Opportunities to Transform the Future of Coal through Technology

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2020 International Pittsburgh Coal Conference
September 8, 2020

Disclaimer

This presentation contains statements, estimates and projections which are forward-looking statements (as defined in Section 21E of the Securities Exchange Act of 1934, as amended). Statements that are not historical are forward-looking, and include, without limitation, projections and estimates concerning the timing and success of specific projects and the future production, revenues, income and capital spending of CONSOL Energy, Inc. ("CEIX") and CONSOL Coal Resources LP ("CCR," and together with CEIX, "we," "us," or "our"). When we use the words "anticipate," "believe," "could," "continue," "estimate," "expect," "intend," "may," "plan," "predict," "project," "should," "will," or their negatives, or other similar expressions, the statements which include those words are usually forward-looking statements. These forward-looking statements involve risks and uncertainties that could cause actual results and outcomes to differ materially from results and outcomes expressed in or implied by our forward-looking statements. Accordingly, investors should not place undue reliance on forward-looking statements as a prediction of future actual results. We have based these forward-looking statements on our current expectations and assumptions about future events. While our management considers these expectations and assumptions to be reasonable, they are inherently subject to significant business, economic, competitive, regulatory and other risks, contingencies and uncertainties, most of which are difficult to predict and many of which are beyond our control. Factors that could cause future actual results to differ materially from those made or implied by the forward-looking statements include risks, contingencies and uncertainties that are described in detail under the captions "Forward-Looking Statements" and "Risk Factors" in our public filings with the Securities and Exchange Commission. The forward-looking statements in this presentation speak only as of the date of this presentation; we disclaim any obligation to update the statements, and we caution you not to rely on them unduly.

About CONSOL Energy Inc.

Overview

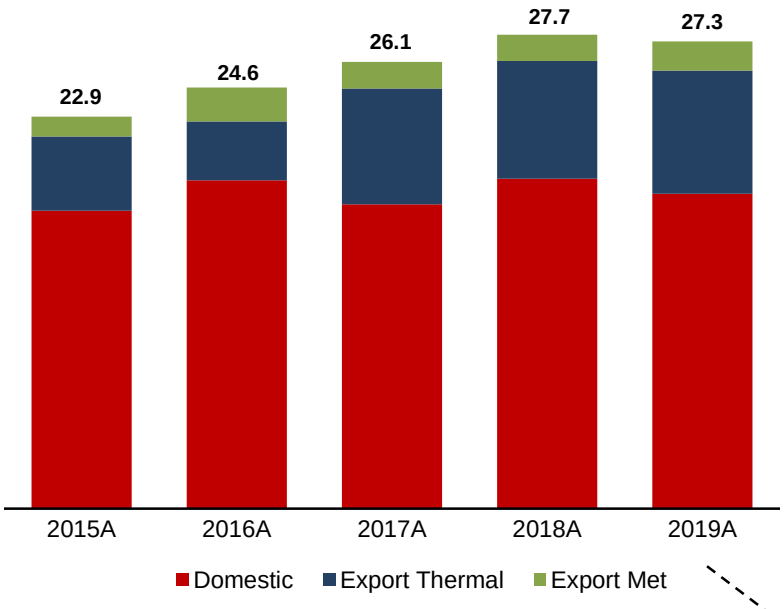
- Publicly-traded (NYSE:CEIX) coal producer and exporter based in Canonsburg, PA
- Assets include:
  - ~90% economic ownership of the Pennsylvania Mining Complex (PAMC)(1)
  - CONSOL Marine Terminal (CMT) in Baltimore, MD
  - Itmann Mine Project in Wyoming County, WV
  - 1.5 billion tons of undeveloped coal reserves(2) in the Northern Appalachian, Central Appalachian, and Illinois Basins
- PAMC is the largest underground coal mining complex in North America, consisting of the Bailey, Enlow Fork, and Harvey coal mines and related infrastructure
  - 669 mm tons of reserves in the Pittsburgh No. 8 coal seam(3)
  - Five longwalls and 15-17 continuous mining sections
  - Central prep plant (8,200 raw tons/h) and rail loadout (9,000 clean tons/h)
  - 2019 production = 27.3 million tons
- CMT transloaded 12.6 million tons of coal in 2019
- Itmann began development mining in April 2020 (low-vol met coal)

(1) Consists of 75% undivided interest in PAMC, plus GP ownership and ~60% LP interest in CONSOL Coal Resources LP (NYSE:CCR), which owns the remaining 25% interest in PAMC.
(2) Undeveloped reserves do not include any of the 669 million tons of reserves associated with PAMC or 21 million tons of reserves associated with Itmann
(3) As of December 31, 2019.

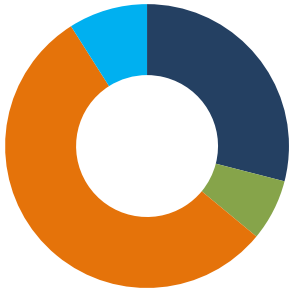
Highly-Diversified Portfolio Provides Stability

Annual coal sales

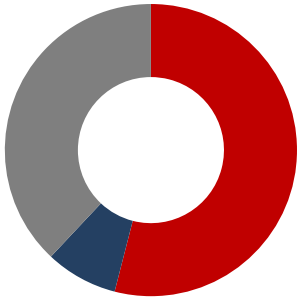
(million tons)



2019A Export thermal

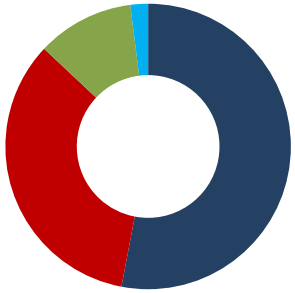


2019A Export met

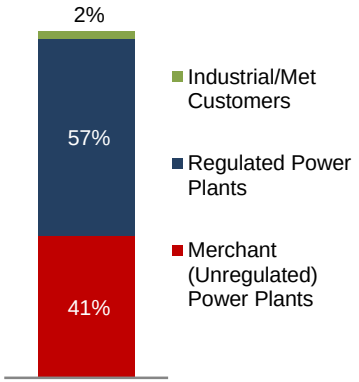


Europe Africa India Canada/North America Other Asia South America

2019A Domestic



PJM Southeast MISO Industrial/Met



In 2019, the Company sold PAMC coal to 23 domestic power plants located in 13 states, and to thermal and metallurgical end-users located across five continents.

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Corporate Sustainability Approach

Our Legacy is Built on Safety, Compliance, and Continuous Improvement

- PA Mining Complex's MSHA reportable incident rate was 40% lower than the industry average from 2015 - 2019[1]
- 2019 marked 6th consecutive year with an environmental compliance record exceeding 99.9%[1]
- Board-level HSE Committee oversees procedures for identifying, assessing, monitoring, and managing ESG risks
- Became a Bettercoal Supplier in 2019 – focused on continuous improvement of sustainability performance

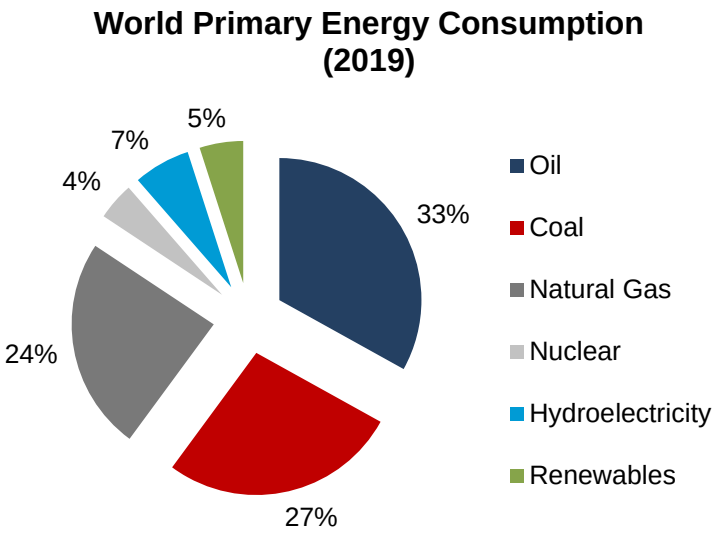
Our Future is Based on Efficiency, Technology, and Innovation

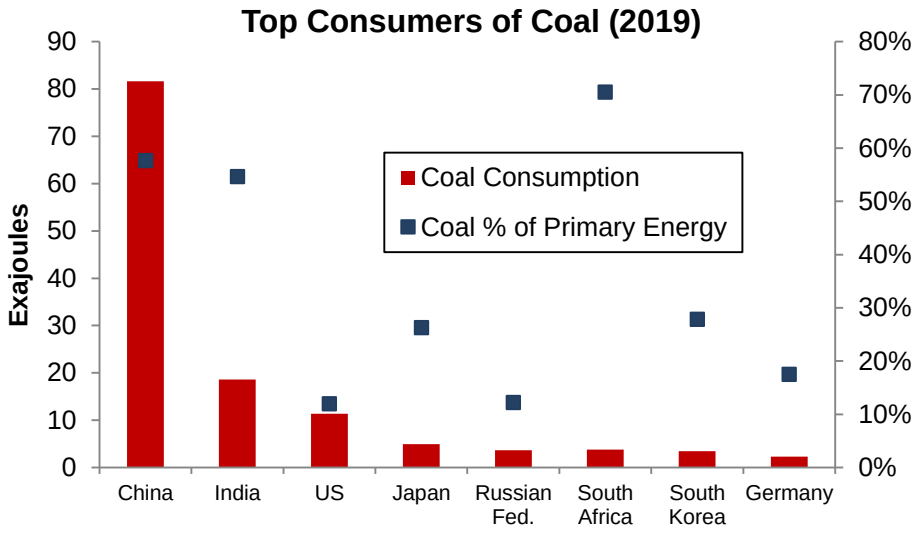
- Innovative technologies deployed at PA Mining Complex directly relate to ESG aspects of greatest impact to CONSOL
  - Partnerships with Komatsu Mining Corporation, Environmental Commodities Corporation, and OMNIS Bailey, LLC
- Recently recognized for sector leadership in ESG disclosures, transparency, and strategic initiatives[2,3]

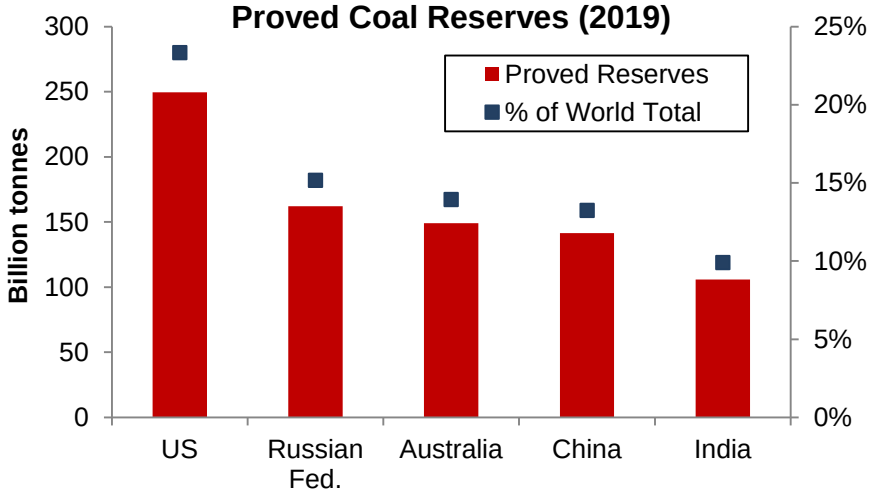
ESG Aspects of Greatest Stakeholder Concern and Impact to CONSOL

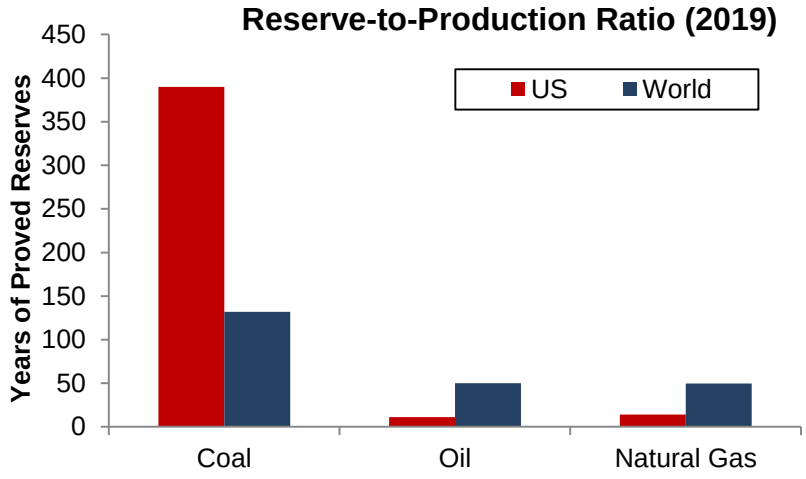
(1) CONSOL management and corporate sustainability report.
(2) B Riley FBR, *Can Coal Miners Weather the ESG Storm?*, Industry Update, May 13, 2019.
(3) Thomson Reuters, *Transparency: The Pathway to Leadership for Carbon Intensive Businesses,* February, 2019.

The U.S. Coal Reserve Base Remains a Valuable, Strategic National Resource





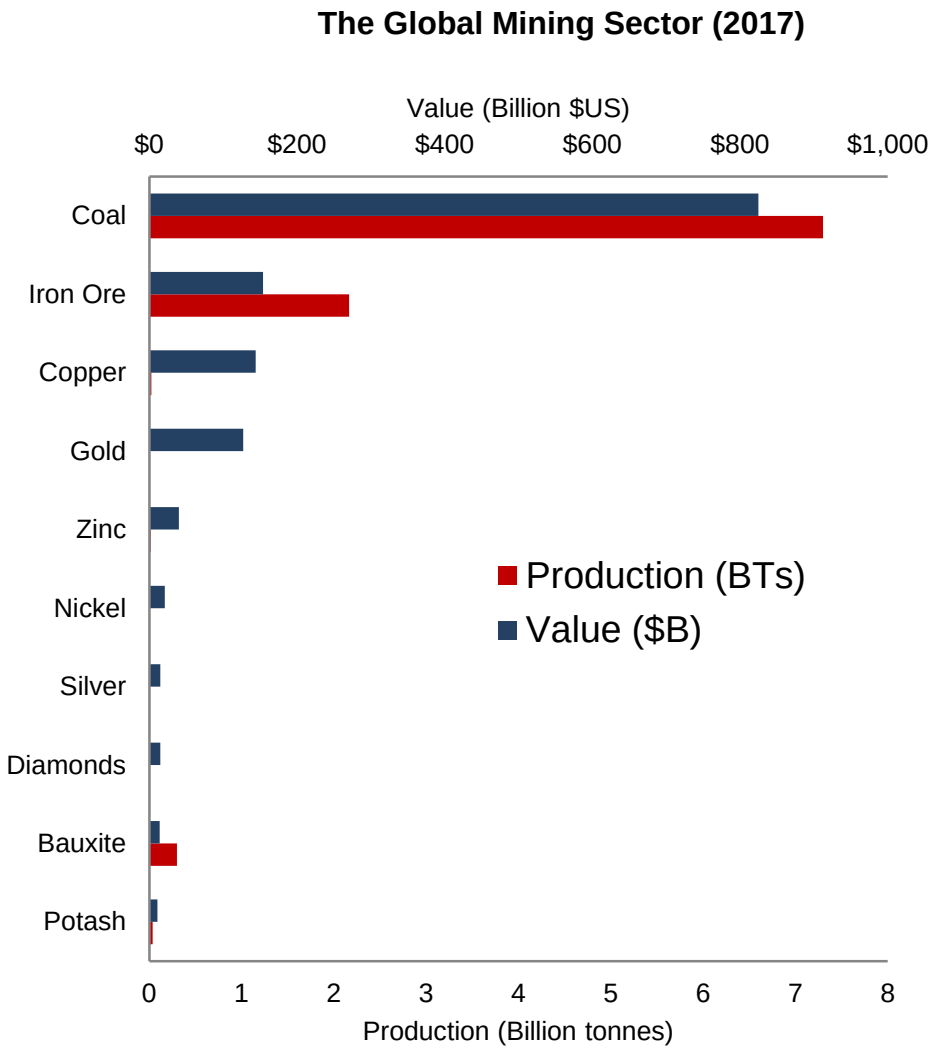




Coal remains the second largest primary energy source in the world, and the U.S. holds the world's richest coal reserve base. We must ensure that technology is in place to take advantage of this valuable national resource.

Source: BP Statistical Review of World Energy, June 2020

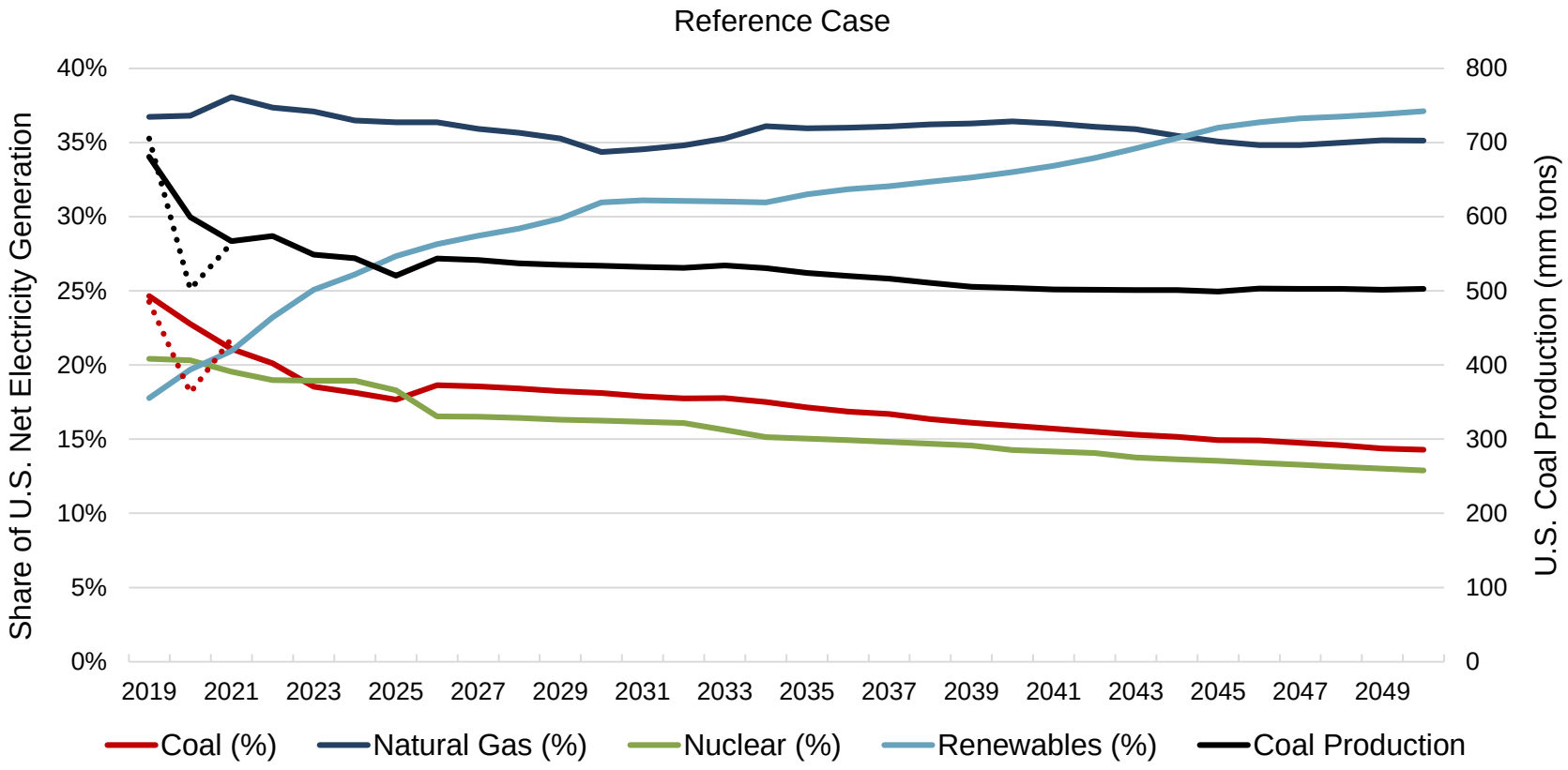
Putting The Importance of the Coal Mining Industry in Perspective



Coal is by far the most valuable mined commodity in the world, with an annual value more than 4x greater than the next largest commodity (iron ore). As an industry, we need to invest in new talent and new technology.

Sources: S&P Global Market Intelligence, ABB Velocity Suite

EIA Annual Energy Outlook 2020



* Dotted lines represent updated projections from EIA Short-Term Energy Outlook, August 2020

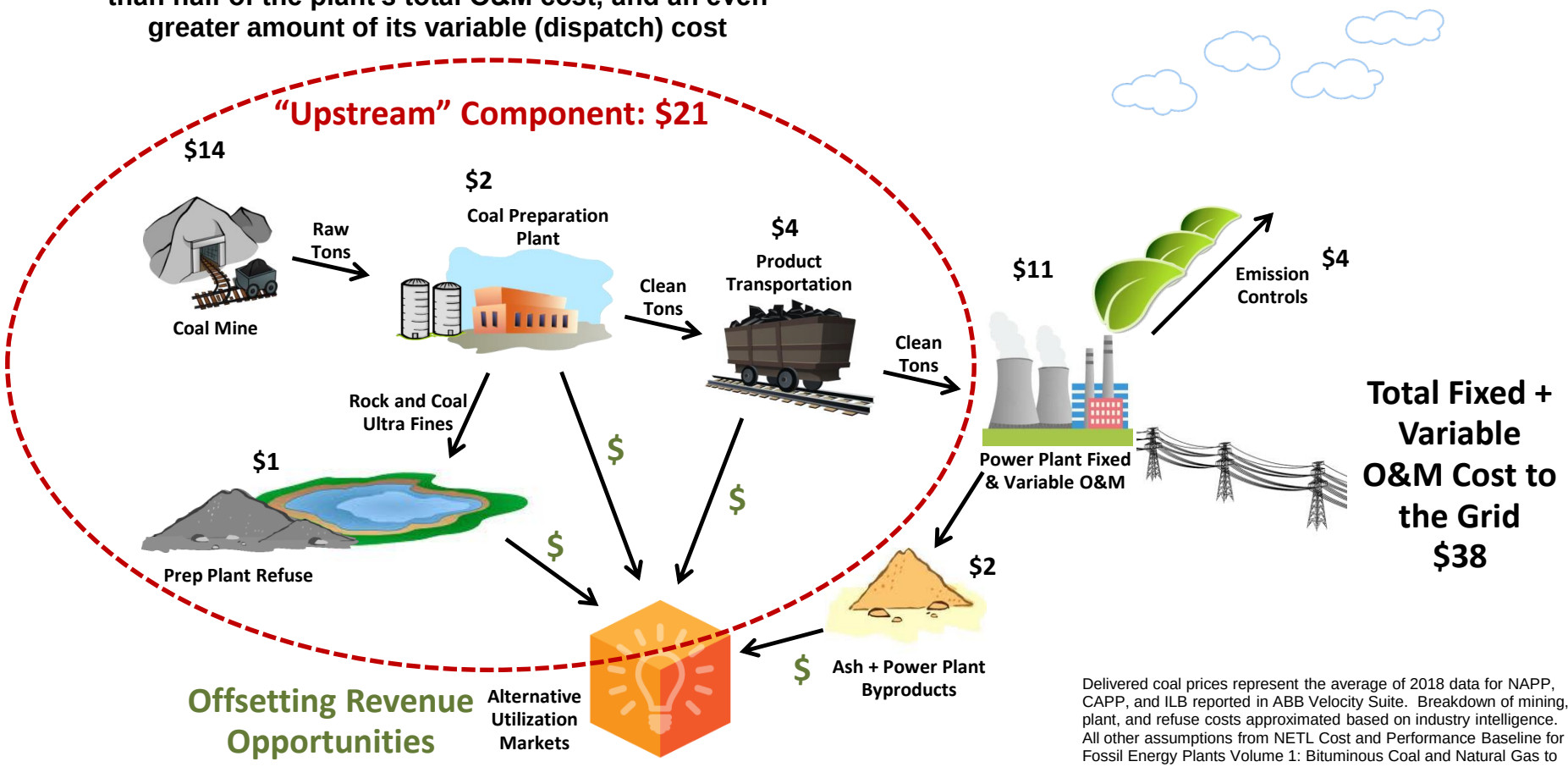
Coal is projected to remain an important part of the U.S. energy mix in the future, though the industry must reinvent itself to overcome the demand gap being created by natural gas and renewables.

Source: U.S. Energy Information Administration (EIA), Annual Energy Outlook 2020, January 2020; U.S. EIA, Short-Term Energy Outlook, August 11, 2020

Coal R&D Requires a Holistic Approach

Illustrative Example – Eastern U.S. (All Costs in $/MWh)

Fuel cost (mine + transportation) accounts for more than half of the plant's total O&M cost, and an even greater amount of its variable (dispatch) cost

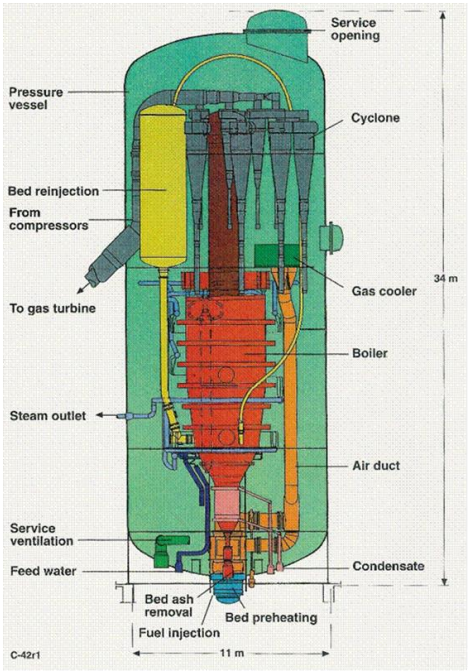


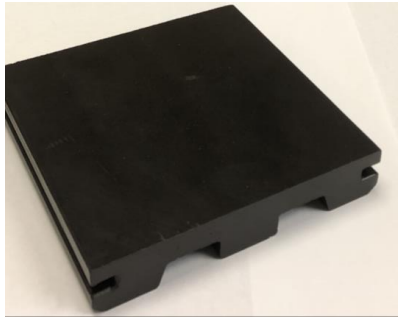
Delivered coal prices represent the average of 2018 data for NAPP, CAPP, and ILB reported in ABB Velocity Suite. Breakdown of mining, plant, and refuse costs approximated based on industry intelligence. All other assumptions from NETL Cost and Performance Baseline for Fossil Energy Plants Volume 1: Bituminous Coal and Natural Gas to Electricity, Case B11A, 9/24/2019 (NETL-PUB-22638)

Keeping coal competitive requires unlocking value across the entire supply chain, and creating new value-adding end use applications for coal.

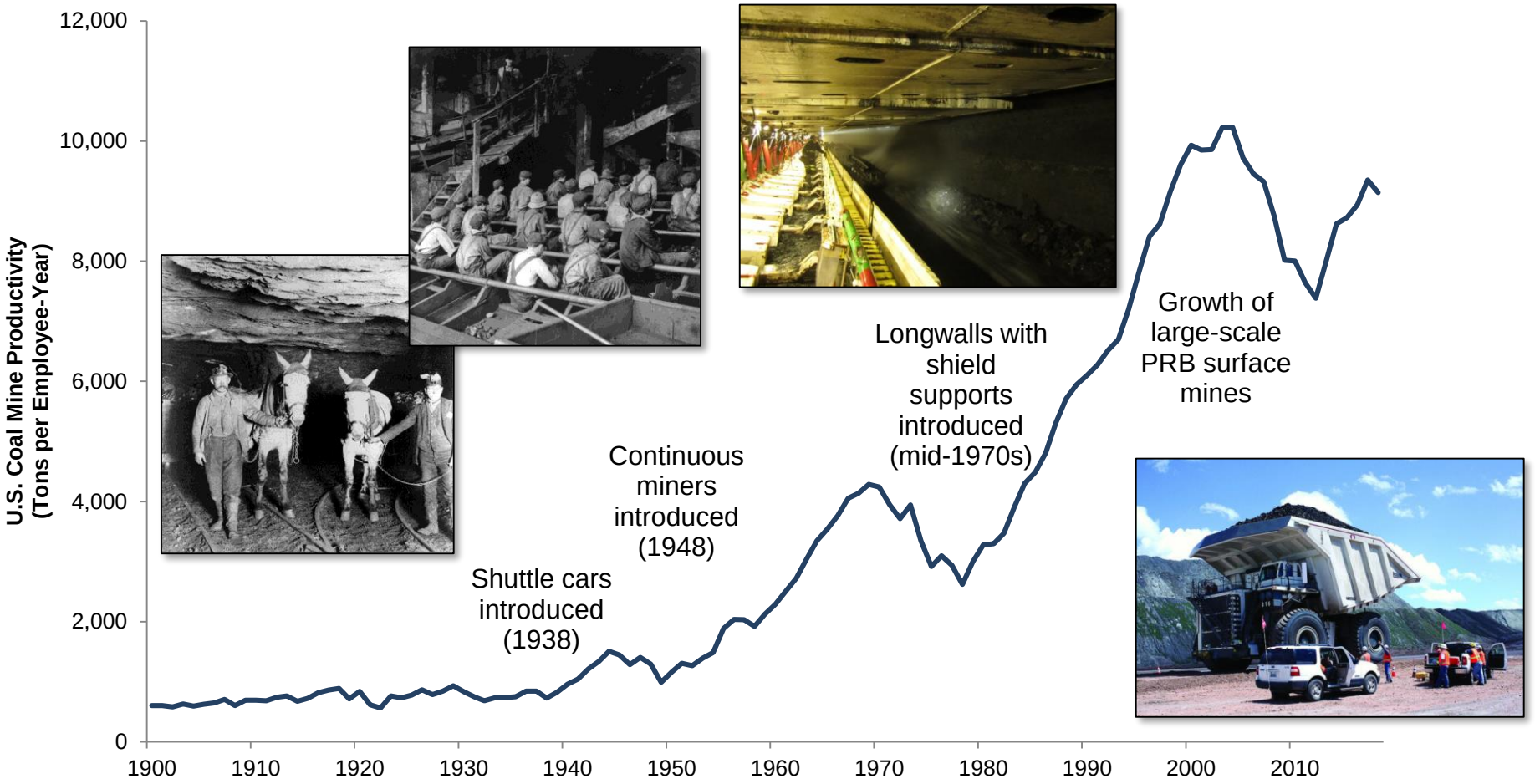
Examples of CONSOL's Current Coal Technology Initiatives

- Mining Automation and Efficiency Projects
- OMNIS Fine Coal Recovery Project
- Advanced Pressurized Fluidized Bed Combustion with Carbon Capture (DOE Coal FIRST Project)
- Coal-to-Products Projects
  - CFOAM
  - Coal Plastic Composites





Technological Advances Have Played a Huge Role in the Evolution of the Coal Industry …



In 1900, the U.S. produced 270 million tons with 449,000 employees (601 tons/employee-year)
In 2018, the U.S. produced 756 million tons with 83,000 employees (9,144 tons/employee-year)
Coal mining fatalities per year decreased from 1,489 in 1900 to 12 in 2018

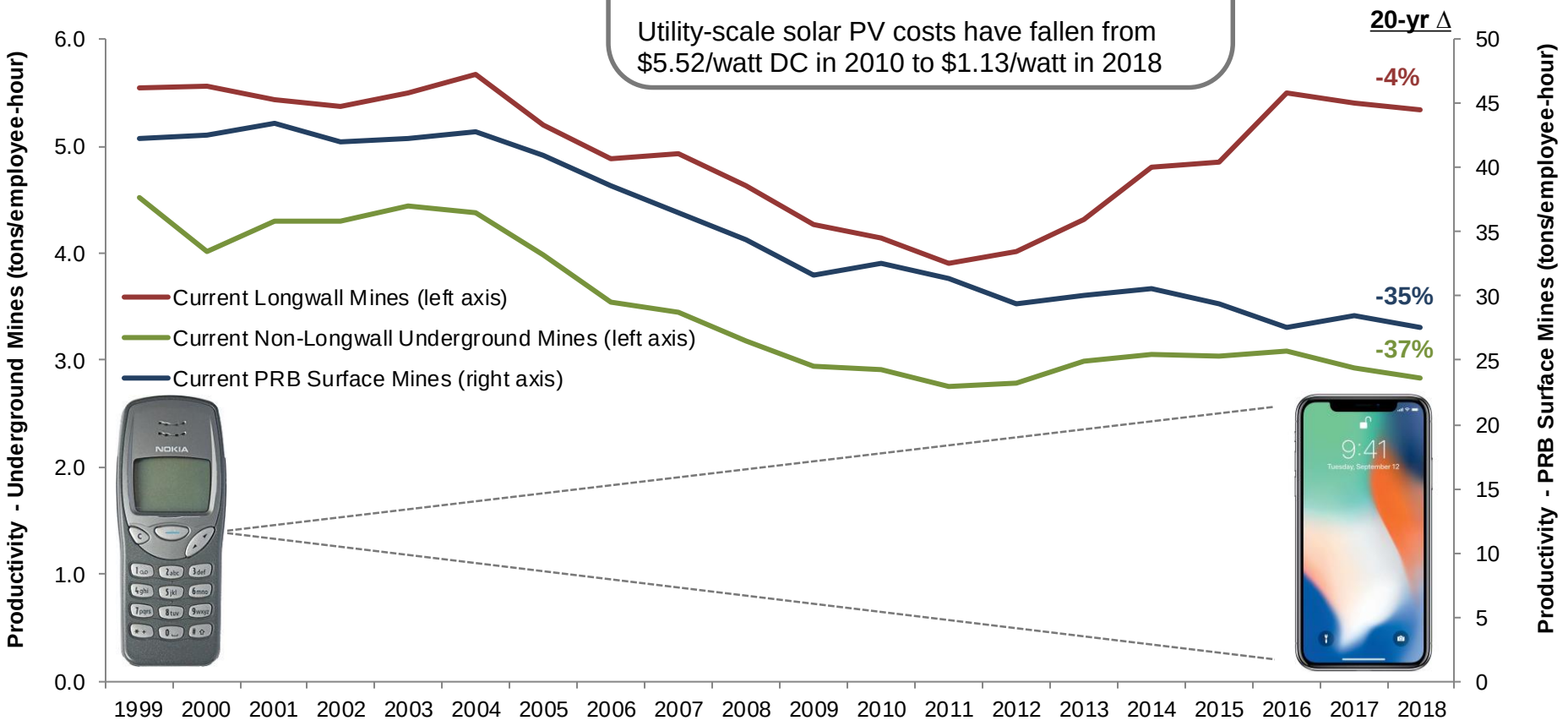
Source: MSHA, EIA, ALFRED, Library of Congress, *Modern American Coal Mining Methods and Applications*

… But Recent Years have been Relatively Stagnant

In Comparison …

New natural gas well productivity per rig in the Appalachian Region has increased from 450 Mcf/d in 2007 to 16,357 Mcf/d in 2018

Utility-scale solar PV costs have fallen from $5.52/watt DC in 2010 to $1.13/watt in 2018

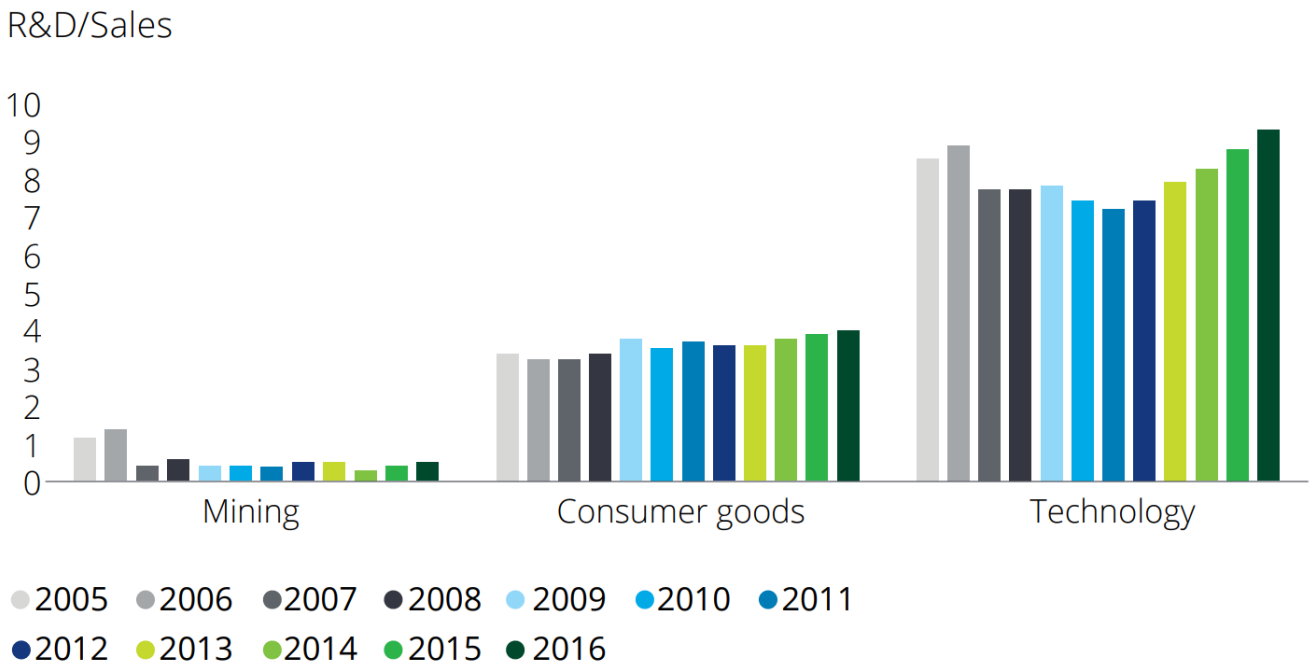


Coal industry needs to keep pace with rapidly evolving new technology development/implementation.

Source: ABB Velocity Suite, MSHA, NREL, EIA. Only includes mines that produced coal in CY 2018.

R&D Spending in the Mining Sector

Figure 2: Mining consistently underspends in innovation relative to other sectors

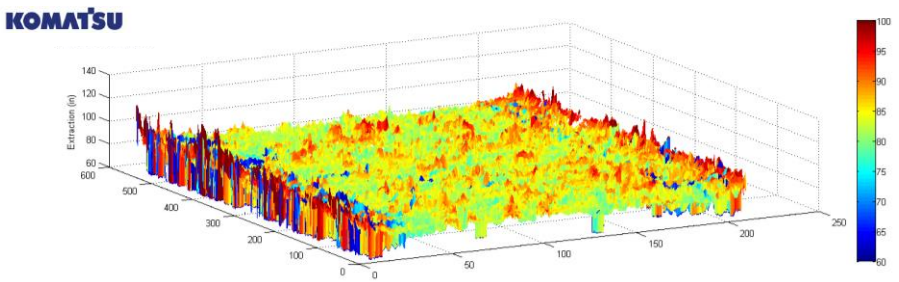


Source: Deloitte analysis

"… innovation in the mining industry is coming at too sluggish a pace, and the rising costs of extraction and transportation need to be addressed with new ideas." *Mark Cutifani, CEO, Anglo American*

Opportunities for Automation in Underground Coal Mining

- Longwall technology is current state-of-the-art in underground mining
- 38 longwalls contributed 61% of U.S. underground coal production (169 million tons) in 2018, with a productivity more than 85% better than other underground mines(1)
- OEMs largely focused on developing automation for key LW components
  - Advanced shearer automation maintains face alignment and allows the longwall operator to program automated cutting profiles, including gate turnarounds
  - Remote operations center can be used to run the shearer from a remote location (underground or surface)
  - Longwall automation technology options also offered for roof supports, drives, etc.
- Advantages
  - Improved cut cycle efficiency (potential for 10%+ productivity improvement)(2)
  - Less out-of-seam dilution (~$0.10/clean ton reduction in cost for every 1" less roof rock mined)(3)
  - Reduced equipment wear and maintenance downtime
  - Less employee exposure (dust, noise)
- Horizon detection/control remains an area of need
- Integration and employee acceptance are also challenges



Substantial progress has been made in automating the longwall itself …

Sources: (1) ABB Velocity Suite, MSHA, Coal Age 2018 U.S. Longwall Census; (2) "Automation Raises Productivity," Komatsu Mining Corp., November 10, 2016; (3) CONSOL estimate. Images used with permission from Komatsu Mining Corp.

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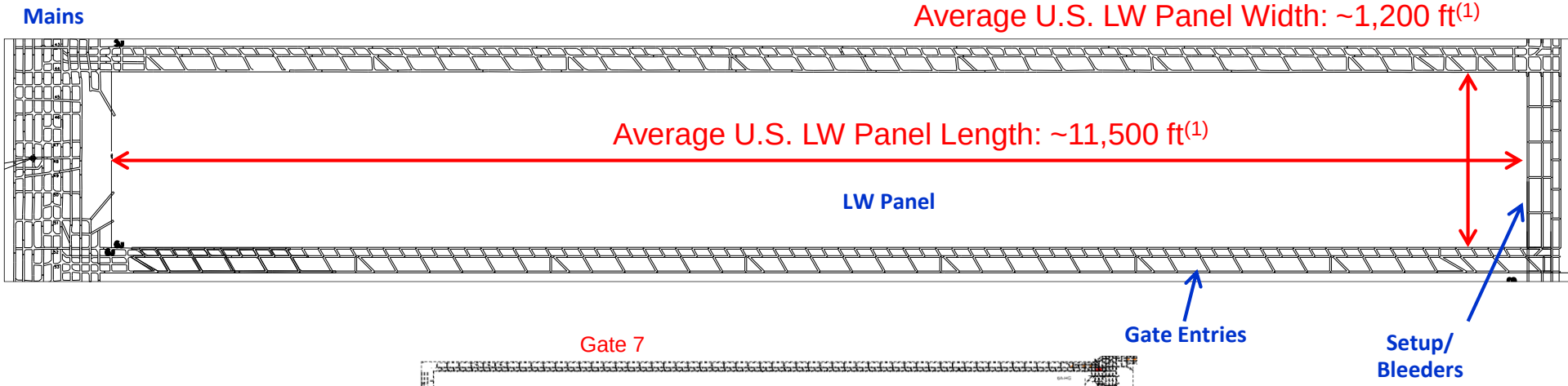
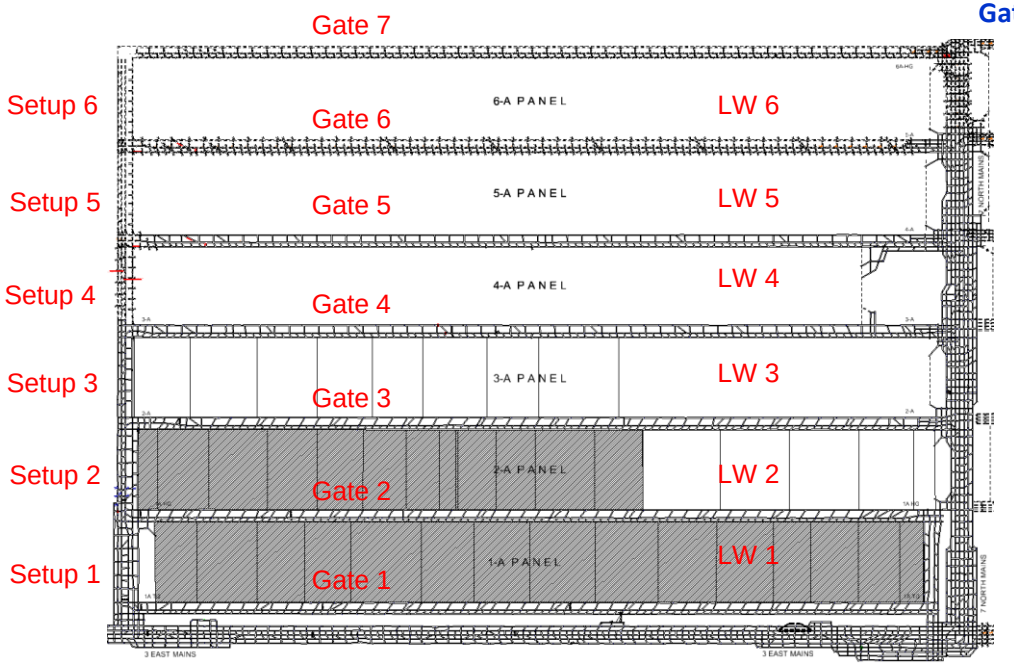
… But the More Pressing Area of Need Today (even for LW Mining) is the Continuous Miner





In general, each 1 foot of longwall advance requires 6+ feet of continuous miner (CM) advance, depending on mine plan geometry, number of entries, mains configuration, etc.

(1) Source: Coal Age 2018 U.S. Longwall Census

What Does it Take to Mine a Foot? (Illustrative Example)

Longwall

Crew
1-2 Shearer Operators
1 Shieldman
1 Head Gate Operator
3 Longwall Support/Utility
1 Mechanic
1 Foreman
TOTAL = 8-9 people

Consumables
Bits
Oil
Rock dust
Cans or Cribs (floor-to-roof support)
Electricity

Clean Tons per Foot ~ 350
Feet per Shift ~ 25
Clean Tons per Shift ~ 8,750

>25x difference in productivity

Continuous Miner-Bolter

Crew
1 Miner Operator
2 Miner Bolters
2 Rib Bolters/Utility Men
2-3 Haulage Operators
2 Center Bolters
1 Mechanic
1 Foreman
TOTAL = 11-12 people

Consumables
Roof bolts/support
Roof mesh
Rib bolts
Rib mesh
Bits
Oil
Rock dust
Curtain
Electricity

Clean Tons per Foot ~ 4
Feet per Shift ~ 100
Clean Tons per Shift ~ 400

As a general rule, the continuous miner mines at a loss to enable the longwall (and the mine) to mine at a profit.

Note: Does not include labor/consumables for mine support activities, surface activities, and administration.

What Can Be Done to Improve CM Productivity/Cost Performance?

Entirely new approach

Improve upon the current process

Three Fundamental Options:

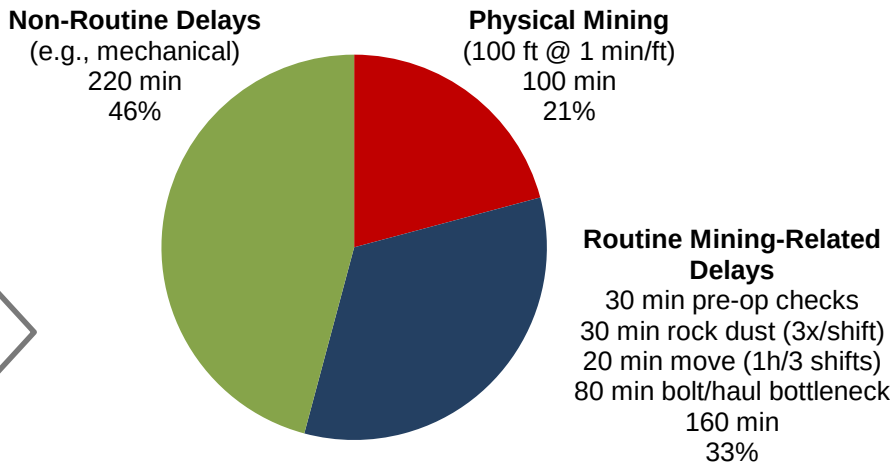
- Increase mining rate
- Increase mining time
- Decrease required resources

Example: Increase Mining Time[(1)]

- **CMs are capable of cutting ~1 ft/minute**
- **There are 480 minutes in an 8-hour shift**
- **In theory, a CM machine can mine ~480 ft/shift**
- **In practice, CM advance rates are much less than this**

Why?

Illustrative CM Shift



While transformational approaches should be considered, there are great opportunities to apply technology to improve upon the traditional CM mining process.

(1) Illustrative example shown for a continuous miner-bolter as opposed to a place change miner.

CM Technology Development: Where Do We Go Next?

Opportunities

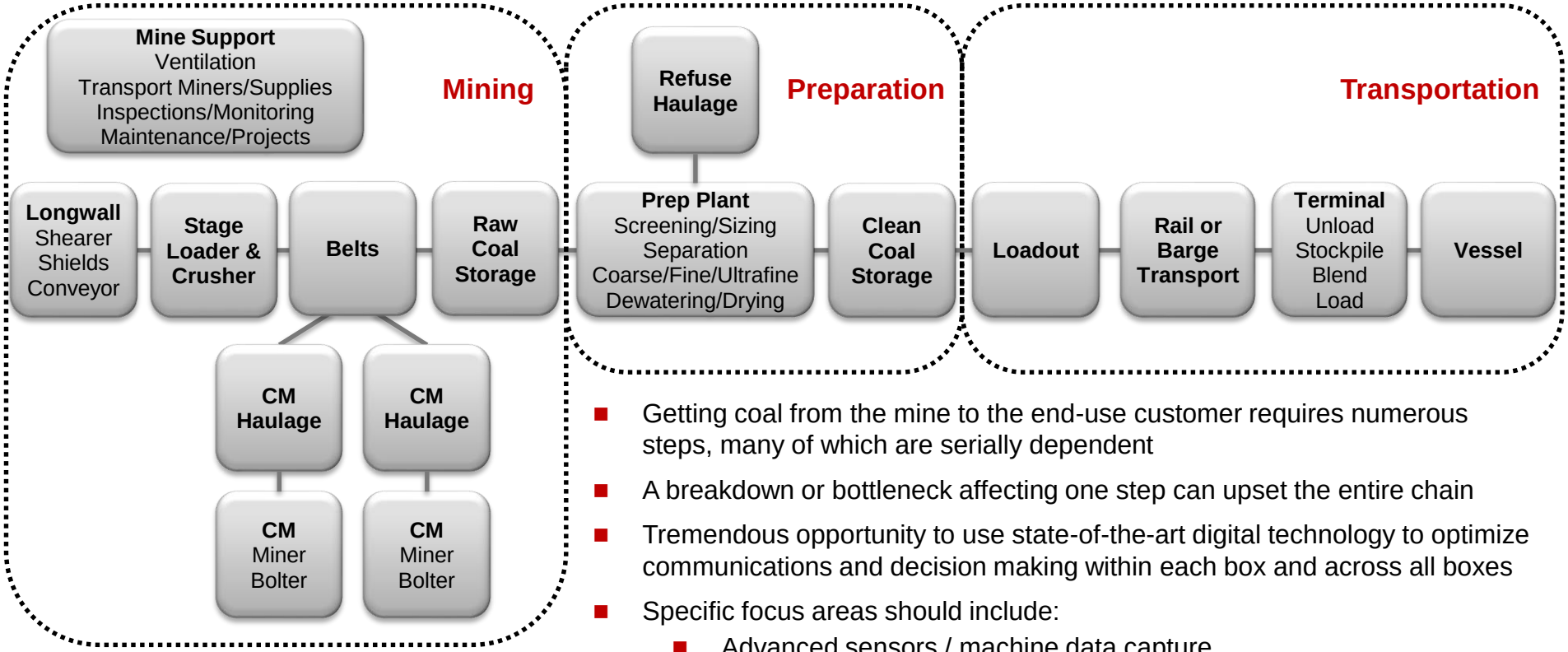
- Fully or partially automate:
  - Mining
  - Roof/rib bolting and meshing
  - Hauling
  - Rock dusting
- Advanced equipment monitoring and predictive analytics for preventative maintenance to reduce delays
- Intercommunication among equipment to reduce bottlenecks

Challenges

- Coal seam detection / horizon control
- GPS ineffective underground
- Adjusting for adverse conditions
- Harsh operating environment (e.g., roof falls, methane)
- Constraints on space/maneuverability/wireless connectivity
- Stringent mining rules slow new technology introduction
- Workforce acceptance/cultural change

Advances in CM technology would also benefit non-longwall underground mines, including many metallurgical coal mines.

Opportunities for Big Data and Advanced Computing



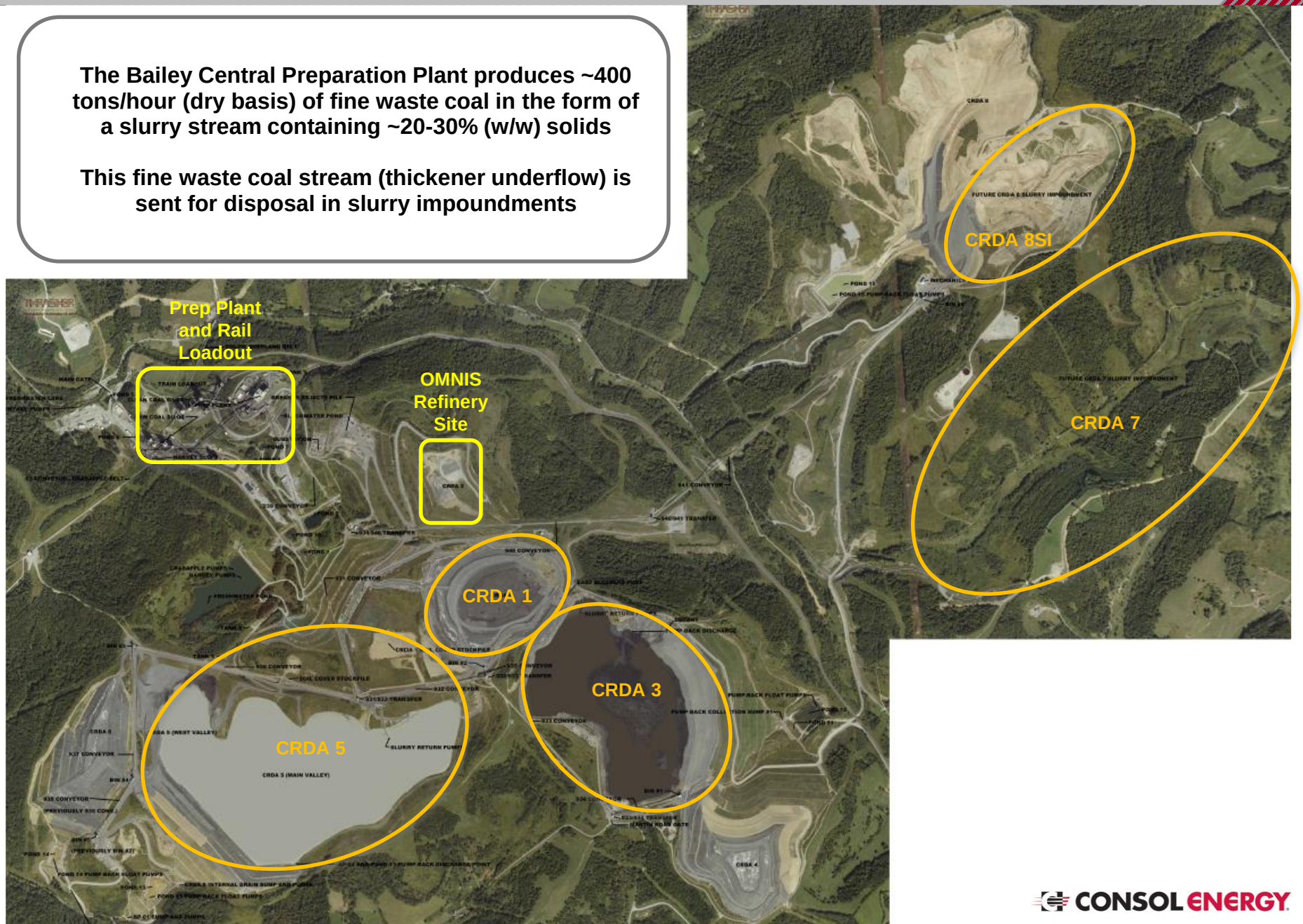
- Getting coal from the mine to the end-use customer requires numerous steps, many of which are serially dependent
- A breakdown or bottleneck affecting one step can upset the entire chain
- Tremendous opportunity to use state-of-the-art digital technology to optimize communications and decision making within each box and across all boxes
- Specific focus areas should include:
  - Advanced sensors / machine data capture
  - Next-generation underground networks/communications
  - Consolidated data platforms
  - Real-time analytics and optimization
  - Advanced control systems
  - Artificial intelligence and machine learning
  - Predictive maintenance / RAM analysis

Development and adoption of intelligent processes enabled by digital technology is critical for the sustainability of the coal mining industry.

Pennsylvania Mining Complex Aerial Photo

The Bailey Central Preparation Plant produces ~400 tons/hour (dry basis) of fine waste coal in the form of a slurry stream containing ~20-30% (w/w) solids

This fine waste coal stream (thickener underflow) is sent for disposal in slurry impoundments



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OMNIS Refinery at the Pennsylvania Mining Complex

- The opportunity:
  - Recover solids from the thickener underflow stream and/or waste coal slurry impoundments
  - Refine to produce a Clean Solid Energy (CSE) product that can be used as fuel or as a feedstock for other higher-value applications
  - Improve overall product yield from the mining operation by >5%
  - Generate a mineral matter byproduct for use in agricultural applications or disposal as coarse refuse
  - Reduce or eliminate the need for future fine coal refuse impoundments
- Forward progress:

2016-2017
- Process development at OMNIS facility in Santa Barbara, CA
- Lab-scale testing of CSE product

2017-2018
- Construction, operation, and optimization of OMNIS pilot unit at Bailey Preparation Plant
- Commercial-scale testing of CSE at customer plant

2019-2021
- Finalize process design
- Construct and commission commercial-scale refinery at Bailey

OMNIS BAILEY

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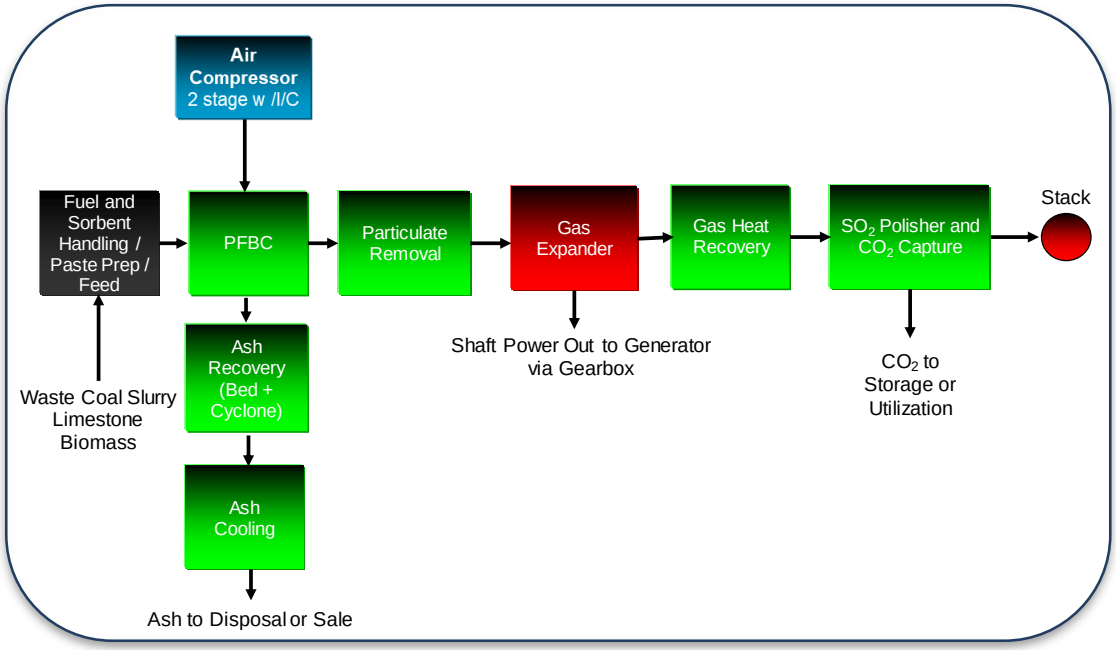
Advanced Supercritical PFBC with Carbon Capture

- Concept – build a ~300 MWe power plant fueled by waste coal slurry that achieves:
  - High efficiency (>42% HHV in carbon capture-ready mode)
  - Very low SOx, NOx, mercury, and particulate emissions
  - Zero liquid discharge
  - ≥ 95% CO_2 capture and storage/beneficial reuse
  - Carbon neutral/negative operation through biomass co-firing (BECCS)



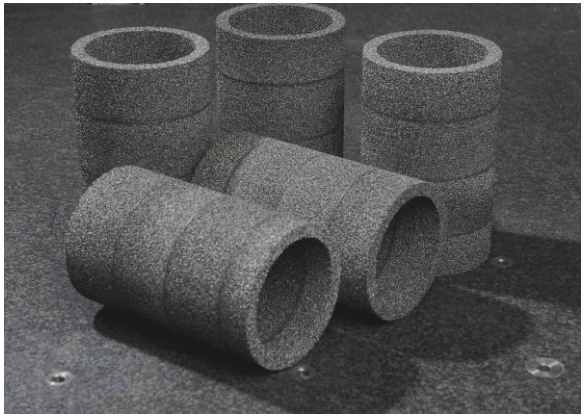
- Advanced application of commercially-proven technology
- Demonstrated at pilot scale (1 MWt) with waste coal slurry fuel and CO_2 capture at CONSOL's R&D facility in 2009-2010
- Completed conceptual design and pre-FEED studies as part of the U.S. Department of Energy's Coal FIRST program
- Evaluating potential plant sites at/near CONSOL's Pennsylvania Mining Complex

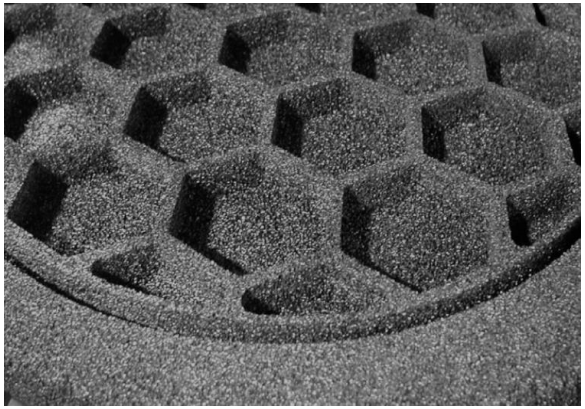
Desirable Traits of Coal-to-Products Opportunities

- Commercially-relevant scale
  - Tons
  - Revenue
- Capitalizes on the unique physical and chemical characteristics of coal
- Technical performance as good or better than the alternative feedstock/product
- Economics as good or better than the alternative feedstock/product
- Synergistic with existing operations/logistics infrastructure
- Has an attractive environmental profile (including low greenhouse gas emissions) throughout the lifecycle

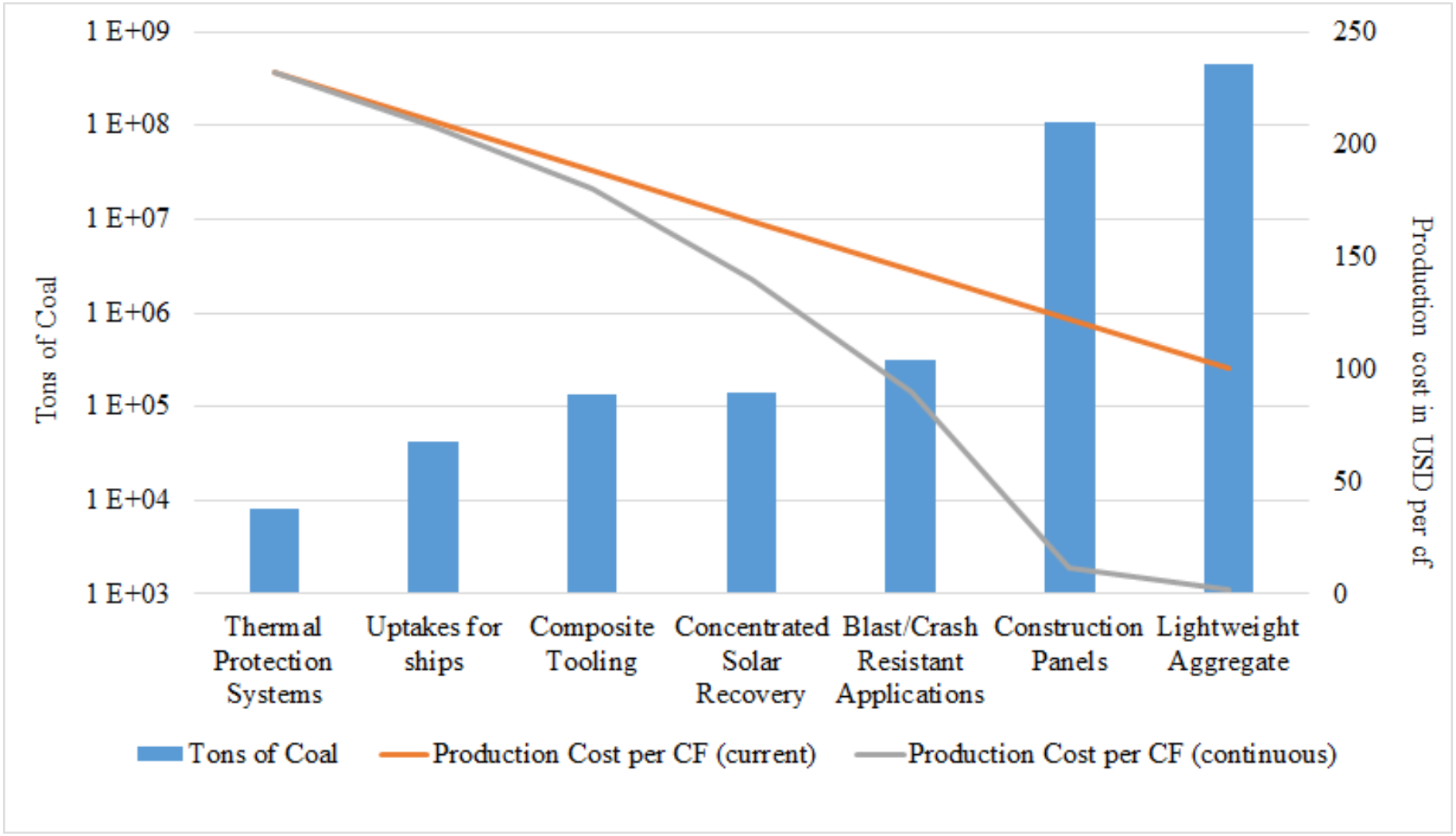
CFOAM

- Manufacturer of high-performance carbon foam products from coal
- CONSOL acquired 25% equity interest in CFOAM Corp. in December 2019
- Manufacturing facility located in Triadelphia, WV
- Current primary market is composite tooling for the aerospace sector
- Well-suited for wide range of energy absorbing, structural, and defense applications
- Opportunities for R&D to reduce cost, refine material properties, and expand into higher-volume market opportunities
- Estimated potential total addressable market >$15 billion/year



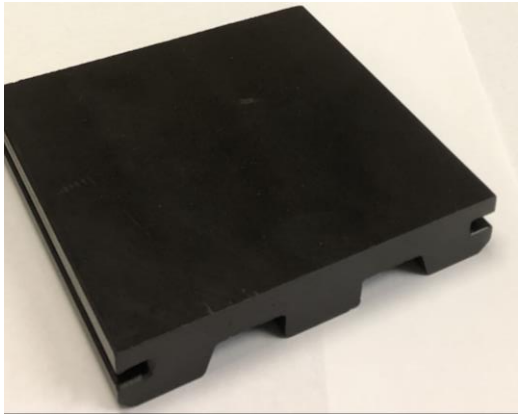


CFOAM – The Opportunity



Coal Plastic Composites (CPCs)

- Technology invented at Ohio University
- U.S. DOE funding a team including Ohio University, CONSOL, Engineered Profiles, PNNL, and Clear Skies Consulting to further develop and scale up the technology
- CPCs show promise as engineered composite material for decking and other construction applications
  - Equivalent or greater strength with higher filler content than wood plastic composites (WPCs)
  - Excellent oxidation resistance and predicted service life
  - Superior flammability properties and moisture resistance
- Initial techno-economic studies predict lower manufacturing costs vs. WPCs
- Lifecycle analysis suggests CPCs are less energy/emissions intensive than WPCs
- Extrusion process currently being developed for commercial-scale equipment



Coal-to-products technologies such as CFOAM and CPCs provide an intriguing new opportunity to utilize our vast coal resource base, with significantly lower emissions and greater value uplift potential than conventional uses of coal.

Recommended Next Steps

1. Engage in focused dialogue with key industry stakeholders (e.g., producers, transportation providers, end users, OEMs, technology developers) to prioritize areas of greatest need / potential impact

2. Obtain input from other industries that have succeeded in implementing analogous technology solutions

3. Work with DOE and other agencies to define needs and explore funding opportunities, and work with MSHA to streamline the approval process for new underground technologies

4. Incorporate both upstream and downstream goals (including mining productivity/cost improvement goals and coal-to-products goals) into roadmapping for the future of coal

5. Fund research targeting high-priority mining, beneficiation, and utilization technologies to engage academia, attract students across a variety of disciplines, and bring renewed interest to the coal space

Innovate to create value and sustainability along all aspects of the coal value chain - from the mine to the stack - and develop new end-uses for coal