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## OUR ENVIRONMENTAL APPROACH

Our environmental approach is two-fold with a focus on responsible coal mining and advanced coal use.

### Responsible Coal Mining

We begin with a deep appreciation and understanding for the land and communities where we operate. Before any mining activity starts, we complete comprehensive baseline studies of local ecosystems, geology surface water, groundwater, land uses and other relevant site-specific resources to support detailed assessments, which inform our mine plans and mitigation measures to reduce potential impacts from our operations.

At our sites, we attempt to maximize resource recovery and conserve energy, which brings about the co-benefits of reducing costs and minimizing our environmental footprint through lower emissions. We also work to reduce our water use and waste and apply recycling programs. In addition, we are committed to progressively restoring, monitoring and maintaining areas disturbed by mining to ensure that post-land use, landform and environmental outcomes are achieved.

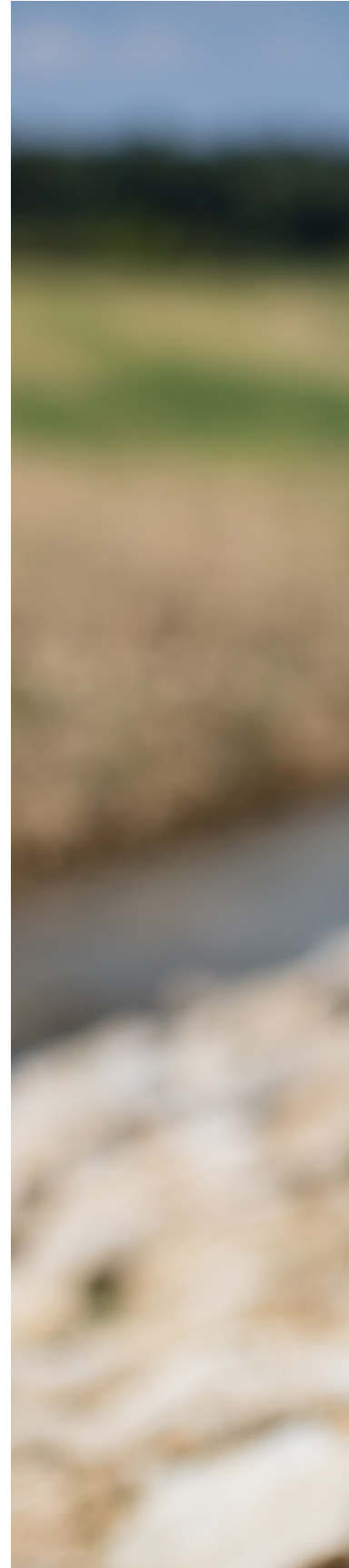
Our governing principles for all sites are outlined in our [Environmental Policy](#), which applies to employees, contractors, visitors and vendors at all our sites.

### Advanced Coal Use

Our commitment to the environment does not end with our operations. Society has a growing need for energy and a desire to meet climate goals, and we believe both goals — not by moving away from coal — but by embracing technology.

As outlined in our [Statement on Climate Change](#), Peabody recognizes that climate change is occurring and that human activity, including the use of fossil fuels, contributes to greenhouse gas emissions. We also recognize that coal is essential to affordable, reliable energy and will continue to play a significant role in the global energy mix for the foreseeable future. Peabody views technology as vital to advancing global climate change solutions, and the company supports advanced coal technologies to drive continuous improvement toward the ultimate goal of near-zero emissions from coal.

Peabody's continuing actions to address climate change include participation in focused research, projects and partnerships to advance low-emissions technologies. In addition, we engage with governments, academia, communities and other stakeholders to support constructive dialogue and encourage a true all-of-the-above energy strategy that recognizes the benefits and limitations of each fuel to meet society's growing demand.





*Reclamation at former  
Somerville Central Mine*

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## Land Restoration

Peabody views land restoration as a vital part of the mining life cycle and aims to commence restoration of the landscape as soon as land becomes available to create a safe, stable and sustainable landform that benefits generations to follow. Reclamation is undertaken on a progressive basis with consultation between the environmental, technical services and production teams. In any given year, land reclamation activities can vary due to production needs, mine development, weather conditions, or other unforeseen factors.

In 2019, Peabody continued to advance restoration activities, reclaiming nearly one acre of land for every acre disturbed. In total, we restored 2,984 acres of mined land, which will now serve as wildlife habitat, rangeland, forests, prime farmland, grazing land and wetlands. In addition, the company constructed approximately 18 miles of streams using natural design techniques and planted some 411,000 trees.

Over the past three years, Peabody has restored more than 1.2 acres of mined land for every acre disturbed during mining. Successful land restoration is also a recurring metric within Peabody's executive compensation program.

## Land and Bond Release

Peabody remains focused on restoring the land and providing assurance for future obligations. The company fully accounts for the projected financial impact of our final coal mine reclamation requirements through our asset retirement obligation (ARO) on our balance sheet in accordance with U.S. Generally Accepted Accounting Principles. As of December 2019, Peabody's ARO liability was \$752 million.

In the U.S. and Australia, Peabody provides third-party bonding facilities to meet reclamation liabilities. Reclamation liabilities are calculated based on each mine's maximum disturbance area for a specified period. Peabody practices progressive reclamation and continues to emphasize submittal of phased releases as early as possible. For instance, in the U.S., Peabody has approximately 20,000 acres approved or pending approval for final phase bond release, including the first final phase bond releases at our

sites in the Powder River Basin. These final releases verify significant reclamation success at both active and closed mines where standards were met or far exceeded in many cases.

In addition to funding every dollar of our coal mine restoration, Peabody pays tens of millions of dollars each year to the Abandoned Mine Land (AML) Reclamation Program for the reclamation of lands mined before the U.S. Surface Mining and Control Reclamation Act of 1977. As the largest U.S. coal producer, we contribute more annually to the AML fund than any other coal producer. Over the past three years, Peabody has recognized expense related to AML fees of nearly \$120 million.

## Environmental Accomplishments

Peabody's leading environmental and land reclamation practices have been awarded more than 130 honors over the past two decades. In 2019, two of Peabody's closed mines – Kayenta and Vermillion Grove – received prestigious National Awards from the U.S. Office of Surface Mining Reclamation and Enforcement for reclamation work completed at the sites.

Recognition also extended to our workforce, with Peabody Environmental Engineer Derek Launius of the Cottage Grove Mine named Reclamationist of the Year by the American Society of Mining and Reclamation for his accomplishments in the evaluation and application of technology used in land restoration. In addition, Peabody's Monty Parke was recognized by the Indiana Department of Natural Resources – Division of Reclamation for his reclamation efforts at several Indiana mines.



### Target #1

Achieve a 1:1 average ratio of reclaimed graded acres versus acres disturbed over a three-year period.



*North Antelope Rochelle Mine*

## **SUCCESSFUL VEGETATION ANALYSIS TO RESULT IN FINAL U.S. BOND RELEASE**

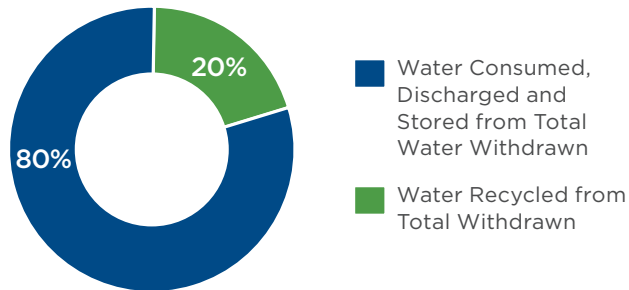
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Bond release in the U.S. is a multi-phased process with verification criteria and performance standards required at each step. The process includes regrading of the mined area, establishing vegetation, and demonstrating statistical stability of that vegetation over time. In fact, final bond approval is often only granted after revegetation has been retained for at least 10 years after completion of post-mining seeding.

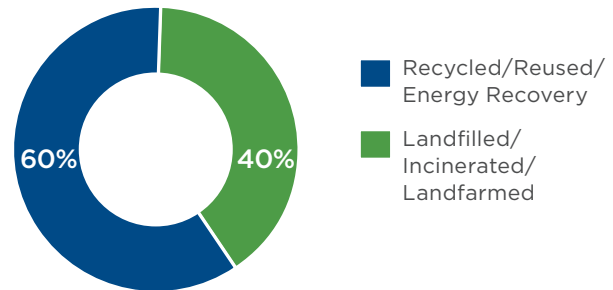
At Peabody's North Antelope Rochelle Mine in Wyoming, nearly 3,800 acres – equivalent to approximately six square miles – of former mined land is now eligible for final bond release following successful analysis of vegetation seeded over several decades. The approved area includes an estimated 5.7 million shrubs and more than 3,300 trees. In addition, the vegetation production of the reclaimed land is almost twice that of the native area. Final approval for bond release is expected in 2020.

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## Percent Water Recycled of Total Withdrawn Globally



## Recycled/Reused/Energy Recovery vs. Landfilled/Incinerated/Landfarmed



\*Does not include Middlemount JV. CMJV included at 100%.

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## Water Use and Management

We believe that access to safe, clean water is a human right and work to minimize our impact on water resources where we operate through conservation, reuse and recycling.

Each of our mines aligns its water management strategy with the specific challenges of its region and continuously monitors for any impacts. Our operations in more arid environments focus on conservation, while mines in humid climates routinely manage surplus water from storms or groundwater and mitigate flood risk. In Australia, our operations must manage excess water during wet cycles and plan for water shortages during dry cycles. All management and use of water at Peabody mines follow the regulatory frameworks specific to the countries and regions where they are located. Baseline water depletion, or the ratio of consumed water to renewable surface and groundwater supplies, for all Peabody operations is in the low or low-to medium range of less than 25 percent.<sup>23</sup>

Peabody primarily uses water for dust control and coal processing at preparation plants. Water is also used for exploration, coal extraction and land reclamation activities, with minor amounts used for mine location drinking water, showers and equipment maintenance. Water sources for Peabody mines include surface water, such as precipitation and runoff; rivers and lakes; ground water; and municipal or purchased water.

Approximately 20 percent of the water withdrawn by our operations in 2019 was recycled and reused totaling 13,701 megaliters. Peabody's total water withdrawn in 2019 was 68,587 megaliters compared to 47,251 megaliters in the prior year due primarily to the addition of the Shoal Creek Mine, which calls for increased water pumping due to operational and regulatory requirements.

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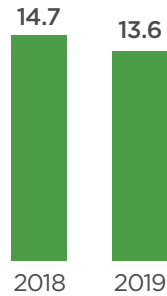
## Recycling and Waste Management

Peabody is not a large-scale generator of hazardous waste, and the company employs waste management practices that minimizes overall waste products and maximizes recycling and reuse opportunities before proper disposal. In 2019, recycling, reuse and energy recovery programs accounted for 60 percent of the company's waste disposal activities. In total, 13,825,858 kilograms of materials were recycled and reused, or were used for energy recovery.

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## Pounds of GHG Emitted per Unit Produced

(Includes mine methane emissions)



\*Does not include Middlemount JV.  
CMJV included at 100%.

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## Coal Waste Impoundments

Peabody maintains five active, above-ground, coal waste impoundments, four of which are of upstream construction, and has additional impoundments in various stages of the reclamation process. Our impoundments contain a mix of coarse and fine coal waste materials, which have a relatively lower flowability as compared to finer materials typically found in non-coal tailings dams. The average holdings of our above-ground impoundments are approximately 9.9 million cubic meters, with variation between approximately 2.8 million cubic meters and 17 million cubic meters. An analysis by the company also indicates there are no employee facilities or major population centers in the path of an unlikely breach of Peabody's active coal waste impoundments.

Peabody constructs impoundments to comply with best practices and strict regulatory performance criteria in both the U.S. and Australia. The company has also developed its own rigorous standards that require mandatory risk assessments and periodic inspections by independent third-party experts in addition to annual regulatory inspections. All active Peabody's impoundments have been inspected by an independent third-party expert within the past 12 months.

## Greenhouse Gas Intensity and Energy Efficiency

In order to extract the fuel needed for energy, we must use energy, and strive to do so in a responsible manner.

Peabody has traditionally calculated our greenhouse gas emissions intensity across all operations in pounds of carbon dioxide equivalent or CO<sub>2</sub>e (CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O) per unit of production (raw tons of coal mined and cubic yards of overburden and rehandle). In 2019, our global greenhouse gas emissions intensity totaled 13.6, approximately 7.5 percent less than the prior year.

Peabody's Scope 1 direct emissions include consumed diesel fuel and fugitive emissions from our operations, and our Scope 2 emissions relate to the consumption of purchased electricity.

During 2019, we emitted 7.3 million tonnes CO<sub>2</sub>e of Scope 1 emissions, approximately 17 percent less than 2018 levels. Our Scope 2 emissions totaled 815,500 tonnes of CO<sub>2</sub>e, about 16 percent less than the prior year.

Improvement in the company's greenhouse gas intensity was driven by a 34 percent reduction in Australia. Greenhouse gas intensity in the U.S. increased 11 percent, largely due to the addition of the Shoal Creek Mine.

### Target #2

Integrate environmental standards into risk management system.

## Support for Advanced Coal Technology

Beyond responsible coal mining, Peabody strongly supports responsible coal use through greater research, development and deployment of advanced technologies. This includes a focus on high-efficiency, low-emissions (HELE) technologies that are commercially available now, and when deployed, can achieve higher efficiencies and significant reductions in CO<sub>2</sub> and other key emissions than conventional coal-fueled power plants.<sup>24</sup> In addition, carbon capture, use and storage (CCUS) represents an integrated suite of both known and emerging technologies that is essential to the pathway toward ultimate zero emissions from coal.<sup>25</sup>

Since early 2000, we have invested approximately \$315 million in global partnerships and projects to advance HELE and CCUS technologies in the U.S., Australia and China. We also serve in leadership positions and are members of organizations that are focused on technology research, development and deployment, and the appropriate policies to advance these technologies.

### Carbon Capture Coalition

Peabody is a participant in the Carbon Capture Coalition, which brings together coal, oil and gas, electric power, ethanol, chemical and energy technology companies, labor unions and national environmental and energy policy organizations in an effort to make CCUS a widely available, cost effective and rapidly scalable technology solution in the U.S. The coalition was a leader in successfully advocating for the 45Q tax credit in the U.S. as pivotal legislation to support global environmental goals. This bipartisan bill aims to reduce costs and barriers to deploy CCUS at scale.

### Carbon Utilization Research Council

Peabody serves as co-chair of the Carbon Utilization Research Council (CURC), a coalition of fossil fuel producers, electric utilities, equipment manufacturers, technology innovators, and national associations working to identify ways for the U.S. to use low-cost fossil fuels while meeting societal energy needs and goals.



## ARQ TECHNOLOGY

Peabody is a strategic partner in the technology-based startup Arq to advance a novel approach that targets to use coal waste in oil products. The partnership represents an opportunity to simultaneously improve costs and efficiencies by increasing coal recovery; advance sustainability by reducing coal's environmental footprint; and expand the markets for coal.

### COAL21 Fund

Peabody is a founding member and current board chair of Australia's A\$1 billion COAL21 Fund, an industry initiative to pursue a collection of low-carbon technologies. To date, the COAL21 Fund has committed A\$377 million to the development of low-emissions technologies.

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### **Consortium for Clean Coal Utilization**

Peabody is a founding member and board member of the Consortium for Clean Coal Utilization (CCCU), which is a cutting-edge research program focused on advanced coal utilization and carbon capture technologies at the prestigious Washington University in St. Louis. Peabody has renewed its funding commitment to the CCCU through 2021.

### **Global Carbon Capture and Storage Institute**

Peabody is a founding member of the Global Carbon Capture and Storage Institute (GCCSI), which was launched in Australia and now serves as an internationally recognized advocate for CCS. GCCSI aims to provide relevant information on the status of CCS and other practical policy advice regarding CCS to government and other key stakeholders.

### **Peabody Global Clean Coal Awards**

Peabody believes in recognizing the distinguished work of organizations and individuals to advance clean coal technologies. As such, 2019 marked the sixth year for the Peabody Global Clean Coal Leadership Awards, which named top performers in the categories of HELE Innovator; CCUS Innovator; Clean Coal Advocate and Clean Coal Educator. The award honorees included:

- **Electric Power Research Institute (EPRI) —** Honored as HELE Innovator. EPRI has long been a leader in the evaluation and development of HELE coal-fueled generation, among its many research areas. EPRI's leadership includes being the technical lead on the U.S. Department of Energy-funded advanced materials program, which has focused on developing, testing and validating novel metals needed to make advanced ultra-supercritical coal-fueled power plants a commercial reality. EPRI has also focused on numerous other HELE topics including advanced, high-efficiency coal power cycles and carbon capture and storage.

- **Mitsubishi Heavy Industries (MHI) —** Honored as CCUS Innovator. MHI served an integral role in the completion of the world's largest carbon capture project on a coal-fueled power plant. MHI's dedication to carbon capture includes participation in broad stakeholder groups such as the Carbon Utilization Research Council, Carbon Capture Coalition and Energy Advance Center, as well as collaboration on Front-End Engineering Design studies to identify the next large-scale carbon capture project.
- **Carbon Utilization Research Council (CURC) —** Honored as Clean Coal Advocate. CURC has long been a leader in advocacy efforts with policymakers, NGOs and other stakeholders to ensure development of advanced fossil energy technologies is an integral part of the larger U.S. national energy strategy. CURC has provided technology development roadmaps, offered Congressional education on technologies, participated in Congressional hearings and played a critical role in the reform of the 45Q tax credit.
- **Professor Richard Axelbaum, Washington University in St. Louis —** Honored as Clean Coal Educator. Professor Axelbaum has provided significant contributions to the field of combustion and the development of a novel coal-fueled pressurized oxy-combustion power plant concept and possesses a vast understanding of both the fundamental and commercial aspects of advanced coal technologies. As Director of the Consortium for Clean Coal Utilization, Professor Axelbaum oversees the distribution of seed grants to early-stage researchers globally and regularly educates an array of stakeholder groups on the value of coal and progress in minimizing its environmental footprint.

The 2019 recipients reinforced the major environmental benefits that can be achieved using today's advanced coal-fueled generation technologies as well as the tremendous possibilities for technology in the future.