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"The Surprisingly Sustainable Case for Coal"

Glenn Kellow
Peabody President and Chief Executive Officer Glenn Kellow
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Amid a fuel that is so often miscast as a Hollywood villain, I'd like to briefly lay out what I would call the surprisingly sustainable case for coal… with three key observations.

First Observation: The story of global energy is not one of good versus evil. It is a tale of the pursuit of two "goods" – affordable, reliable energy and reduced emissions. Maximizing the benefits while minimizing the costs are what so many of us are about every single day.

First, the basics: The world uses some 8 billion tons of coal per year.[1] A bit more than one out of every four units of energy in the world comes from coal – and the International Energy Agency (IEA) has noted that this share has actually edged up in the past four decades – and off of a much larger base.[2]

For the first time ever in 2018, global coal-fueled generating capacity topped 2,000 gigawatts (GW). That's a massive 62% increase since the year 2000[3]… and each GW can use about 3 million tons of coal per year. Some 300 GW of new coal-fueled generation is under construction in Asia alone – more than the entire existing U.S. coal fleet.[4] More than 40 nations have added coal-fueled generation since 2010.[5]

Within the U.S., past years of regulatory burden, financial incentives to switch fuels, and a country-specific shale play have created a secular decline, but coal still fuels over a quarter of electricity generation.[6] During the peak day of the recent polar vortex, coal fueled 37% of electricity – more than any other source.[7]

Coal is also essential to original steel-making, which consumes a billion tonnes of coal each year, and coal provides about 70% of the energy to create cement.[8, 9] Electrification of the transportation sector is already having stunning results, with coal again returning as a major fuel of transportation in places such as China with high-speed trains and electric buses, cars and scooters.

Life expectancy, educational attainment and income all correlate with per capita electricity use and more of the world's electricity is fueled by coal than any other source.[10] Notably, between 1990 and 2010, about 1.7 billion people gained access to electricity.[11] Over the period, for every 1 person who gained access owing to solar and wind energy, 13 gained access thanks to coal.[12]

Simply put, the world plans and needs to use coal for the foreseeable future.

Second Observation: Technology has been the proven answer, and we have the opportunity to continue to use technology to drive down emissions.

Step one is to allow the world to access electricity, something lacked by 1 billion people – nearly 15% of the world's population.[13] Around 3 billion people rely on primitive biomass, which would be some 1,000 times cleaner using coal by electrification.[14, 15]

Steps can also be taken to improve emissions from existing fossil fuel generation —- and the track record there is excellent through low-emissions technologies. Since 1970, U.S. emissions from coal have been reduced 82% -- and that is even while coal consumption has risen 146%.[16] The first step of reducing carbon emissions begins with higher efficiency. Globally, the average efficiency of coal-fueled power plants today is 35%. Raising that average by 5 points, to 40%, would reduce global emissions by 2 gigatonnes – or the equivalent of India's annual total.[17] Positive steps are already being taken. In China, high-efficiency low-emissions plants comprise 66% of the installed capacity.[18]

It is notable that 24 countries, accounting for over half of global coal power emissions, have included advanced coal technologies in their nationally determined contributions under the Paris Agreement.[19] Many of the largest coal-consuming countries in the world continue to see a role for coal in a carbon-constrained world.

The final "grand prize" for advanced coal technologies comes through widespread deployment of carbon capture, use and storage (CCUS). The Intergovernmental Panel on Climate Change has said not only would the cost of achieving the 2°C goal be 138% more expensive, it may well not be possible without widespread deployment of CCUS technology.[20]

The coal fleet in Asia is less than 15 years old and can be retrofitted with CCUS. Over 300 GW of the existing coal-fired power capacity in China alone already meets substantial criteria for being suitable for CCUS retrofit.[21]

In reality, the world needs greater regulatory clarity around CO_2 storage and greater deployment of plants. The technology exists today, though it is only through learning by doing that we optimize project costs to deploy at scale. In addition, there are transformational technologies in the innovation pipeline that promise to reduce costs even further with continued research and development.

In the U.S., we are already seeing a reason for renewed optimism in this field with the passage of the FUTURE Act legislation advancing the 45Q tax credit. Peabody was pleased to be part of a bi-partisan effort supporting its passage.

Third Observation: While both market and company-specific factors will still lead to winners and losers, **recent industry challenges may paradoxically enable greater financial strength for those that take a contrarian position and remain**. Several major dynamics are at play:

The first is environmental activism. Permitting of a mine or a port is likely to bring substantial pushback and delays in production that limits sourcing.

The second dynamic is the turning away from coal by certain global diversified miners and some investors through fossil fuel divestment. This, too, limits sourcing opportunities. The world's largest mining company's divestment of much its thermal coal while still retaining the largest export portfolio of met coal; the world's second largest mining company's complete exit from coal; the world's largest seaborne thermal coal supplier's rapid surge then announced capping of coal; and the Euro-American divestment movement of fossil fuels all point to an industry not receiving investments in new supply to the extent it would have as recently as the beginning of this decade.

Ironically, though, very little of this impacts the underlying demand of our product, particularly in the busy ports of dozens of Asia-Pacific nations. Again, demand edges up as supply remains tight.

A world that will use coal for many decades more into the future... also needs sustainable coal companies more than ever. If you drive first-tier, sustainable companies from coal, then the resulting effects will be negative for multiple stakeholder groups and society as a whole.

The third dynamic is a capex-light world that so many major companies in extractive industries find themselves in... where capital investments run well below both historic levels and current depletion. Shareholders in a cyclical industry were tired of cash often being wasted on marginal returns in the good times and losses in the bad times. They are calling for far greater discipline in capital allocation with a preference for cash returns to shareholders. A quick analysis of capital investments in the coal industry since the early part of this decade reveals that capex is running less than half its peak level.

The fourth dynamic comes in the form of technical elements that also discourage investments. The move to spot markets and short-term contracts create the potential for greater volatility and shorter-term decision making.

To complete the thought, the coal industry of course faces multiple challenges. The twist here is that within our challenges may be embedded opportunities.

Those opportunities present themselves for those of us with the wherewithal to remain financially sound, to manage well, to insist on responsible mining, and to encourage advanced technologies to continually reduce emissions.

I suspect that coal will remain viable for far longer than some would like — but for far greater good of multiple stakeholders than many might realize.

[1] International Energy Agency Coal Outlook 2018, table 1.1.
[2] International Energy Agency 2018 World Energy Outlook, page 528; 2018 BP Statistical Review data tables.
[3] International Energy Agency 2018 World Energy Outlook, page 528.
[4] IHS Markit, Houston Energy Briefing, slide 68.
[5] Platts World Electric Powerplant Database.
[6] Energy Information Administration.
[7] Woodmac 2019 Polar Vortex Performance Review, page 24.
[8] International Energy Agency Coal Outlook 2018, table A4.
[9] World Coal Association Proof Points, January 2019, page 2.
[10] United Nation's Human Development Index.
[11] Center for Energy Policy and the Environment at the Manhattan Institute: Not Beyond Coal, How the Global Thirst for Low-Cost Electricity Continues Driving Coal Demand, page 9.
[12] Center for Energy Policy and the Environment at the Manhattan Institute: Not Beyond Coal, How the Global Thirst for Low-Cost Electricity Continues Driving Coal Demand, page 3.
[13] International Energy Agency 2018 World Energy Outlook, page 86.
[14] World Health Organization: https://www.who.int/news-room/fact-sheets/detail/household-air-pollution-and-health.
[15] Gradient Study, 2014. Literature-based Analysis of the Relative Airborne Exposure Impacts of Emissions from Coal-fueled Power Plants *versus* Traditional Household Solid Fuel Combustion, page 9.
[16] World Coal Association Q1 2019 Presentation, page 27.
[17] World Coal Association Proof Points, January 2019, page 7.
[18] Wood Mackenzie: Outlook and Benefits of an Efficient U.S. Coal Fleet, page 5.
[19] UNFCCC: https://www4.unfccc.int/sites/submissions/indc/Submission%20Pages/submissions.aspx.
[20] IPCC, 5th Assessment Report, 2014; Included in WCA Proof Points, January 2019, page 9.
[21] International Energy Agency analysis 2018; Included in WCA proof points, January 2019, page 10.