the changes to the Company's asset retirement obligation liability:

(In thousands)	Year Ended December 31, 2020	Year Ended December 31, 2019
Balance at beginning of period (including current portion)	$ 252,798	$ 243,417
Accretion expense	19,887	20,548
Obligations of divested operations	(15,455)	(12,185)
Adjustments to the liability from changes in estimates	14,889	11,438
Liabilities settled	(14,355)	(10,420)
Balance at period end	$ 257,764	$ 252,798
Current portion included in accrued expenses	(27,032)	(10,366)
Noncurrent liability	$ 230,732	$ 242,432

As of December 31, 2020, the Company had $552.4 million in surety bonds outstanding and $20.0 million letters of credit to secure reclamation bonding obligations. Additionally, the Company has posted $0.6 million in cash as collateral related to reclamation surety bonds; this amount is recorded within "Noncurrent assets" on the Consolidated Balance Sheets.

17. Fair Value Measurements

The hierarchy of fair value measurements assigns a level to fair value measurements based on the inputs used in the respective valuation techniques. The levels of the hierarchy, as defined below, give the highest priority to unadjusted quoted prices in active markets for identical assets or liabilities and the lowest priority to unobservable inputs.

- Level 1 is defined as observable inputs such as quoted prices in active markets for identical assets. Level 1 assets include available-for-sale equity securities, U.S. Treasury securities, and coal swaps and futures that are submitted for clearing on the New York Mercantile Exchange.

- Level 2 is defined as observable inputs other than Level 1 prices. These include quoted prices for similar assets or liabilities in an active market, quoted prices for identical assets and liabilities in markets that are not active, or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities. The Company's level 2 assets and liabilities include U.S. government agency securities, coal commodity contracts and interest rate swaps with fair values derived from quoted prices in over-the-counter markets or from prices received from direct broker quotes.

- Level 3 is defined as unobservable inputs in which little or no market data exists, therefore requiring an entity to develop its own assumptions. These include the Company's commodity option contracts (coal and heating oil) valued using modeling techniques, such as Black-Scholes, that require the use of inputs, particularly volatility, that are rarely observable. Changes in the unobservable inputs would not have had a significant impact on the reported Level 3 fair values at December 31, 2020 and 2019.

The table below sets forth, by level, the Company's financial assets and liabilities that are recorded at fair value in the accompanying consolidated balance sheet:

	December 31, 2020			
	Total	Level 1	Level 2	Level 3
	(In thousands)			
Assets:				
Investments in marketable securities	$ 96,765	$ 57,224	$ 39,541	$ —
Derivatives	853	21	832	—
Total assets	$ 97,618	$ 57,245	$ 40,373	$ —
Liabilities:				
Derivatives	$ 3,899	$ 7	$ 3,892	$ —

	Fair Value at December 31, 2019			
	Total	Level 1	Level 2	Level 3
	(In thousands)			
Assets:				
Investments in marketable securities	$ 135,667	$ 35,029	$ 100,638	$ —
Derivatives	5,857	5,269	527	61
Total assets	$ 141,524	$ 40,298	$ 101,165	$ 61
Liabilities:				
Derivatives	$ 3,065	$ —	$ 3,065	$ —

The Company's contracts with its counterparties allow for the settlement of contracts in an asset position with contracts in a liability position in the event of default or termination. For classification purposes, the Company records the net fair value of all the positions with these counterparties as a net asset or liability. Each level in the table above displays the underlying contracts according to their classification in the accompanying Consolidated Balance Sheet, based on this counterparty netting.

The following table summarizes the change in the fair values of financial instruments categorized as level 3.

(In thousands)	2020	2019
Balance, beginning of period	$ 61	$ 532
Realized and unrealized (gains) losses recognized in earnings, net	(1,158)	(1,893)
Purchases	1,235	1,597
Issuances	(138)	(208)
Settlements	—	33
Ending balance	$ —	$ 61

Net unrealized losses of $0.2 million were recognized during the year ended December 31, 2020 related to level 3 financial instruments held on December 31, 2020.

Cash and Cash Equivalents

At December 31, 2020 and 2019, the carrying amounts of cash and cash equivalents approximate their fair value.

Fair Value of Long-Term Debt

At December 31, 2020 and 2019, the fair value of the Company's debt, including amounts classified as current, was $533.8 million and $308.0 million, respectively. Fair values are based upon observed prices in an active market, when available, or from valuation models using market information, which fall into Level 2 in the fair value hierarchy.

18. Capital Stock

Dividends

The Company declared and paid cash dividends per share during the periods presented below:

2020:	Dividends per share	Amount (in thousands)
1st quarter	$ 0.50	$ 8,245
2nd quarter	—	—
3rd quarter	—	—
4th quarter	—	—
Total cash dividends declared and paid	$ 0.50	$ 8,245

2019:	Dividends per share	Amount (in thousands)
1st quarter	$ 0.45	$ 7,839
2nd quarter	0.45	7,425
3rd quarter	0.45	7,000
4th quarter	0.45	7,956
Total cash dividends declared and paid	$ 1.80	$ 30,220

Future dividend declarations will be subject to ongoing Board review and authorization will be based on a number of factors, including business and market conditions, the Company's future financial performance and other capital priorities.

Share Repurchase Program

During April 2019, the Board of Directors of Arch Resources, Inc. approved an incremental $250 million to the share repurchase program bringing the total authorization to $1,050 million. The Company did not purchase any shares of its common stock under this program for the year ended December 31, 2020. For the year December 31, 2019, the Company repurchased 2,872,548 shares at an average share price of $84.77 for an aggregate purchase price of approximately $243.5 million.

As of December 31, 2020, the Company had repurchased 10,088,378 shares at an average share price of $82.01 per share for an aggregate purchase price of approximately $827 million since inception of the stock repurchase program, and the remaining authorized amount for stock repurchases under this program is $223 million.

The timing of any future share repurchases, and the ultimate number of shares purchased, will depend on a number of factors, including business and market conditions, the Company's future financial performance and other capital priorities. The shares will be acquired in the open market or through private transactions in accordance with the Securities and Exchange Commission requirements. The share repurchase program has no termination date, but may be amended, suspended or discontinued at any time and does not commit the Company to repurchase shares of its common stock. The actual number and value of the shares to be purchased will depend on the performance of the Company's stock price and other market conditions.

Outstanding Warrants

In October 2016, the Company emerged from Chapter 11 which became known as the "Effective Date". On the Effective Date, the Company entered into a warrant agreement (the "Warrant Agreement") with American Stock Transfer & Trust Company, LLC as warrant agent and, pursuant to the terms of the Plan, issued warrants ("Warrants") to purchase up to an aggregate of 1,914,856 shares of Class A Common Stock, par value $0.01 per share, of Arch Resources (the "Class A Common Stock") to certain holders of claims in the Chapter 11 case arising under the cancelled notes. Each Warrant expires on October 5, 2023, and is initially exercisable for one share of Class A Common Stock at an initial exercise price of $57.00 per share. The Warrants are exercisable by a holder paying the exercise price in cash or on a cashless basis, at the election of the holder. The Warrants contain anti-dilution adjustments for stock splits, reverse stock splits, stock dividends, dividends and distributions of cash, other securities or other property, spin-offs and tender and exchange offers by Arch Resources or its subsidiaries to purchase Class A Common Stock at above-market prices.

If, in connection with a merger, recapitalization, business combination, transfer to a third party of substantially all of Arch Resources's consolidated assets or other transaction that results in a change to the Class A Common Stock (each, a "Transaction"), (i) the Transaction is consummated prior to the fifth anniversary of the Effective Date and the Transaction consideration to holders of Class A Common Stock is 90% or more listed common stock or common stock of a company that provides publicly available financial reporting, and holds management calls regarding the same, no less than quarterly ("Reporting Stock") or (ii) regardless of the consideration, the Transaction is consummated on or after the fifth anniversary of the Effective Date, the Warrants will be assumed by the surviving company and will become exercisable for the consideration that the holders of Class A Common Stock receive in such Transaction; *provided* that if the consideration such holders receive consists solely of cash, then upon the consummation of such Transaction, Arch Resources will pay for each Warrant an amount of cash equal to the greater of (i) (x) the amount of cash payable with respect to the number of shares of Class A Common Stock underlying the Warrant *minus* (y) the exercise price per share then in effect *multiplied by* the number of shares of Class A Common Stock underlying the Warrant and (ii) $0.

If a Transaction is consummated prior to the fifth anniversary of the Effective Date in which the Transaction consideration is less than 90% Reporting Stock, a portion of the Warrants corresponding to the portion of the Transaction consideration that is Reporting Stock will be assumed by the surviving company and will become exercisable for the Reporting Stock consideration that the holders of Class A Common Stock receive in such Transaction, and the portion of the Warrants corresponding to the portion of the Transaction consideration that is not Reporting Stock will, at the option of each holder, (i) be assumed by the surviving company and will become exercisable for the consideration that the holders of Class A Common Stock receive in such Transaction or (ii) be redeemed by Arch Resources for cash in an amount equal to the Black Scholes Payment (as defined in the Warrant Agreement).

During 2020, no warrants were exercised, leaving 1,845,568 warrants outstanding at December 31, 2020.

As provided in ASC 825-20, "Financial Instruments," the warrants are considered equity because they can only be physically settled in Company shares, can be settled in unregistered shares, the Company has adequate authorized shares to settle the outstanding warrants and each warrant is fixed in terms of settlement to one share of Company stock subject only to remote contingency adjustment factors designed to assure the relative value in terms of shares remains fixed.

19. Stock-Based Compensation and Other Incentive Plans

Under the Company's 2016 Omnibus Incentive Plan (the "Incentive Plan"), 3.0 million shares of the Company's common stock were reserved for awards to officers and other selected key management employees of the Company. The Incentive Plan provides the Board of Directors with the flexibility to grant stock options, stock appreciation rights, restricted stock awards, restricted stock units, performance stock or units, phantom stock awards and rights to acquire stock through purchase under a stock purchase program ("Awards"). Awards the Board of Directors elects to pay out in cash do not impact the shares authorized in the Incentive Plan. Shares available for award under the plan were 2.1 million at December 31, 2020.

Restricted Stock Unit Awards

The Company may issue restricted stock and restricted stock units, which require no payment from the employee. Restricted stock cliff-vests at various dates and restricted stock units either vest ratably over or vest at the end of the award's stated vesting period. Compensation expense is based on the fair value on the grant date and is recorded ratably over the vesting period utilizing the straight-line recognition method. The employee receives cash compensation equal to the amount of dividends that would have been paid on the underlying shares.

During 2020, the Company granted both time based awards and performance based awards. The time based awards vest a third each year over a three year period and the performance based awards vest over a three year period. The time based awards' and non-market based performance awards grant date fair value was determined based on the stock price at the date of grant. The market based performance awards grant date fair value was determined using a Black-Scholes Monte Carlo simulation. An historical volatility of 36% was selected for the performance-based award based on comparator companies, and the three-year risk free rate was derived from yields on U.S. Government bonds. Information regarding the restricted stock units activity and weighted average grant-date fair value follows:

	Time Based Awards		Performance Based Awards	
(Shares in thousands)	**Restricted Stock Units**	**Weighted Average Grant-Date Fair Value**	**Restricted Stock Units**	**Weighted Average Grant-Date Fair Value**
Outstanding at January 1, 2020	238	$ 87.50	195	$ 106.44
Granted	212	47.12	186	48.99
Forfeited/Canceled	(8)	69.56	(30)	95.49
Vested	(101)	83.26	(65)	100.99
Unvested outstanding at December 31, 2020	341	$ 64.38	286	$ 71.44

The Company recognized expense related to restricted stock units of $17.4 million, $22.0 million and $17.5 million for the years ended December 31, 2020, 2019 and 2018, respectively. As of December 31, 2020, there was $15.7 million of unrecognized share-based compensation expense which is expected to be recognized over a weighted-average period of approximately two years.

20. Workers' Compensation Expense

The Company is liable under the Federal Mine Safety and Health Act of 1969, as subsequently amended, to provide for pneumoconiosis (occupational disease) benefits to eligible employees, former employees and dependents. The Company currently provides for federal claims principally through a self-insurance program. The Company is also liable under various state workers' compensation statutes for occupational disease benefits. The occupational disease benefit obligation represents the present value of the actuarially computed present and future liabilities for such benefits over the employees' applicable years of service.

In October 2019, the Company filed an application with the Office of Workers' Compensation Programs ("OWCP") within the Department of Labor for reauthorization to self-insure federal black lung benefits. In February 2020, the Company received a reply from the OWCP confirming its status to remain self-insured contingent upon posting additional collateral of $71.1 million within 30 days of receipt of the letter. The Company is currently appealing the ruling from the OWCP and has received an extension to self-insure during the appeal process. The Company is evaluating alternatives to self-insurance, including the purchase of commercial insurance to cover these claims.

In addition, the Company is liable for workers' compensation benefits for traumatic injuries which are calculated using actuarially-based loss rates, loss development factors and discounted based on a risk free rate of 0.84%. Traumatic workers' compensation claims are insured with varying retentions/deductibles, or through state-sponsored workers' compensation programs.

Workers' compensation expense consists of the following components:

	Year Ended December 31, 2020	Year Ended December 31, 2019	Year Ended December 31, 2018
Self-insured occupational disease benefits:			
Service cost	$ 7,564	$ 6,677	$ 7,440
Interest cost(1)	5,115	4,922	4,365
Net amortization(1)	1,189	—	—
Total occupational disease	$ 13,868	$ 11,599	$ 11,805
Traumatic injury claims and assessments	12,922	13,050	5,395
Total workers' compensation expense	$ 26,790	$ 24,649	$ 17,200

(1) In accordance with the adoption of ASU 2017-07, "Compensation-Retirement Benefits (Topic 715): Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost," these costs are recorded within Nonoperating expenses in the Consolidated Statements of Operations on the line item "Non-service related pension and postretirement benefit costs."

The table below reconciles changes in the occupational disease liability for the respective period.

(In thousands)	Year Ended December 31, 2020	Year Ended December 31, 2019
Beginning of period	$ 158,325	$ 118,900
Service cost	7,564	6,677
Interest cost	5,115	4,922
Actuarial loss	19,327	35,993
Benefit and administrative payments	(7,330)	(8,167)
	$ 183,001	$ 158,325

The following table provides the assumptions used to determine the projected occupational disease obligation:

(Percentages)	Year Ended December 31, 2020	Year Ended December 31, 2019
Discount rate	2.48	3.31

The lower discount rate increased obligations by $27.6 million.

Summarized below is information about the amounts recognized in the accompanying Consolidated Balance Sheets for workers' compensation benefits:

(In thousands)	Year Ended December 31, 2020	Year Ended December 31, 2019
Occupational disease costs	$ 183,001	$ 158,325
Traumatic and other workers' compensation claims	76,953	73,393
Total obligations	259,954	231,718
Less amount included in accrued expenses	15,259	16,119
Noncurrent obligations	$ 244,695	$ 215,599

As of December 31, 2020, the Company had $122.9 million in surety bonds, letters of credit and cash outstanding to secure workers' compensation obligations.

As of December 31, 2020, the Company's recorded liabilities include $14.3 million of obligations that are reimbursable under various insurance policies purchased by the company. These insurance receivables are recorded in the balance sheet line items "Other receivables" and "Other noncurrent assets" for $0.5 million and $13.8 million, respectively.

21. Employee Benefit Plans

Defined Benefit Pension and Other Postretirement Benefit Plans

The Company provides funded and unfunded non-contributory defined benefit pension plans covering certain of its salaried and hourly employees. Benefits are generally based on the employee's age and compensation. The Company funds the plans in an amount not less than the minimum statutory funding requirements or more than the maximum amount that can be deducted for U.S. federal income tax purposes.

The Company also currently provides certain postretirement medical and life insurance coverage for eligible employees. Generally, covered employees who terminate employment after meeting eligibility requirements are eligible for postretirement coverage for themselves and their dependents. The Company offers a subsidy to eligible retirees based on age and years of service at retirement and contain other cost-sharing features such as deductibles and coinsurance. The Company's current funding policy is to fund the cost of all postretirement benefits as they are paid.

On January 1, 2015, the Company's cash balance and excess plans were amended to freeze new service credits for any new or active employees.

Obligations and Funded Status.

Summaries of the changes in the benefit obligations, plan assets and funded status of the plans are as follows:

	Pension Benefits		Other Postretirement Benefits	
(In thousands)	Year Ended December 31, 2020	Year Ended December 31, 2019	Year Ended December 31, 2020	Year Ended December 31, 2019
CHANGE IN BENEFIT OBLIGATIONS				
Benefit obligations at beginning of period	$ 217,548	$ 228,873	$ 87,867	$ 88,563
Service cost	—	—	419	480
Interest cost	5,498	8,141	2,392	3,505
Settlement gain	(896)	(1,326)	—	—
Curtailments	—	—	284	30
Benefits paid	(38,221)	(34,918)	(6,507)	(7,304)
Other-primarily actuarial loss	18,338	16,778	16,443	2,593
Benefit obligations at end of period	$ 202,267	$ 217,548	$ 100,898	$ 87,867
CHANGE IN PLAN ASSETS				
Value of plan assets at beginning of period	$ 211,802	$ 212,506	$ —	$ —
Actual return on plan assets	23,055	33,998	—	—
Employer contributions	2,612	216	6,507	7,304
Benefits paid	(38,221)	(34,918)	(6,507)	(7,304)
Value of plan assets at end of period	$ 199,248	$ 211,802	$ —	$ —
Accrued benefit cost	$ (3,019)	$ (5,746)	$ (100,898)	$ (87,867)
ITEMS NOT YET RECOGNIZED AS A COMPONENT OF NET PERIODIC BENEFIT COST				
Prior service credit	$ 880	$ 992	$ —	$ —
Accumulated gain	10,790	14,537	2,226	20,333
	$ 11,670	$ 15,529	2,226	$ 20,333
BALANCE SHEET AMOUNTS				
Current liability	$ (140)	$ (270)	$ (6,510)	$ (7,300)
Noncurrent liability	(2,879)	(5,476)	(94,388)	(80,567)
	$ (3,019)	$ (5,746)	$ (100,898)	$ (87,867)

Pension Benefits

The accumulated benefit obligation for all pension plans was $202.3 million and $217.5 million at December 31, 2020 and 2019, respectively.

The weighted-average interest credit rate for the cash balance pension plan was 4.25% at December 31, 2020 and 2019.

Significant changes affecting the benefit obligations included the lower discount rate which increased plan obligations by $19.0 million.

Other Postretirement Benefits

Significant gains and losses affecting the benefit obligations included:

- the lower discount rate increased plan obligations by $8.4 million;
- the health care cost trend assumption update increased plan obligations by $6.0 million; and
- the claims cost assumptions were updated increasing plan obligations by $5.1 million.

Components of Net Periodic Benefit Cost. The following table details the components of pension and postretirement benefit costs (credits):

	Pension Benefits			Other Postretirement Benefits		
	Year Ended December 31, 2020	Year Ended December 31, 2019	Year Ended December 31, 2018	Year Ended December 31, 2020	Year Ended December 31, 2019	Year Ended December 31, 2018
(In thousands)						
Service cost	$ —	$ —	$ —	$ 419	$ 480	$ 558
Interest cost[1]	5,498	8,141	9,269	2,392	3,505	3,674
Curtailments	—	—	—	—	—	—
Settlements[1]	(896)	(1,326)	(2,332)	—	—	—
Expected return on plan assets[1]	(8,283)	(10,555)	(12,083)	—	—	—
Amortization of prior service credits[1]	(112)	(24)	—	—	—	—
Amortization of other actuarial losses (gains) [1]	—	(11)	—	(1,379)	(2,974)	—
Net benefit cost (credit)	$ (3,793)	$ (3,775)	$ (5,146)	$ 1,432	$ 1,011	$ 4,232

(1) In accordance with the adoption of ASU 2017-07, "Compensation-Retirement Benefits (Topic 715): Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost," these costs are recorded within Nonoperating expenses in the Consolidated Statements of Operations on the line item "Non-service related pension and postretirement benefit costs."

The differences generated from changes in assumed discount rates and returns on plan assets are amortized into earnings over the remaining service attribution periods of the employees using the corridor method.

Assumptions. The following table provides the assumptions used to determine the actuarial present value of projected benefit obligations for the respective periods.

	Year Ended December 31, 2020	Year Ended December 31, 2019
(Percentages)		
Pension Benefits		
Discount rate	2.19/1.96	3.09/2.90
Other Postretirement Benefits		
Discount rate	2.17	3.09

The following table provides the weighted average assumptions used to determine net periodic benefit cost for the respective periods.

(Percentages)	Year Ended December 31, 2020	Year Ended December 31, 2019	Year Ended December 31, 2018
Pension Benefits			
Discount rate	2.72	3.65	3.82
Expected return on plan assets	4.65	5.10	5.30
Other Postretirement Benefits			
Discount rate	3.09	4.12	3.49

The discount rates used in 2020, 2019 and 2018 were reevaluated during the year for settlements and curtailments. The obligations are remeasured at an updated discount rate that impacts the benefit cost recognized subsequent to the remeasurement.

The Company establishes the expected long-term rate of return at the beginning of each fiscal year based upon historical returns and projected returns on the underlying mix of invested assets. The Company utilizes modern portfolio theory modeling techniques in the development of its return assumptions. This technique projects rates of return that can be generated through various asset allocations that lie within the risk tolerance set forth by members of the Company's pension committee (the "Pension Committee"). The risk assessment provides a link between a pension plan's risk capacity, management's willingness to accept investment risk and the asset allocation process, which ultimately leads to the return generated by the invested assets.

The health care cost trend rate assumed for 2021 is 5.7% and is expected to reach an ultimate trend rate of 4.5% by 2038.

Plan Assets

The Pension Committee is responsible for overseeing the investment of pension plan assets. The Pension Committee is responsible for determining and monitoring appropriate asset allocations and for selecting or replacing investment managers, trustees and custodians. The pension plan's current investment targets are 27% equity and 73% fixed income securities. The Pension Committee reviews the actual asset allocation in light of these targets on a periodic basis and rebalances among investments as necessary. The Pension Committee evaluates the performance of investment managers as compared to the performance of specified benchmarks and peers and monitors the investment managers to ensure adherence to their stated investment style and to the plan's investment guidelines.

The Company's pension plan assets at December 31, 2020 and 2019, respectively, are categorized below according to the fair value hierarchy as defined in Note 17, "Fair Value Measurements":

	Total		Level 1		Level 2		Level 3	
	2020	2019	2020	2019	2020	2019	2020	2019
	(In thousands)							
Equity Securities:[(A)]								
U.S. small-cap	$ 2,287	$ 2,319	$ 2,287	$ 2,319	$ —	$ —	$ —	$ —
U.S. mid-cap	2,890	1,397	2,890	1,397	—	—	—	—
Fixed income securities:	—	—						
U.S. government securities[(B)]	31,850	50,610	18,705	35,751	13,145	14,859	—	—
Non-U.S. government securities[(C)]	1,612	2,242	—	—	1,612	2,242	—	—
Corporate fixed income[(D)]	98,357	108,023	—	—	98,357	108,023	—	—
State and local government securities[(E)]	2,962	2,653	—	—	2,962	2,653	—	—
Other investments[(G)]	3,519	—	—	—	3,519	—	—	—
Total	$ 143,477	$ 167,244	$ 23,882	$ 39,467	$ 119,595	$ 127,777	$ —	$ —
Assets at net asset value[(F)]	55,771	53,418						
Other liabilities[(H)]	—	(8,860)						
	$ 199,248	$ 211,802						

(A) Equity securities includes investments in 1) common stock, 2) preferred stock and 3) mutual funds. Investments in common and preferred stocks are valued using quoted market prices multiplied by the number of shares owned. Investments in mutual funds are valued at the net asset value per share multiplied by the number of shares held as of the measurement date and are traded on listed exchanges.

(B) U.S. government securities includes agency and treasury debt. These investments are valued using dealer quotes in an active market.

(C) Non-U.S. government securities includes debt securities issued by foreign governments and are valued utilizing a price spread basis valuation technique with observable sources from investment dealers and research vendors.

(D) Corporate fixed income is primarily comprised of corporate bonds and certain corporate asset-backed securities that are denominated in the U.S. dollar and are investment-grade securities. These investments are valued using dealer quotes.

(E) State and local government securities include different U.S. state and local municipal bonds and asset backed securities, these investments are valued utilizing a market approach that includes various valuation techniques and sources such as value generation models, broker quotes, benchmark yields and securities, reported trades, issuer trades and/or other applicable data.

(F) Investments that are measured at fair value using the net asset value per share practical expedient have not been classified in the fair value hierarchy in accordance with Accounting Standards Update 2015-07. These investments are primarily mutual funds that are highly liquid with no restrictions on ability to redeem the funds into cash.

(G) Other investments include cash, forward contracts, derivative instruments, credit default swaps, interest rate swaps and mutual funds. Investments in interest rate swaps are valued utilizing a market approach that includes various valuation techniques and sources such as value generation models, broker quotes in active and non-active markets, benchmark yields and securities, reported trades, issuer trades and/or other applicable data. Forward contracts and derivative instruments are valued at their exchange listed price or broker quote in an active market. The mutual funds are valued at the net asset value per share multiplied by the number of shares held as of the measurement date and are traded on listed exchanges.

(H) Net payable amount due for pending securities purchased and sold due to broker/dealer.

Cash Flows. The Company expects to make no contributions to the pension plans in 2021.

The following represents expected future benefit payments from the plan:

	Pension Benefits	Other Postretirement Benefits
	(In thousands)	
2021	$ 13,143	$ 12,514
2022	13,902	12,521
2023	12,605	12,351
2024	12,221	12,237
2025	13,351	12,131
Next 5 years	52,093	60,057
	$ 117,315	$ 121,811

Other Plans

The Company sponsors savings plans which were established to assist eligible employees in providing for their future retirement needs. The Company's expense, representing its contributions to the plans, was $17.1 million, $17.5 million, and $17.9 million for the years ended December 31, 2020, 2019, and 2018 respectively.

22. Earnings Per Common Share

The Company computes basic net income (loss) per share using the weighted average number of common shares outstanding during the period. Diluted net income (loss) per share is computed using the weighted average number of common shares and the effect of potentially dilutive securities outstanding during the period. Potentially dilutive securities may consist of warrants, restricted stock units or other contingently issuable shares and convertible debt. The dilutive effect of outstanding warrants, restricted stock units and convertible debt is reflected in diluted earnings per share by application of the treasury stock method. The weighted average share impact of warrants, restricted stock units and convertible debt that were excluded from the calculation of diluted shares due to the Company incurring a net loss for the twelve months ending December 31, 2020 were 215,000 shares.

The following table provides the basis for basic and diluted EPS by reconciling the numerators and denominators of the computations:

(In Thousands)	Year Ended December 31, 2020	Year Ended December 31, 2019	Year Ended December 31, 2018
Weighted average shares outstanding:			
Basic weighted average shares outstanding	15,153	16,218	19,663
Effect of dilutive securities	—	1,080	966
Diluted weighted average shares outstanding	15,153	17,298	20,629

23. Leases

The Company has operating and finance leases for mining equipment, office equipment and office space with remaining lease terms ranging from less than one year to approximately seven years. Some of these leases include both lease and non-lease components which are accounted for as a single lease component as the Company has elected the practical expedient to combine these components for all leases. As most of the leases do not provide an implicit rate, the Company calculated the Right-of-use ("ROU") assets and lease liabilities using its' secured incremental borrowing rate at the lease commencement date.

Information related to leases was as follows:

	Year Ended December 31, 2020	2019
	(In thousands)	
Operating lease information:		
Operating lease cost	$ 3,620	$ 3,921
Operating cash flows from operating leases	3,610	3,842
Weighted average remaining lease term in years	5.99	5.92
Weighted average discount rate	5.5 %	5.5 %
Financing lease information:		
Financing lease cost	$ 1,179	$ —
Operating cash flows from financing leases	909	—
Weighted average remaining lease term in years	4.25	—
Weighted average discount rate	6.4 %	—%

Future minimum lease payments under non-cancellable leases as of December 31, 2020 were as follows:

Year	Operating Leases	Finance Leases
	(In thousands)	
2021	$ 3,367	$ 1,210
2022	3,317	1,210
2023	3,285	1,210
2024	3,200	1,210
2025	3,185	2,112
Thereafter	4,614	—
Total minimum lease payments	$ 20,968	$ 6,952
Less imputed interest	(3,236)	(1,078)
Total lease liabilities	$ 17,732	$ 5,874
As reflected on balance sheet:		
Accrued expenses and other current liabilities	$ 2,454	$ 860
Other noncurrent liabilities	15,278	5,014
Total lease liability	$ 17,732	$ 5,874

At December 31, 2020, the Company had a $17.1 million ROU operating lease asset and a $5.5 million finance lease asset recorded within "Other noncurrent assets" on the Consolidated Balance Sheet.

Rental expense, including amounts related to these operating leases and other shorter-term arrangements, amounted to $8.6 million in 2020, $12.0 million in 2019 and $12.4 million in 2018.

Royalties are paid to lessors either as a fixed price per ton or as a percentage of the gross selling price of the mined coal. Royalties under the majority of the Company's significant leases are paid on the percentage of gross selling price basis. Royalty expense, including production royalties, was $103.7 million in 2020, $149.5 million in 2019, and $166.1 million in 2018.

As of December 31, 2020, certain of the Company's lease obligations were secured by outstanding surety bonds totaling $31.7 million.

24. Risk Concentrations

Credit Risk and Major Customers

The Company has a formal written credit policy that establishes procedures to determine creditworthiness and credit limits for trade customers and counterparties in the over-the-counter coal market. Generally, credit is extended based on an evaluation of the customer's financial condition. Collateral is not generally required, unless credit cannot be established. Credit losses are provided for in the financial statements and historically have been minimal.

The Company markets its thermal coal principally to domestic and foreign electric utilities and its metallurgical coal to domestic and foreign steel producers. As of December 31, 2020 and 2019, accounts receivable from sales of thermal coal of $41.7 million and $69.3 million, respectively, represented 38% and 37% of total trade receivables at each date. As of December 31, 2020 and 2019, accounts receivable from sales of metallurgical-quality coal of $69.1 million and $98.8 million, respectively, represented 62% and 59% of total trade receivables at each date.

The Company uses shipping destination as the basis for attributing revenue to individual countries. Because title may transfer on brokered transactions at a point that does not reflect the end usage point, they are reflected as exports, and attributed to an end delivery point if that knowledge is known to the Company. The Company's foreign revenues by geographical location as follows:

(In thousands)	Year Ended December 31, 2020	Year Ended December 31, 2019	Year Ended December 31, 2018
Europe	$ 289,176	$ 537,117	$ 559,165
Asia	138,086	322,029	452,711
Central and South America	56,905	82,476	79,085
Africa	12,763	18,698	17,567
Brokered Sales	—	—	2,372
Total	$ 496,930	$ 960,320	$ 1,110,900

The Company is committed under long-term contracts to supply thermal coal that meets certain quality requirements at specified prices. These prices are generally adjusted based on market indices. Quantities sold under some of these contracts may vary from year to year within certain limits at the option of the customer based on their requirements. The Company sold approximately 63.3 million tons of coal in 2020. Approximately 67% of this tonnage (representing approximately 50% of the Company's revenues) was sold under long-term contracts (contracts having a term of greater than one year). Long-term contracts range in remaining life from one to three years.

Third-party sources of coal

The Company purchases coal from third parties that it sells to customers. Factors beyond the Company's control could affect the availability of coal purchased by the Company. Disruptions in the quantities of coal purchased by the Company could impair its ability to fill customer orders or require it to purchase coal from other sources at prevailing market prices in order to satisfy those orders.

Transportation

The Company depends upon barge, rail, truck and belt transportation systems to deliver coal to its customers. Disruption of these transportation services due to weather-related problems, mechanical difficulties, strikes, lockouts, bottlenecks, and other events could temporarily impair the Company's ability to supply coal to its customers. In the past, disruptions in rail service have resulted in missed shipments and production interruptions.

25. Revenue Recognition

ASC 606-10-50-5 requires that entities disclose disaggregated revenue information in categories (such as type of good or service, geography, market, type of contract, etc.) that depict how the nature, amount, timing, and uncertainty of revenue and cash flow are affected by economic factors. ASC 606-10-55-89 explains that the extent to which an entity's revenue is disaggregated depends on the facts and circumstances that pertain to the entity's contracts with customers and that some entities may need to use more than one type of category to meet the objective for disaggregating revenue.

In general, the Company's business segmentation is aligned according to the nature and economic characteristics of its coal and customer relationships and provides meaningful disaggregation of each segment's results. The company has further disaggregated revenue between North America and Seaborne revenues which depicts the pricing and contract differences between the two. North America revenue is characterized by contracts with a term of one year or longer and typically the pricing is fixed; whereas Seaborne revenue generally is derived by spot or short term contracts with an indexed based pricing mechanism.

	PRB	MET	Other Thermal	Corporate, Other and Eliminations	Consolidated
			(in thousands)		
Year Ended December 31, 2020					
North America revenues	$ 659,807	$ 173,508	$ 112,923	$ 24,424	$ 970,662
Seaborne revenues	2,328	468,028	26,574	—	496,930
Total revenues	$ 662,135	$ 641,536	$ 139,497	$ 24,424	$ 1,467,592
Year Ended December 31, 2019					
North America revenues	$ 915,750	$ 217,381	$ 190,051	$ 10,850	$ 1,334,032
Seaborne revenues	—	773,169	187,151	—	960,320
Total revenues	$ 915,750	$ 990,550	$ 377,202	$ 10,850	$ 2,294,352
Year Ended December 31, 2018					
North America revenues	$ 971,337	$ 160,969	$ 195,547	$ 13,034	$ 1,340,887
Seaborne revenues	1,911	875,652	233,337	—	1,110,900
Total revenues	$ 973,248	$ 1,036,621	$ 428,884	$ 13,034	$ 2,451,787

As of December 31, 2020, the Company has outstanding performance obligations for approximately 56.8 million tons of coal for 2021 representing 49.7 million tons of fixed price contracts and 7.1 million tons of variable price contracts. Additionally, the Company has outstanding performance obligations of approximately 43.0 million tons in periods beyond 2021 comprised of 42.2 million tons of fixed price contracts and 0.8 million tons of variable price contracts.

26. Commitments and Contingencies

The Company accrues for cost related to contingencies when a loss is probable and the amount is reasonably determinable. Disclosure of contingencies is included in the financial statements when it is at least reasonably possible that a material loss or an additional material loss in excess of amounts already accrued may be incurred.

The Company is a party to numerous claims and lawsuits with respect to various matters. As of December 31, 2020 and 2019, the Company had accrued $0.1 million and $0.2 million, respectively, for all legal matters, all classified as current. The ultimate resolution of any such legal matter could result in outcomes which may be materially different from amounts the Company has accrued for such matters. The Company believes it has recorded adequate reserves for these matters.

The Company has unconditional purchase obligations relating to purchases of coal, materials and supplies and capital commitments, other than reserve acquisitions, and is also a party to transportation capacity commitments. The future commitments under these agreements total $100.6 million in 2021, and is immaterial thereafter.

27. Segment Information

The Company's reportable business segments are based on two distinct lines of business, metallurgical coal and thermal coal, and may include a number of mine complexes. The Company manages its coal sales by market, not by individual mining complex. Geology, coal transportation routes to customers, and regulatory environments also have a significant impact on the Company's marketing and operations management. Mining operations are evaluated based on Adjusted EBITDA, per-ton cash operating costs (defined as including all mining costs except depreciation, depletion, amortization, accretion on asset retirement obligations, and pass-through transportation expenses divided by segment tons sold), and on other non-financial measures, such as safety and environmental performance. Adjusted EBITDA is not a measure of financial performance in accordance with generally accepted accounting principles, and items excluded from Adjusted EBITDA are significant in understanding and assessing our financial condition. Therefore, Adjusted EBITDA should not be considered in isolation, nor as an alternative to net income (loss), income (loss) from operations, cash flows from operations or as a measure of our profitability, liquidity or performance under generally accepted accounting principles. The Company uses Adjusted EBITDA to measure the operating performance of its segments and allocate resources to the segments. Furthermore, analogous measures are used by industry analysts and investors to evaluate the Company's operating performance. Investors should be aware that the Company's presentation of Adjusted EBITDA may not be comparable to similarly titled measures used by other companies. The Company reports its results of operations primarily through the following reportable segments: Powder River Basin (PRB) segment containing the Company's primary thermal operations in Wyoming; the Metallurgical (MET) segment, containing the Company's metallurgical operations in West Virginia and the Other Thermal segment containing the Company's supplementary thermal operations in Colorado and Illinois. Periods presented in this note have been recast for comparability.

On December 31, 2020, the Company sold its Viper operation, which had been part of its Other Thermal segment. Viper's results for the full year of 2020 are included in the Company's full year 2020 results, and in all preceding periods' results presented herein. For further information on the sale of Viper to Knight Hawk Holdings, LLC, please see Note 4, "Divestitures" to the Consolidated Financial Statements.

On December 13, 2019, the Company closed on its definitive agreement to sell Coal-Mac LLC, an operating mine complex within the Company's other thermal coal segment. Coal-Mac is included in the Other Thermal segment results below up to the date of divestiture. For further information on the divestiture, please see Note 4, "Divestitures" to the Consolidated Financial Statements.

Operating segment results for the year ended December 31, 2020, the year ended December 31, 2019, and the year ended December 31, 2018 are presented below. The Company measures its segments based on "adjusted earnings before interest, taxes, depreciation, depletion, amortization, and accretion on asset retirements obligations (Adjusted EBITDA)." Adjusted EBITDA does not reflect mine closure or impairment costs, since those are not reflected in the operating income reviewed by management. The Corporate, Other and Eliminations grouping includes these charges, as well as the change in fair value of coal derivatives and coal trading activities, net; corporate overhead; land management activities; other support functions; and the elimination of intercompany transactions.

(In thousands)	PRB	MET	Other Thermal	Corporate, Other and Eliminations	Consolidated
Year Ended December 31, 2020					
Revenues	$ 662,135	$ 641,536	$ 139,497	$ 24,424	$ 1,467,592
Adjusted EBITDA	50,246	91,322	(16,211)	(101,614)	23,743
Depreciation, depletion and amortization	21,375	91,202	6,976	1,999	121,552
Accretion on asset retirement obligation	13,979	1,943	1,389	2,576	19,887
Total assets	179,401	811,605	16,935	714,531	1,722,472
Capital expenditures	4,688	269,273	6,031	5,829	285,821
Year Ended December 31, 2019					
Revenues	$ 915,750	$ 990,550	$ 377,202	$ 10,850	$ 2,294,352
Adjusted EBITDA	110,528	305,363	41,495	(94,219)	363,167
Depreciation, depletion and amortization	20,810	74,211	14,414	2,186	111,621
Accretion on asset retirement obligation	12,542	2,123	2,413	3,470	20,548
Total assets	256,460	625,134	105,411	880,751	1,867,756
Capital expenditures	29,420	211,718	20,088	5,130	266,356
Year Ended December 31, 2018					
Revenues	$ 973,248	$ 1,036,621	$ 428,884	$ 13,034	$ 2,451,787
Adjusted EBITDA	126,525	349,524	68,620	(106,891)	437,778
Depreciation, depletion and amortization	33,120	69,560	14,699	13,291	130,670
Accretion on asset retirement obligation	19,541	1,874	2,261	4,294	27,970
Total assets	278,314	545,061	125,333	938,352	1,887,060
Capital expenditures	12,140	64,307	11,999	6,826	95,272

A reconciliation of segment Adjusted EBITDA to consolidated income (loss) from continuing operations before income taxes follows:

(In thousands)	Year Ended December 31, 2020	Year Ended December 31, 2019	Year Ended December 31, 2018
Net income (loss)	$ (344,615)	$ 233,799	$ 312,577
Provision for (benefit from) income taxes	(7)	248	(52,476)
Interest expense, net	10,624	6,794	13,689
Depreciation, depletion and amortization	121,552	111,621	130,670
Accretion on asset retirement obligations	19,887	20,548	27,970
Costs related to proposed joint venture with Peabody Energy	16,087	13,816	—
Asset impairment and restructuring	221,380	—	—
Gain on property insurance recovery related to Mountain Laurel longwall	(23,518)	—	—
(Gain) loss on divestitures	(1,505)	13,312	—
Preference Rights Lease Application settlement income	—	(39,000)	—
Net loss resulting from early retirement of debt and debt restructuring	—	—	485
Non-service related pension and postretirement benefit costs	3,884	2,053	3,202
Reorganization items, net	(26)	(24)	1,661
Adjusted EBITDA	$ 23,743	$ 363,167	$ 437,778
EBITDA from idled or otherwise disposed operations	15,858	12,926	2,492
Selling, general and administrative expenses	82,397	95,781	100,300
Other	3,359	(14,488)	4,099
Segment Adjusted EBITDA from coal operations	$ 125,357	$ 457,386	$ 544,669

Schedule II

Arch Resources, Inc. and Subsidiaries

Valuation and Qualifying Accounts

	Balance at Beginning of Year	Additions (Reductions) Charged to Costs and Expenses	Charged to Other Accounts	Deductions [a]	Balance at End of Year
			(In thousands)		
Year Ended December 31, 2020					
Reserves deducted from asset accounts:					
Accounts receivable and other receivables	$ 10,636	—	—	—	$ 10,636
Current assets — supplies and inventory	2,216	477	(137)[b]	1,982	574
Deferred income taxes	506,316	76,524	(8,845)[c]	—	573,995
Year Ended December 31, 2019					
Reserves deducted from asset accounts:					
Accounts receivable and other receivables	$ —	—	10,636 [b]	—	$ 10,636
Current assets — supplies and inventory	648	1,737	(35)[b]	134	2,216
Deferred income taxes	530,612	(24,296)	—	—	506,316
Year Ended December 31, 2018					
Reserves deducted from asset accounts:					
Accounts receivable and other receivables	$ —	$ —	$ —	$ —	$ —
Current assets — supplies and inventory	261	1,247	—	860	648
Deferred income taxes	610,571	(79,959)	—	—	530,612

(a) Reserves utilized, unless otherwise indicated.
(b) Disposition of subsidiaries
(c) Recorded through equity

As of March 15, 2021

BOARD OF DIRECTORS

Patrick J. Bartels, Jr.[(b)(c)]
Managing Member, Redan Advisors LLC and former Managing Principal, Monarch Alternative Capital LP

James N. Chapman[(b*)(c)]
Lead Independent Director, Arch Resources, Inc. and Non-Executive Advisory Director, SkyWorks Capital, LLC

John W. Eaves
Executive Chairman, Arch Resources, Inc.

Sherman K. Edmiston III[(a)]
Managing Member, HI CapM Advisors, Ltd. and former Managing Director, Zolfo Cooper LLC

Robert B. Hamill[(a)]
Former Managing Director, Jefferies and Company Inc., Lehman Brothers Inc. and J.P. Morgan Securities Inc.

Holly Keller Koeppel[(a)]
Former Managing Partner and Head, Gateway Infrastructure Investments LP and former Partner and Global Co-Head, Citi Infrastructure Investors

Patrick A. Kriegshauser[(a*)]
Executive Vice President, Chief Financial Officer and Director, Sachs Electric Company and ArchKey Holdings Inc.

Paul A. Lang
President and Chief Executive Officer, Arch Resources, Inc.

Richard A. Navarre[(b)(c*)]
President and Chief Executive Officer, Covia Corporation and former President and Chief Commercial Officer, Peabody Energy Corporation

(a) Audit Committee
(b) Nominating & Corporate Governance Committee
(c) Personnel & Compensation Committee
* Committee Chair

SENIOR OFFICERS

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Executive Chairman

Paul A. Lang
President and Chief Executive Officer

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Senior Vice President and Chief Commercial Officer

John T. Drexler
Senior Vice President and Chief Operating Officer

Matthew C. Giljum
Senior Vice President and Chief Financial Officer

Rosemary L. Klein
Senior Vice President - Law, General Counsel and Secretary

John A. Ziegler, Jr.
Senior Vice President and Chief Administrative Officer

Deck S. Slone
Senior Vice President, Strategy and Public Policy

Common Stock
Our common stock is listed and traded on the New York Stock Exchange under the ticker symbol ARCH.

Code of Business Conduct
We operate under a code of business conduct that applies to all of our employees and our board of directors. The code is published under the "Investors" section at www.archrsc.com.

Corporate Governance Guidelines
Our board of directors has adopted corporate governance guidelines that address various matters pertaining to director selection and duties. The guidelines are published under the "Investors" section at www.archrsc.com.

Independent Public Accounting Firm
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Questions regarding shareholder records, stock transfers, stock certificates, or other stock inquiries should be directed to:
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