Issue 1 ▪ 2019

coal ENERGY

From the Mine to the Utility

GLOBAL WARMING ENERGY RESTRICTIONS THREATEN U.S. NATIONAL SECURITY

UPCOMING MINER'S MEMORIAL

WORLD NEWS: IEA'S GLOBAL COAL FORECAST

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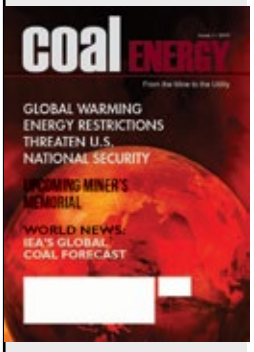

APRIL 2019

Dear readers,

Welcome to Issue 1, 2019 of ***Coal Energy. Coal Energy*** is proud to be the source journal for information about coal related associations in the industry. We currently provide information at your fingertips on different groups to benefit your companies' needs and targets. By providing information at a glance on each group, and including current member lists, your company can analyze the forums available to market, promote, and lobby for America's future regarding coal energy.

In this issue we dive into the effect of global warming energy restrictions on U.S national security.

In every issue, ***Coal Energy*** includes a world news piece to bring the reader up to date on import/export and investment news around the globe. In this issue we take a look at IEA's global coal forecast to 2023.

Every year our writers gather information on the tragic loss of coal miners in the industry. MSHA's updates are included semi-annually as well as tributes and memorials to honor our fallen miner's. The memorial for 2018 will be included in the next issue. Please stay tuned to remember our nation's heroes that lost their lives to provide energy for America. Please take a moment of silence as you review information regarding these eleven miners on page 7.

Coal Energy is also proud to be able to provide quick news updates gathered from various sources to create an easy wealth of industry information at the click of a button. From newly released equipment, to quarterly finance news, you can easily review important industry happenings in our press release section starting on page 21.

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And again, thank you for picking up, or clicking on, another edition of ***Coal Energy.***

If you have any questions, editorial submissions, advertising interest or just comments about ***Coal Energy*** please feel free to email me directly at **maria@martonickpublications.com.**

Warmest regards,

Maria Martonick

Maria Martonick
President
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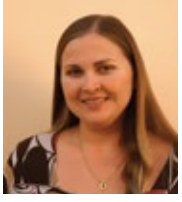

ASSOCIATION COMPARISONS

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MISSION:
NMA's mission is to build support for public policies that will help Americans fully and responsibly benefit from our abundant domestic coal and mineral resources. Our objective is to engage in and influence the public process on the most significant and timely issues that impact mining's ability to safely and sustainably locate, permit, mine, transport and utilize the nation's vast resources.

NMA serves its membership by:

- Promoting the safe production and use of coal and mineral resources
- Establishing a strong political presence in the Nation's Capital
- Serving as the information center for and a single voice of U.S. mining
- Addressing the current and future policy needs of U.S. mining, mining equipment manufacturers and support services members of NMA

https://www.nma.org

NATIONAL COAL TRANSPORTATION ASSOCIATION

MISSION:
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https://movecoal.org

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MISSION:
ASMR's mission is to represent and serve a diverse national and international community of scientists, practitioners, private industry, technicians, educators, planners, and government regulators involved in mineral extraction and the reclamation of disturbed lands. ASMR promotes the advancement of basic and applied reclamation science through research and technology transfer in the Society's annual meetings, workshops, published proceedings, newsletters, Reclamation Matters magazine, and the ASMR web site.

https://www.asmr.us

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MISSION:
The ACAA advances the management and use of coal combustion products in ways that are environmentally responsible, technically sound, commercially competitive and more supportive of a sustainable global community.

https://www.acaa-usa.org

AMERICAN COAL COUNCIL

MISSION:
American Coal Council (ACC) provides relevant educational programs, market intelligence, advocacy support and peer-to-peer networking forums to advance members' commercial and professional development interests.

ACC represents the collective interests of the American coal industry ~ from the hole-in-the-ground to the plug-in-the-wall ~ in advocating for coal as an economic, abundant and environmentally sound fuel source ACC serves as an essential resource for industry, policy makers and public interest groups. The Association supports activities and objectives that advance coal supply, consumption, transportation and trading.

https://www.americancoalcouncil.org

WORLD COAL ASSOCIATION

MISSION:
The World Coal Association is a global industry association comprising the major international coal producers and stakeholders. WCA works to demonstrate and gain acceptance for the fundamental role coal plays in achieving a sustainable and lower carbon energy future. Membership is open to companies and not-for-profit organizations with a stake in the future of coal from anywhere in the world, with member companies represented at Chief Executive level.WCA is the global network for the coal industry.

https://www.worldcoal.org

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1. LEONARD GRIFFITH, 52, February 6th 2018, Wolf Run Mining LLC
2. JAMES A WHITLOCK, 38, February 21st 2018, Bundy Auger Mining, Inc.
3. JASON M WILLIAMS, 34, March 16th 2018, Sunrise Coal LLC
4. HUBERT GRUBBS JR., 29, March 28th 2018, Blackjewel LLC
5. RONALD TAYLOR, 43, June 5th 2018, Carter Roag Coal Company
6. KAMERON D RANKIN, 27, September 11th 2018, Rosebud Mining Company
7. ROBERT A GROSTEFON, 60, September 12th 2018, Peabody Energy
8. ROGER W HERNDON, 33, October 17th 2018, Princess Polly Anna Coal Inc.
9. MICKY E COOK, 38, December 11th 2018, Cedar Lake Mining Inc.
10. NEVIN J HOSTETTER, 35, December 20th 2018, AK Coal Resources, Inc.
11. CALEB J BROWN, 25, December 30th 2018, Trans Alta Centralia Mining, Inc.

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MAR 2019

GLOBAL WARMING ENERGY RESTRICTIONS THREATEN U.S. NATIONAL SECURITY

By James Taylor

Summary

- Economic strength is vital to supporting a strong military.
- Carbon dioxide restrictions raise energy prices, which weakens the economy.
- America can leverage its dominant conventional energy sources for geopolitical advantages.
- Nations such as China and Russia dominate the market for rare earth minerals necessary for renewable power generation.
- Global warming is a threat reducer. Asserted "threat multipliers" like crop output, droughts, and extreme weather events are becoming more benign as Earth warms.

Executive Summary

Global warming activists claim climate change poses a threat to America's military and national security. Their primary assertion is that alleged negative impacts from global warming—such as crop failures, droughts, and extreme weather events—create political, social, and military upheaval. To enhance our military security, these activists claim America should impose carbon dioxide restrictions on the U.S. economy and the American people.

The United States sustains the most powerful military in the world, because the dominant U.S. economy enables policymakers to spend more on military preparedness than any other nation. America's continuing ability to field a powerful military depends on the United States retaining its status as the world's dominant economic power. Proposals to restrict U.S. carbon dioxide emissions and impose expensive, jobs-killing energy sources on the economy present a clear and present danger to military strength. This is especially true because the Paris Climate Agreement and other international climate agreements target Western-style democracies and impose no similar carbon dioxide restrictions on many potentially hostile nations.

America has more combined coal, oil, and natural gas resources than any other nation in the world.[1] It leads the world in oil reserves and coal reserves, and it is fourth in the world in natural gas reserves.[2,3,4] Only one other nation has even half as much of these resources as the United States.[5]

Because of its significant role in the globe's most important energy markets, America has unique economic advantages, international leverage, and military power. By contrast, China is the leading source of the rare earth minerals that are necessary to pro-duce wind and solar power equipment.[6] Making a political decision to trans-form the U.S. and global economies from American-dominant energy sources to Chinese-dominant energy sources would pose new and severe threats to American international influence and U.S. national security.

The negative economic and geopolitical impacts of carbon dioxide emissions restrictions and an attempted transformation to a wind- and solar-powered economy are amplified by the lack of any substantial national security threats related to Earth's ongoing modest warming. It is speculative and dubious to assert that crop failures, droughts, or other negative climate events occurring overseas would reduce U.S. national security. However, even if that were the case, the frequency and severity of such unfortunate events is diminishing as Earth modestly warms, not increasing. Rather than being a threat multiplier, the impacts of ongoing modest warming serve as a threat reducer.

The U.S. military can and should prepare for a full range of plausible threats to national security, but preparing for all conceivable threats does not mean all such events are likely to occur. Restricting America's energy freedom and stifling the economy impose a "cure" that is more damaging than the asserted national security threat.

A review of all risk factors reveals that imposing carbon dioxide restrictions on the U.S. economy would diminish, rather than enhance, American military preparedness. Proposed carbon dioxide restrictions would reduce U.S. economic strength, America's international energy influence, and U.S. military strength.

To enhance national security, policymakers should (1) encourage greater production of U.S. domestic conventional energy resources, (2) encourage optimal use of domestic conventional energy resources in the American economy, (3) support more U.S. conventional energy exports, and (4) resist calls to impose carbon dioxide restrictions on the economy.

Economic Power Enables Military Power

The primary factor in a nation's ability to muster and project military strength is a strong economy. A large land area is helpful, but if this were the primary factor, Canada and Russia would have the most powerful militaries in the world. A large population helps, but if this were the primary factor, China and India would have the most powerful militaries. A thriving economy is necessary for sustaining technological research and development and the creation of powerful and effective military facilities, equipment, and personnel.

Policies that reduce a nation's ability to robustly fund military research and deployment diminish

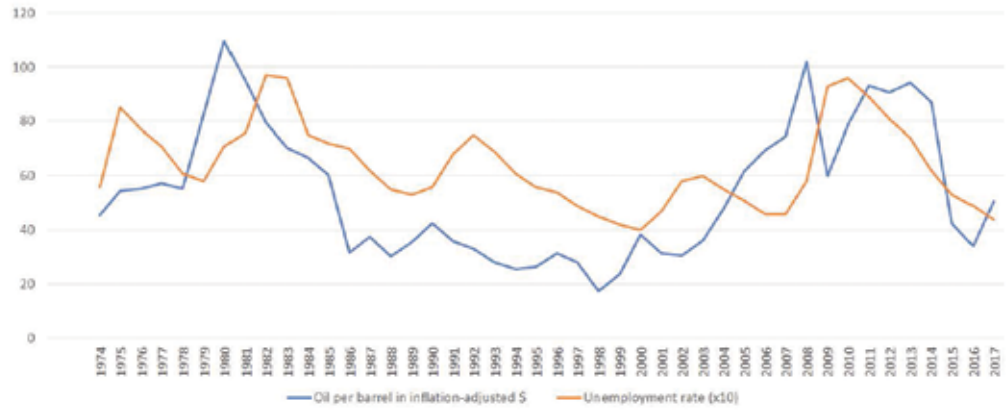
that nation's capability to wield a powerful military. For example, the economic weight of attempting to match U.S. military strength was a key component in the collapse of the Soviet Union.[7]

For the past 75 years, the United States has been the world's most important economic and military power, with economic and military dominance going hand-in-hand. The U.S. economy emerged from World War II producing as much gross national product as the rest of the world combined, and the scope of that economic dominance lasted for decades.[8] While America's economic dominance has diminished over time, the United States continues to lead the world in gross national product. On the foundation of such economic strength, America can dedicate prodigious economic resources to military spending without significant reductions in living standards. As a result, the United States spends more than twice as much on its military than any other nation.[9] This is the basis of its su-preme military might.

Energy Costs Determine Economic Performance

Energy is the lifeblood of modern economies. Energy factors in the production, transportation, and price of every good and service with-in the economy. When energy prices are low, the costs of goods and services remain low and people can purchase additional goods and services. When energy prices are high, the costs of goods and services increase, prohibiting consumers from purchasing the goods and services they desire. Affordable energy is one of the most important factors when attempting to increase living standards and build or expand a vibrant, modern economy.

Figure 1. Oil Prices and Unemployment



Sources: U.S. Energy Information Administration and U.S. Bureau of Labor Statistics

Figure 1 shows that energy prices closely correlate with changes in the unemployment rate, and accordingly the U.S. economy. Each time oil prices rise, unemployment increases soon thereafter. When oil prices fall, the unemployment rate drops. While other factors also impact the national economy, the data show a close correlation between energy prices and subsequent unemployment rates (which reflect the state of the national economy).

Policies that keep energy prices affordable strengthen the U.S. economy and allow for continued robust military spending. Policies that drive energy prices higher stifle the economy and make it more difficult to maintain military budgets necessary for military readiness.

Climate Activist Policies Increase Energy Prices

Global warming activists' prescribed policy options would impose a substantial strain on energy prices and economic vitality. By ham-stringing the U.S. economy for generations to come—while simultaneously leaving potential American adversaries free to utilize inexpensive, conventional fuel sources—global warming activists would severely curtail the United States' ability to continue fielding a dominant military.

Climate activists seek a dramatic reduction in U.S. carbon dioxide emissions, equaling or exceeding reductions called for in the Paris Climate Agreement. This would require abandoning coal, oil, and natural gas as America's primary energy sources. Most climate activist groups also oppose nuclear power and hydro-power, even though they are emissions-free energy sources. In a climate activist's ideal world, wind and solar power would provide nearly all electricity generation, while vehicles would be powered by batteries charged by wind and solar power.

Coal, oil, and natural gas are vital parts of the American and global energy markets, because they are the most affordable, abundant energy options available. U.S. energy companies have no sway in the decisions made by China, Europe, India, Japan, Russia, or the rest of the world regarding energy, and those regions continue to overwhelmingly rely on coal, natural gas, and oil as their primary energy sources. In nearly every nation in the world, these sources provide the majority of power because they are more affordable, abundant, and reliable than wind and solar power. Rapidly developing nations, including China, India, and Indonesia, are responsible for the vast majority of the recent increase in global carbon dioxide emissions.[11] These nations, along with poorer developing nations, will continue to choose the affordable coal power that offers a better path out of poverty compared to expensive and unreliable wind and solar power.

Economic data reveal the comparative benefits of conventional energy to wind and solar power. The Institute for Energy Research (IER) study titled "The Levelized Cost of Electricity from Existing Generation Sources" found replacing coal power with wind power nearly triples electricity costs.[12] The study also determined replacing coal power with solar power raises electricity prices even more.

These findings confirm a previous study by the Brookings Institution, titled "Why the Best Path to a Low-Carbon Future Is Not Wind or Solar Power," which found replacing coal power with wind power doubles electricity costs and replacing coal power with solar power quadruples electricity costs.[13]

Studies of electricity costs in the 50 states confirm the beneficial economic impact of coal power. Coal is the leading source of electricity production in 18 of the 50 states. In only three of those 18 states is the price of electricity higher than the national average, and all three of those states—Kansas, Michigan, and Wisconsin—are severely hampered by wind power. Kansas has the nation's second highest percentage of wind-powered electricity generation. Michigan and Wisconsin are both in the top five for having the fastest increase of wind power, by percentage.[14] Even the cost-effectiveness of inexpensive coal power can mitigate only so much expensive wind power.

These figures are made more remarkable by the fact that the high costs of wind and solar power exist even though wind and solar companies have cherry-picked the best places to generate wind and solar power. Ramping up wind and solar generation from just a few percent to 50 percent, 80 percent, or even 100 percent of U.S. generation would require relying on wind power generated in places other than the windy high plains or the sunny Mojave Desert.

Relying on wind and solar power produced in less than ideal places would drive prices up even higher than they are today, striking a devastating blow to the economy and America's ability to continue wielding a dominant military.

U.S. Fossil Fuel Exports Provide Economic and Strategic Geopolitical Strength

Climate activists would strike a similarly detrimental blow against U.S. economic and geo-political strength by restricting or eliminating American production of conventional energy resources. Regardless of how the United States decides to power its economy, most nations will continue to power their economies using fossil fuels. Although the United States has more energy resources than any other nation, only recently has it become a globally significant exporter of oil and natural gas—two of the three major energy sources. Accordingly,

Europe is beholden to Russia as its main supplier of energy imports, which could potentially undermine Europe's unity with the United States in times of diplomatic or military clashes with Russia.[15]

By producing and exporting more coal, oil, and natural gas to Europe, America would grow its economy and capacity to support its military. There would be an additional benefit, as well: stripping Russia and the Russian economy of its largest energy clients.[16] This would enhance our economic and geopolitical advantages over Russia and other energy exporters who often challenge American geo-political interests.

Other nations that are vital to American geo-political interests are also dependent on conventional energy imports from countries that are antagonistic or hostile to the United States. For example, India, Japan, South Korea, and Turkey are all among the world's top 10 coal importers.[17] Russia's exports give it leverage over these nations. Russia already exports more coal than the United States, and Russian President Vladimir Putin announced this year his intention to further increase Russia's coal exports.[18] Despite this threat posed by Russia, global warming activists and the environmental left continue to block U.S. coal exports.[19]

Ending or impairing the ability of U.S. energy companies to produce and export oil, coal, and natural gas would harm the U.S. economy, reduce American influence on energy - importing nations, and bolster the economies of potential adversaries and the influence of potential adversaries on energy - importing nations.

A Renewables - Driven Economy Would Make America Vulnerable to China

Rare earth minerals are vital to wind and solar power equipment.[20] China dominates the global rare earth minerals market, producing five times more rare earth minerals than the second-leading producer.[21] Russia is the third - leading rare earth producer. America relies on foreign nations, especially China, for its rare earth minerals.

A transformation of the global economy into one dependent on rare earth minerals would freeze out American influence in energy economics and politics. America and other nations would be dependent on the benevolence of China and Russia for their ability to employ new or replacement energy infrastructure.

Global Warming Is a Threat Reducer

We could embark on a full discussion and provide documentation showing why global warming does not present an impending crisis. We could also show that the claim a vast majority of scientists believe humans are creating a climate crisis is a myth. But for the purpose of keeping this paper on point regarding military and national security issues, we instead direct readers to Climate Change Reconsidered II: Fossil Fuels,[22] which contains the latest compilation of climate science authored by the Nongovernmental Inter-national Panel on Climate Change (NIPCC). We also direct readers to Why Scientists Disagree About Global Warming: The NIPCC Report on Scientific Consensus,[23] also published by NIPCC.

The primary argument made by global warming alarmists who say climate change is a national security threat is that the negative impacts for global warming are a "threat multiplier." They claim global warming will ex-acerbate conditions such as droughts, crop failures, extreme weather events, and sea-level rise that can spark political or military conflict or cause refugee crises.

The administration of President Barack Obama issued an executive statement in 2015 summarizing those claims, asserting, "Climate change poses immediate risks to our national security, contributing to increased natural disasters and resulting in humanitarian crises, and potentially increasing refugee flows and exacerbating conflicts over basic resources like food and water."[24] But for global warming to become a national security risk, the amplification of threat multipliers must pose significantly more danger to national security than the harm inflicted on the American economy and geopolitical influence by restricting the production, use, and export of fossil fuels.

The U.N. Intergovernmental Panel on Climate Change (IPCC) examined the threat multiplier topic in its most recent full report. IPCC reviewed the literature on "the relationship between short-term warming and armed conflict" and concluded, "Some of these find a weak relationship, some find no relationship, and collectively the research does not conclude that there is a strong positive relationship between warming and armed conflict."[25]

Even if crop failures and other extreme weather and climate events were to become threat multipliers, the scientific record is clear these events are becoming less frequent and severe as the planet warms. The reduced frequency and intensity of extreme weather events, documented below, is contrary to what is often reported by the mainstream media.

Greater Crop Production, Fewer Crop Failures

Global warming activists often attempt to blame the Syrian Civil War on crop failures caused by drought and climate change. (The Syrian Civil War, which involved a revolt against the Syrian dictatorship, started during the Arab Spring uprisings in 2011.) Setting aside the curious assertion that people demanding a more democratic society, rather than an oppressive dictatorship, is a negative political development, the scientific facts strongly contradict the alarmist narrative.

The 2011 Arab Spring uprisings in Syria occurred in a year in which Syria produced the eighth highest crop yields per acre in its history. This undercuts the assertion that a drought and resulting crop failure caused the Syrian Civil War. Indeed, five of the six most productive Syrian crop yields per acre have occurred during the past 15 years.[26]

The benefits of a warmer climate on food production are even more apparent globally. The World Bank reports global cereal yields per acre have increased by 28 percent since 2000 and 71 percent since 1980.[27]

The benefits of a warmer climate are especially important in the nations with the most people to feed. The five countries with the largest populations are China, India, the United States, Indonesia, and Brazil.

China set a national record for cereal yields (corn, rice, and wheat) per acre in 2016, the most recent year for which there is data. The second highest yields were achieved in 2015. The third highest yields were achieved in 2013. The fourth highest yields were achieved in 2014. Chinese crop production is currently 27 percent higher than it was in 2000, and it has more than doubled its yield per acre since 1980.[28]

India also set a national record for cereal yields per acre in 2016. Like China, each of the six highest yields per acre occurred during the past six years reported. Indian crop production is 30 percent higher than in the year 2000, and more than double the yields per acre in 1980.[29]

The United States set a national record for cereal yields per acre in 2016. Each of the four highest yields per acre recorded in American history occurred during the past four years reported. American crop production is 39 percent higher than in the year 2000 and more than double the yields per acre in 1980.[30]

Indonesia set a national record for cereal yields per acre in 2016. Each of the five highest yields per acre occurred during the past five years reported. Indonesian crop production is 34 percent higher than in the year 2000 and nearly double the yields per acre in 1980.[31]

Brazil set a national record for cereal yields per acre in 2015. Each of the five highest yields per acre occurred during the past five years. Brazilian crop production in 2015 was 92 percent higher than in the year 2000 and more than triple the yields per acre in 1980.[32]

Globally, the U.N. Food and Agriculture Organization reports the 2017–18 season produced record global cereal yields per acre. The record that had been set in 2013–14 was broken in 2014–15, which was then broken in 2015–16, which was then broken in 2016–17, and then broken again in 2017–18.[33]

As Earth continues its modest warming, it is likely crop yields will continue to set new re-cords. If crop failures are a threat multiplier, then crop production is serving as a threat reducer in a warming world.

Substantial Greening of Earth

The beneficial crop yield trends are supported by trends regarding global foliage and glob-al soil moisture. NASA satellites have measured a substantial greening of Earth during recent decades, illustrating on-going improvements in crop yields are not merely the result of better fertilizers or agricultural technologies. Vegetation is becoming denser and is extending its reach into previous desert and semi-desert landscapes throughout the world.[34] Scientists have identified higher

atmospheric carbon dioxide and better climate conditions as the primary contributors.[35]

Improving Global Soil Moisture, No Increase in Drought

Global soil moisture has been much higher in recent decades than it was a century ago. Higher global temperatures are increasing rates of evaporation from the oceans, resulting in additional rainfall over land surfaces. A comprehensive assessment of global soil moisture throughout the twentieth century found, "In contrast to predictions of summer desiccation with increasing temperatures, for the stations with the longest records summer soil moisture in the top 1 [meter] has increased while temperatures have risen. The increasing trend in precipitation more than compensated for the enhanced evaporation."[36]

More recent data and studies have confirmed this century's trend of increases in soil moisture and no increase in the number of droughts. For example, a study published in the peer-re-viewed Nature in 2012 found, "there has been little change in drought over the past 60 years."[37]

A 2013 study published in the peer-reviewed Theoretical and Applied Climatology reported that globally there has been "no significant trend in the areas under drought over the land in the past three decades."[38]

A 2014 study published in the peer-re-viewed Scientific Data examined three de-cades of precipitation and soil moisture and found drought extent declined between 1982 and 2012 in all five categories used to rank drought conditions.[39]

A 2016 study published in the peer-reviewed International Journal of Climatology found, "for most of the [coterminous United States], drought frequency appears to have decreased during the 1901 to 2014 period."[40]

In April 2017, the smallest percentage of the United States on record experienced drought conditions.[41]

A 2018 study published in the peer-reviewed Weather and Climate Extremes found no "clear trend on the number and/or intensity of droughts at global or continental level." More-over, an "analysis of the extreme hot spots of agricultural drought does not identify an in-crease on the number of events and/or in their intensity."[42]

No Worsening of Hurricanes

Hurricane and tropical storm data reveal no statistically significant worsening trends. During the past 50 years there has been a slight decline in the number of tropical storms and hurricanes. There has been a very modest in-crease in the frequency of major hurricanes since 1980, though the trend has been declining during the past 25 years.[43]

In 2017, the United States ended an 11-year string without a major (Category 3 or higher) hurricane, easily shattering the previous record.[44] Further, there is no evidence that hurricane activity would pose a military or national security threat to the United States, even if activity were to increase.

Reduction in Tornado Strength, Frequency

Most of Earth's recorded tornadoes occur in the United States, and in 2017–18, America set a record for the longest period in history with-out a single tornado death, indicating global warming is not causing an increase in the number of deadly tornadoes.

Further, all four of the longest periods with-out a tornado death have occurred since 2012, and the United States went from 2013 through 2018 without a single F5 tornado strike, the second longest period in history.[45,46]

No Acceleration in Pace of Sea-Level Rise

Environmental activists claim global warming is causing an acceleration in sea-level rise. They assert such acceleration is threatening to inundate U.S. military (and particularly naval) bases. They also claim the acceleration in sea-level rise is creating climate refugees. The scientific evidence, however, contradicts the notion that global warming is causing an acceleration in sea-level rise.

Satellite instrument measurements show global sea-level rise is occurring at a pace of just 1.2 inches per decade.[47] The data, which stretch back 25 years, show no significant recent increase in the pace of sea-level rise. The recent and present pace of sea-level rise indicates there will be just 3.6 inches of global sea-level rise by 2050,

which is in keeping with the pace of sea-level rise throughout much of the twentieth century.

A November 2018 study published by climate scientist Judith Curry, former chair of the School of Earth and Atmospheric Sciences at the Georgia Institute of Technology, examined sea level during the past several thousand years, and during the past century in particular. The study confirms there has been no recent acceleration in sea-level rise. The study found sea levels were higher 3,000 years to 6,000 years ago, and sea levels have also been rising since the mid-1800s. Curry's study shows the pace of sea-level rise from 1920 to 1950—when carbon dioxide emissions were relatively minimal—is similar to the pace of sea-level rise today. "The emergence of fossil fuel emissions prior to 1950 did not contribute significantly to 19th and early 20th century sea level rise," wrote Curry.[48] As such, the pace of sea-level rise in recent decades is indistinguishable from the pace of natural internal variability.

The study acknowledges that some coastal regions are experiencing more sea-level rise than others, but "in many of the most vulnerable coastal locations, the dominant causes of local sea level rise problems are natural oceanic and geologic processes and land use practices." Analyses by the U.S. Geological Survey shows this is especially the case regarding naval bases in the Hampton Roads and Norfolk, Virginia region. According to the U.S. Geological Survey, land subsidence, rather than rising global sea levels, is responsible for the majority of local sea-level rise in the Chesapeake Bay region, including Hampton Roads and Norfolk.[49]

Scientific evidence also contradicts recent high-profile claims about rapid acceleration in sea-level rise at the U.S. Naval Academy in Annapolis, Maryland. U.S. Naval Academy professor Gina Henderson claimed in public statements that the sea level at the Naval Academy's Annapolis campus is expected to rise between seven inches and 43 inches by 2050.[50]

Sea-level measurements at Annapolis, however, show the city is experiencing sea-level rise at approximately the global average. Scientists have been taking tidal gauge measurements at Annapolis since the 1920s. According to the National Oceanic and Atmospheric Administration (NOAA), sea-level rise at Annapolis is occurring at a pace of merely 1.4 inches per decade, with no recent acceleration.[51] At that rate, there would be only 4.2 inches of sea-level rise by 2050, far less than the seven to 43 inches Henderson predicted.

Even if Henderson's predicted rise in sea level were to occur, this would not create a crisis at the Annapolis naval facilities or pose a threat to national security. Taking Henderson's prediction at face value, the Naval Academy plans to raise its sea wall approximately three feet.[52] Problem solved.

Prescriptive Actions

To enhance American national security, policymakers should encourage greater production of U.S. domestic conventional energy resources, including coal, oil, and natural gas. Greater domestic production would ensure ample supply of affordable energy regardless of overseas geopolitical developments. Affordable energy, is a key to sustaining an economy strong enough to support budgets necessary for military readiness.

Policymakers should also encourage optimal use of conventional energy resources in the U.S. economy. Renewable power mandates, excessive regulations, and state utilities com-missioners who pursue aggressive anti-fossil-fuel agendas threaten national security by draining the American economy of its lifeblood of affordable, abundant energy.

Policymakers should support more conventional energy exports. American coal, oil, and natural gas exports boost the American economy by bringing foreign money into the country. Moreover, more U.S. energy exports will enhance America's geopolitical position by guaranteeing foreign nations are less dependent on major exporters like Russia, Venezuela, and the Middle East.

Finally, policymakers should resist calls to impose carbon dioxide restrictions. Carbon dioxide restrictions—whether in the form of cap-and-trade policies, carbon dioxide taxes, or restrictive international treaties—replace affordable energy with expensive, unreliable energy sources.

The strong negative impact of high energy prices on the U.S. economy would weaken national security by making it more difficult to sustain an ad-equate military budget for the American military.

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ABOUT THE AUTHOR

James Taylor is a senior fellow for environment and energy policy at The Heartland Institute.Taylor is the former managing editor (2001-2014) of Environment & Climate News, a national, monthly publication devoted to sound science and free-market environmentalism.

Taylor has presented analyses about energy and environment issues on CNN, CNN Headline News, Fox News Channel, Fox Business Channel, MSNBC, PBS News Hour, PBS Frontline, CBS Evening News, ABC World News, and other TV and radio outlets across the country. He has been published in virtually every major newspaper in the country.

Taylor has also been a featured presenter at conferences sponsored by the National Conference of State Legislatures, American Legislative Exchange Council, Council of State Governments, National Association of Counties, National Foundation of Women Legislators, State Policy Network, CPAC, Cato Institute, Heritage Foundation, and the European Institute for Climate and Energy.

Taylor received his bachelor's degree from Dartmouth College, where he studied atmospheric science and majored in government. He received his juris doctorate from Syracuse University.

ABOUT THE HEARTLAND INSTITUTE

Founded in 1984, The Heartland Institute is an independent national nonprofit research organization. It is a tax-exempt charity under Section 501(c)(3).The mission of The Heartland Institute is to discover, develop, and promote free-market solutions to social and economic problems. Three things make Heartland unique among free-market think tanks:

§ We communicate with more national and state elected officials, more often, than any other think tank in the United States. In 2018, we recorded nearly a million contacts with elected officials.

§ We produce four monthly public policy newspapers – Budget & Tax News, Environment & Climate News, Health Care News, and School Reform News – which present free-market ideas as news rather than research or opinion.

§ We promote the work of other free-market think tanks on our websites, in our newspapers, at our events, and through our extensive government and media relations. No other institution does more to promote the work of other think tanks than we do.

In 2018, a telephone survey of 500 randomly selected state elected officials (no staff) found 78% of state legislators read at least one of our newspapers "sometimes" or "always." 45% reported a Heartland newspapers "influenced my opinion or led to a change in public policy."

The Leaflet, government relations' weekly e-newsletter, was read by more than half (58%) of all state legislators in the country in 2018. That equates to more than 4,200 state legislators.

In 2018, we appeared in print and online, and on television or radio, nearly 4,300 times and our podcasts were downloaded 3.2 million times. Our Facebook page has more than 100,000 fans, and we use Twitter to promote our free-market mission to more than 74,000 followers every day.

Heartland's annual budget of nearly $6.25 million supports a full-time staff of 40. More than 500 academics, legal scholars, and professional economists participate in our peer-review process, and more than 300 elected officials serve on our Legislative Forum. We are supported by the voluntary contributions of 5,000 supporters. We do not accept government funding.

For more information, please visit our website at www.heartland.org or call 312-377-4000.

PRESS RELEASES

CONSOL Energy Announces Election of Sophie Bergeron as a New Director and Retirement of Pete Carpenter from the Board /

CANONSBURG, Pa., Feb. 8, 2019 /PRNewswire/

CONSOL Energy Inc. (NYSE: CEIX) today announced the retirement of director Alvin "Pete" Carpenter effective March 1, 2019. Mr. Carpenter elected to retire after providing outstanding service as a director of CEIX and its former parent company since 2013, including providing valuable counsel to the Company through its successful separation transaction in 2017. Mr. Carpenter currently serves as a Class I director of the Company and is Chair of the Health, Safety and Environmental Committee and a member of the Compensation Committee.

"We thank Pete for his dedication to our Company and his tireless service and valuable advice through the separation in 2017 and through our first year as an independent publicly traded coal company," said Bill Powell, Chairman of the Board. "We will miss Pete on the Board and wish him all the best," he continued.

Today CEIX also announced the election of a new director, Sophie Bergeron, effective on March 1, 2019. Over her 18-year career in the mining sector, Ms. Bergeron has held various mining engineering and operational positions. She currently serves as the Mine General Manager for Goldcorp Inc.'s Éléonore Mine. Ms. Bergeron joined Goldcorp as Senior Mining Engineer in 2010 and has worked across the company's project portfolio and mining operations in the Americas, including in the role of Director, Health and Safety. During her time at Xstrata, Ms. Bergeron rose to the position of Continuous Improvement Superintendent, completed her Six Sigma certification and earned a certificate in business optimization from Melbourne University in Australia. Ms. Bergeron is an active member of the Québec Mining Association and sits on its board of directors. She holds a bachelor's degree in Mining Engineering from the École Polytechnique de Montréal. Through Ms. Bergeron's education and experience, she has gained expertise in the mining sector, which we believe will provide significant value and insight to the Board particularly with respect to operating and strategic issues.

Jimmy Brock, Chief Executive Officer, stated "on behalf of the Company's Board, we are all pleased to welcome Sophie Bergeron to our team. We are very fortunate to be adding such a highly qualified outside director. We believe Ms. Bergeron's extensive experience in the mining sector will prove very beneficial to our Company."

Ms. Bergeron was elected as a Class I director to fill the vacancy on the Board left by Mr. Carpenter's retirement. She was appointed as Chair of the Board's Health, Safety and Environmental Committee and as a member of the Nominating and Corporate Governance Committee effective March 1, 2019.

ABOUT CONSOL ENERGY INC.

CONSOL Energy Inc. (NYSE: CEIX) is a Canonsburg-based producer and exporter of high-Btu bituminous thermal and crossover metallurgical coal. It owns and operates some of the most productive longwall mining operations in the Northern Appalachian Basin. Our flagship operation is the Pennsylvania Mining Complex, which has the capacity to produce approximately 28.5 million tons of coal per year and is comprised of 3 large-scale underground mines: Bailey, Enlow Fork, and Harvey. The Company also owns and operates the CONSOL Marine Terminal, which is located in the port of Baltimore and has a throughput capacity of approximately 15 million tons per year. In addition to the ~698 million reserve tons associated with the Pennsylvania Mining Complex, the Company also controls approximately 1.6 billion tons of greenfield thermal and metallurgical coal reserves located in the major coal-producing basins of the eastern United States. Additional information regarding CONSOL Energy may be found at **www.consolenergy.com.**

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SOURCE CONSOL Energy Inc.

Westmoreland Emerges from Chapter 11 / Englewood, CO – March 15, 2019

Westmoreland Coal Company ("Westmoreland" or "the Company") (OTCMKTS: WLBAQ) announced today that its Chapter 11 plan ("the Plan") became effective today and that it has emerged from Chapter 11 as a privately held company owned and operated by a group of its former creditors. The United States Bankruptcy Court for the Southern District of Texas, Houston Division (the "Court") approved the Plan on March 2, 2019.

Through its plan of reorganization, the Company effectuated the sale of substantially all of their assets to a new entity, Westmoreland Mining LLC ("Westmoreland Mining"), created and controlled by the Company's former first lien creditors that enabled the business to emerge from the restructuring process with enhanced financial flexibility, a stronger balance sheet and a renewed ability to focus on providing reliable and affordable energy products. Post- bankruptcy, Westmoreland Mining's assets include an extensive portfolio of coal mining operations, including five operating mines in each of Canada and the U.S. supplying regional power producers, and one export mine in Canada. Westmoreland Mining's assets will remain in operation under the same local leadership, and the business will continue operating in the normal course, preserving over a thousand jobs in the U.S. and Canada. Westmoreland Resource Partners, LP, which owns the Kemmerer mine, remains in Chapter 11 and its mining assets have not been acquired by Westmoreland Mining.

Following the planned retirement of Michael Hutchinson from the Company at the conclusion of the restructuring process, Martin Purvis will take on the role of Chief Executive Officer for the emerging enterprise and David Stetson will serve as Chairman for Westmoreland Mining. Both David and Martin have considerable experience in the resource industry and have been involved in major restructuring and corporate development of coal operations and assets over their careers.

Additional information on the process, including court filings and background information on the restructuring process, is available at **www.donlinrecano.com/westmoreland** or through Westmoreland's dedicated hotline at (800) 499-8519.

Kirkland & Ellis LLP is acting as legal counsel to Westmoreland; Centerview Partners LLC is acting as investment banker and financial advisor; Alvarez & Marsal is acting as restructuring adviser; and McKinsey Recovery & Transformation Services U.S., LLC is acting as an

operational advisor. The first lien creditors and Westmoreland Mining were advised by Kramer Levin Naftalis & Frankel LLP as legal counsel, and FTI Consulting Inc. as financial advisor.

ABOUT WESTMORELAND COAL COMPANY

Westmoreland Coal Company (OTCMKTS: WLBAQ) is the oldest independent coal company in the United States. Westmoreland's coal operations include surface coal mines in the United States and Canada, underground coal mines in New Mexico, a char production facility, and a 50% interest in an activated carbon plant. Westmoreland also owns the general partner of and a majority interest in Westmoreland Resource Partners, LP, a publicly-traded coal master limited partnership. For more information, visit **www.westmoreland.com.**

FORWARD LOOKING STATEMENTS

This release contains forward-looking statements about Westmoreland. The company claims the protection of the safe-harbor for forward-looking statements contained in the Private Securities Litigation Reform Act of 1995. Forward-looking statements are statements neither of historical fact nor guarantees or assurances of future performance. Because forward-looking statements related to the future, they are subject to inherent uncertainties, risks and changes in circumstances that are difficult to predict and could cause actual future events and results to differ materially from those expressed in the forward-looking statements.

Forward-looking statements include, but are not limited to, statements regarding: the expected beneficial outcomes of the filing for relief under chapter 11 of the U.S. Bankruptcy Code or other restructuring process transactions; asset sales; first day motions; the RSA; DIP financing; the future position of the company; and the outcomes of the transformation initiative.

These and other forward-looking statements regarding Westmoreland's business outlook are based on Westmoreland's current expectations and assumptions regarding their business, the economy, demand for their products, success in completing their transformation and restructuring processes, and other future conditions. These risk factors, and others, are included in reports on file with the Securities and Exchange Commission for Westmoreland. Westmoreland cautions you against relying on any of these forward-looking statements. Westmoreland undertakes no obligation to publicly update or revise any forward-looking statements.

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Holly Keller Koeppel and Robert Brewster Hamill Elected to Arch Coal's Board of Directors/ ST. LOUIS, March 1, 2019 /PRNewswire/

Arch Coal, Inc. (NYSE:ARCH) announced today that Holly Keller Koeppel, a former senior executive in both the utility and financial services industries, and Robert Brewster Hamill, a retired managing director at Jefferies and Company, have been elected to its board of directors, effective immediately.

"We are extremely pleased to welcome Holly and Bob to the Arch Coal board," said James N. Chapman, Arch's board chair. "They bring proven leaderships skills and a wealth of experiences in energy and financial markets that are directly applicable to Arch. I am confident that they will be great additions to the Arch team."

"I echo Jim's enthusiasm about the addition of Holly and Bob to our high-performing board," said John W. Eaves, Arch's chief executive officer. "I look forward to working with the two of them, and with the rest of the board, as we chart Arch's future course in a smart, responsible and value-creating manner."

Most recently, Holly Keller Koeppel served as managing partner and head of Gateway Infrastructure Investments LP and as partner and global co-head of Citi Infrastructure Investors at Citigroup, Inc. Prior to those roles, Koeppel held the position of executive vice president and chief financial officer, along with other leadership posts, at American Electric Power. Earlier in her career, she held senior leadership positions at Consolidated Natural Gas Company.

Koeppel currently serves on the boards of AES Corporation, B.A.T. Industries PLC, and Vesuvius PLC, and is a former board member of CoaLogix, Inc., Energy Insurance Mutual Ltd., Integrys Energy Group, Inc., and Reynolds American, Inc. She earned Bachelor of Science and Master of Business Administration degrees from The Ohio State University in Columbus, Ohio.

Robert Brewster Hamill recently retired from Jefferies and Company, where he had served as managing director of high-yield bond and leveraged loan sales since 2008. Prior to joining Jefferies, Hamill was managing director of high yield sales at Lehman Brothers and managing director of high-yield finance at J.P. Morgan Securities. Earlier in his career, he held senior positions at Drexel Burnham Lambert and E.F. Hutton & Company.

Hamill earned an undergraduate degree from Hamilton College in Clinton, N.Y., and a Master of Business Administration degree from the Harvard Graduate School of Business Administration in Boston, Mass.

Scott Vogel, who has been an Arch director since October 2016, will not stand for re-election at the annual meeting in May. At that time, the company expects to have eight directors.

U.S.-based Arch Coal, Inc. is a top coal producer for the global steel and power generation industries. Arch operates a streamlined portfolio of large-scale, low-cost mining complexes that produce high-quality metallurgical coals in Appalachia and low-emitting thermal coals in the Powder River Basin and other strategic supply regions. For more information, **visit www.archcoal.com.**

Forward-Looking Statements: This press release contains "forward-looking statements" – that is, statements related to future, not past, events. In this context, forward-looking statements often address our expected future business and financial performance, and often contain words such as "expects," "anticipates," "intends," "plans," "believes," "seeks," or "will." Forward-looking statements by their nature address matters that are, to different degrees, uncertain. For us, particular uncertainties arise from changes in the demand for our coal by the domestic electric generation and steel industries; from legislation and regulations relating to the Clean Air Act and other environmental initiatives; from operational, geological, permit, labor and weather-related factors, from the Tax Cuts and Jobs Act and other tax reforms; from the effects of foreign and domestic trade policies, actions or disputes; from fluctuations in the amount of cash we generate from operations, which could impact, among other things, our ability to pay dividends or repurchase shares in accordance with our announced capital allocation plan from future integration of acquired businesses; and from numerous other matters of national, regional and global scale, including those of a political, economic, business, competitive or regulatory nature. These uncertainties may cause our actual future results to be materially different than those expressed in our forward-looking statements. 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 law. For a description of some of the risks and uncertainties that may affect our future results, you should see the risk factors described from time to time in the reports we file with the Securities and Exchange Commission.

Peabody elects Andrea Bertone to board of directors / ST. LOUIS, Feb. 21, 2019 /PRNewswire/

Peabody (NYSE: BTU) today announced that Andrea Bertone has been appointed as a member of the company's Board of Directors. Bertone is the former President of Duke Energy International.

"We welcome Ms. Bertone to the Board of Directors. She is an accomplished leader with extensive experience both in operations and in the energy industry," said Peabody Chairman of the Board Robert A. Malone. "Her appointment strengthens the breadth of talent and background of Peabody's Board, and I'm confident that she will bring meaningful value to the company."

Bertone spent 15 years at Duke Energy, including seven years as President of Duke Energy International with executive responsibility for coal, gas and hydro assets across a number of countries. Prior to her time at Duke Energy, Bertone was Latin America counsel with Baker & McKenzie. She began her career as an attorney in Sao Paulo, Brazil, including an in-house corporate attorney for TAM Airlines.

Bertone earned a Bachelor of Law from the University of Sao Paulo Law School in Brazil and a Master of Law in International and Comparative Law from Chicago-Kent College of Law at the Illinois Institute of Technology. She is currently a director of Yamana Gold, a Canadian listed gold producer.

Bertone will serve on both the Board's Health, Safety, Security and Environmental Committee, and Audit Committee.

Peabody (NYSE: BTU) is the leading global pure-play coal company and a member of the Fortune 500, serving power and steel customers in more than 25 countries on six continents. The company offers significant scale, high-quality assets, and diversity in geography and products. Peabody is guided by seven core values: safety, customer focus, leadership, people, excellence, integrity and sustainability. For further information, visit **PeabodyEnergy.com.**

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SOURCE Peabody

Revised NSPS Standards Encourage the Utilization of Emissions-Reducing Technologies, NMA Testifies at Public Hearing /

February 14, 2019

WASHINGTON, D.C. – The U.S. Environmental Protection Agency's (EPA) proposal to amend the 2015 New Source Performance Standards (NSPS) for new coal-fired power plants is an important return to a sound and lawful standard that clears the way for the utilization of advanced technologies that reduce emissions while maintaining the diversity of the U.S. electric grid, the National Mining Association (NMA) said today in a public hearing on the proposed rule.

Katie Sweeney, NMA Senior Vice President, Legal Affairs, and General Counsel testified the 2015 rule imposed a "de facto moratorium on construction of new coal-fired power plants. The proposed revisions are necessary to allow construction of new, highly efficient coal units, particularly if regulations and fuel markets change and eliminate the current barriers on the construction of new, lower emitting coal-fired units."

BACKGROUND

The 2015 NSPS aimed to make it all but impossible to build a new coal plant in the United States. The standard established partial carbon capture and storage (CCS) along with supercritical pulverized coal as the best system of emission reduction (BSER). At the time of the rule-making, no end-to-end CCS technologies had been demonstrated at scale for coal-fired baseload electricity generation. This technology was unproven and its cost exorbitant and unreasonable. CCS should have been disqualified as BSER for baseload power plants. Its inclusion for coal-based electricity generating units was arbitrary and unreasoned.

At the time of the 2015 rulemaking, NMA argued that EPA should adopt a sound and balanced standard aligned with emission performance of new, highly efficient supercritical and integrated gasification combined cycle technologies. These technologies were proven, commercially offered and capable of achieving real and substantial emissions reductions 20 percent lower than the average emissions rates of subcritical plants that dominate the current coal fleet.

THE VALUE OF COAL

Increased deployment of advanced coal plants in the U.S. will be essential to preserve the dispatchable fuel diversity that has long been a strength of the U.S. electricity system. Over-reliance on natural gas, dependent on just-in-time fuel delivery, poses a threat to reliability and affordability. Through diversification, price increases or supply disruptions in any one fuel can be offset by another. An IHS Markit study from 2017 found that eroding diversity in the U.S. power grid will result in greater price fluctuations, higher power bills and compromise the reliability of electricity supply.

A January 2019 study conducted by Wood Mackenzie found that Japan, Western Europe and China are currently leading the world in the use of HELE technologies that reduce emissions, highlighting the significant opportunity for deployment in the U.S. Improving the average efficiency rate of coal-fired power plants from 33 to 40 percent by using these affordable, commercially-proven technologies could cut U.S. coal-plant emissions by up to 21 percent. While the U.S. currently trails these and other countries in using the most advanced coal technologies, EPA's efforts to amend the NSPS standards are a key step in encouraging innovation in the U.S.

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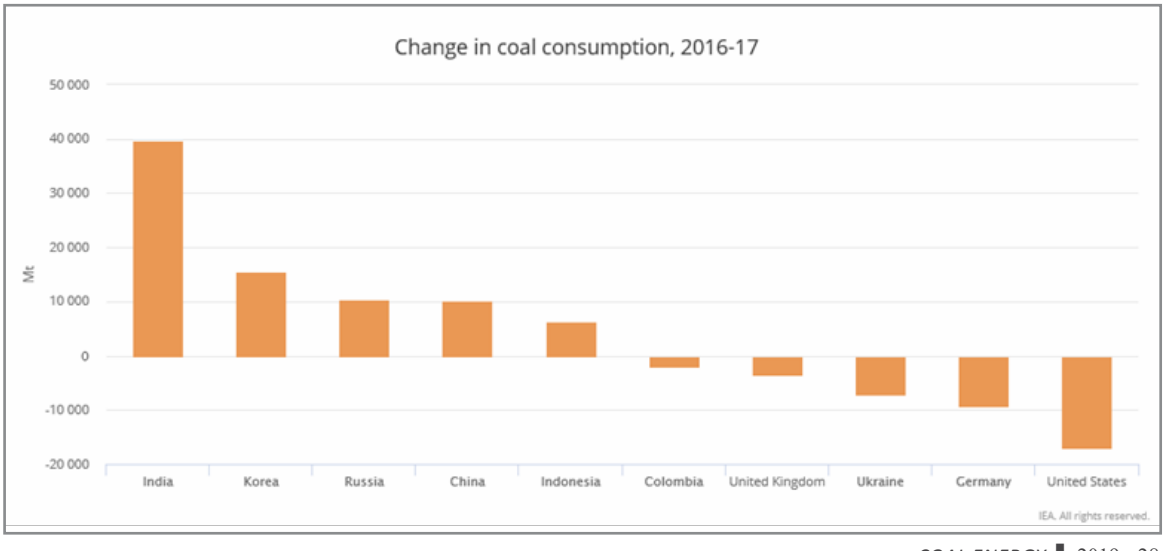
COAL'S GROWTH OVER THE NEXT 5 YEARS

World News: IEA'S GLOBAL COAL FORECAST

Key Findings from IEA's Coal 2018 Analysis and Forecast to 2023

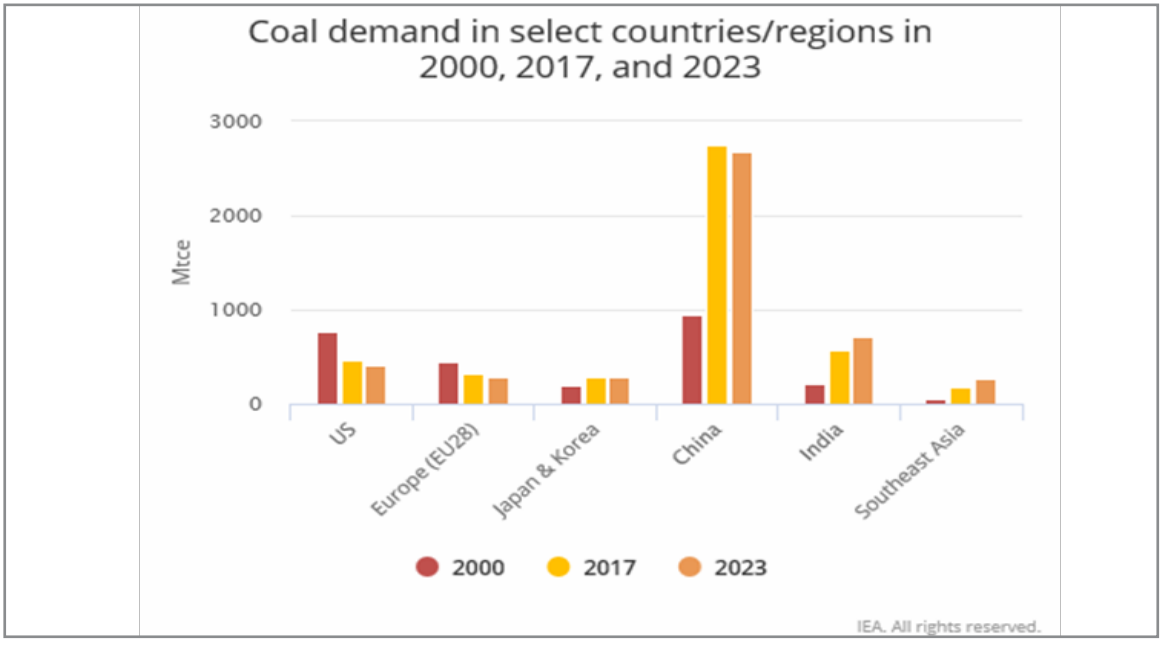
After two years of decline, global coal demand grew by 1% in 2017 to 7585 Mt as stronger global economic growth increased both industrial output and electricity use. Driven by strong coal power generation in China and India, coal demand is expected to grow again in 2018.

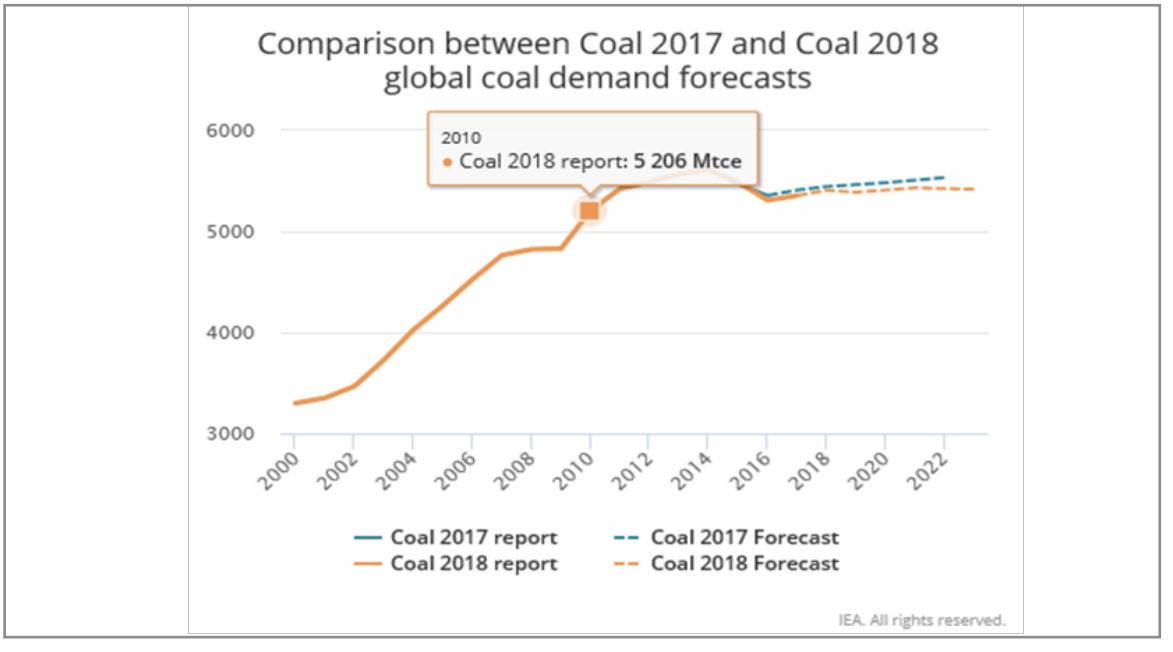


In particular, global coal power generation increased by over 250 TWh, or around 3%, and accounted for about 40% of the additional power generation worldwide. Coal kept its share in the power mix at 38% after some years of decline.

Global coal demand is forecast to be stable through 2023

Global coal demand in the next five years is set to be stable, with declines in United States and Europe offset by growth in India and other Asian countries ¬– though China, the main player in the global coal market, will see a gradual decline in demand. In terms of the total energy mix, coal's contribution will decline from 27% to 25%, mainly due to growth of renewables and natural gas.





THE SEABORNE COAL TRADE EXPERIENCED A REBOUND IN 2017

Chinese coal imports grew by 15 Mt in 2017, and most other large importers, including Korea, Chinese Taipei, Malaysia, Turkey, Philippines, Brazil, Mexico, Vietnam, Pakistan and Morocco had record imports. Japan, Thailand and Chile were very close to their historical highs. With such sustained demand, prices remain high.

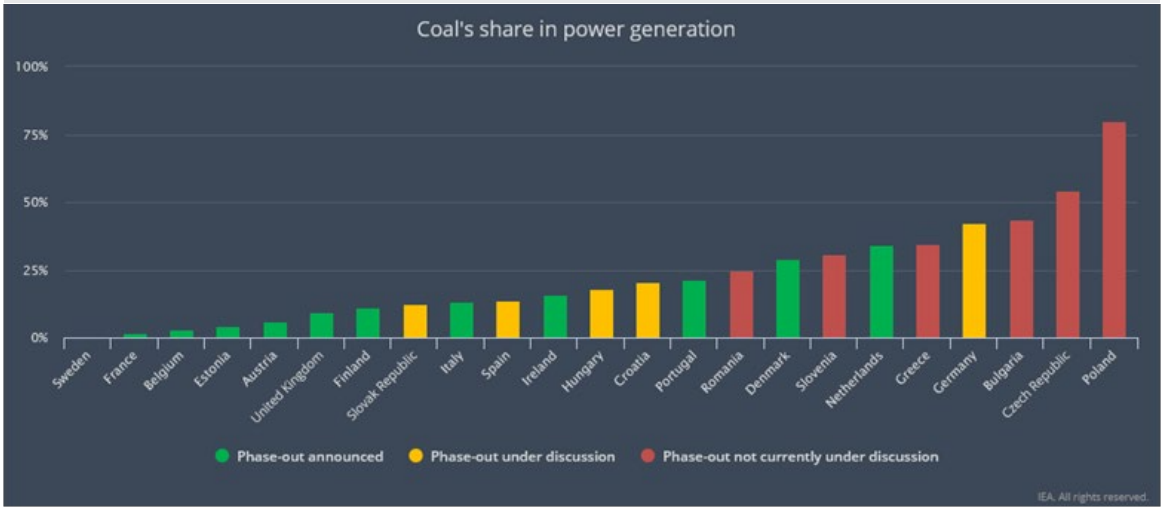
However higher prices aren't triggering new investments. Risks associated with climate policy, potentially stranded assets, local opposition and the memories of the last downturn have cooled investor appetite to invest in new production.

It appears that banks, insurance companies, hedge funds, utilities and other operators in advanced economies are exiting the coal business.

A TALE OF TWO EUROPES

Western Europe is accelerating its coal exit - action on climate change and air pollution combined action to specifically phase out coal-fired power generation, are all impacting coal demand. Along with the expansion of renewables, these policy efforts will eventually push coal out of the Western European power mix.

By contrast, most countries in Eastern Europe have not announced phase-out policies and a handful of new coal power plants are under construction in Poland, Greece and in the Balkans. Some countries in Eastern Europe are among the few places in the world where lignite remains the cornerstone of the electricity system.



BLUE SKIES IN CHINA?

Environmental policies, and in particular clean-air measures, are set to constrain coal demand in China. Yet for now, one out of every four tonnes of coal used in the world is burned to produce electricity in China.

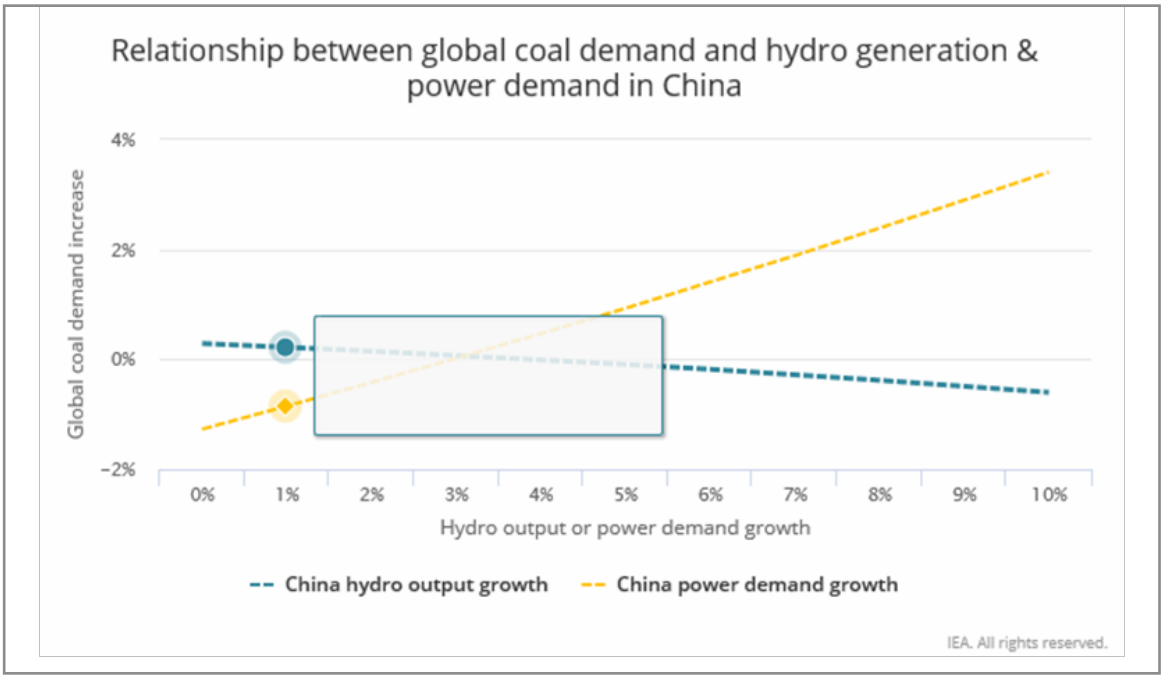
This makes China power sector the largest user of coal in the world by far, and as such, any fluctuation in China's domestic power system can push global coal demand up or down significantly.

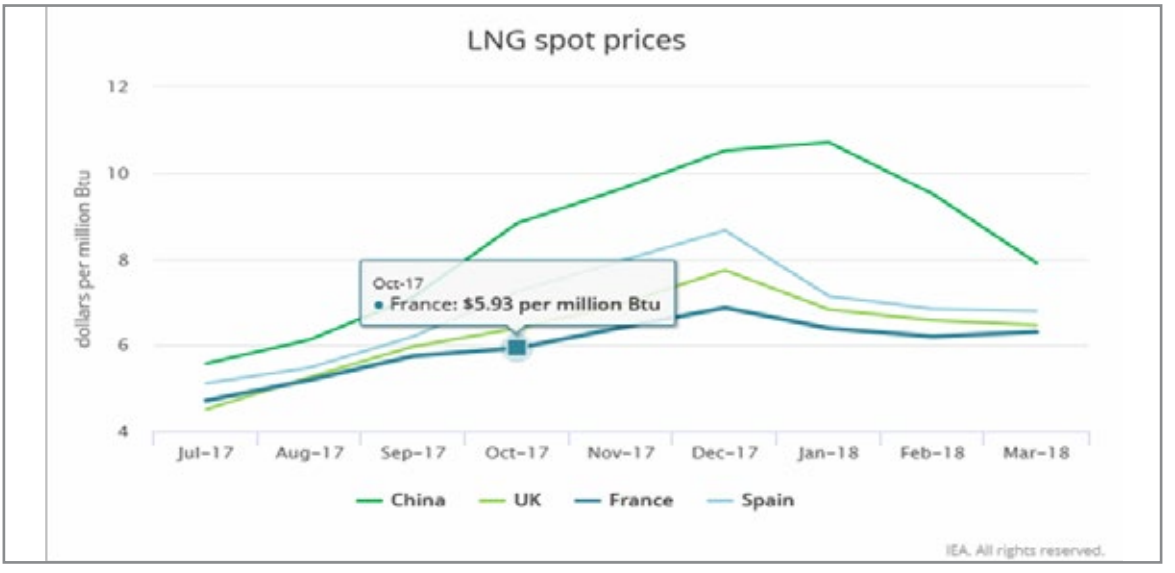
For example, if power demand in China remains stable, global coal demand is set to decline more than 1% per year. But with power demand growth of 10% – similar to the first decade of this century – global coal demand would grow over 3% per year.

Or, with annual growth in hydro output in China of about 1.5%, global coal demand grows at 0.2% per year. But 10% annual growth in hydro output would lead to a decline in global coal demand.

As another example — a shutdown in 2017 of small boilers in China, owing to clean air policies, triggered gas demand in China which in turn pushed up LNG prices in China and around the world.

Given that coal in China is the largest single source of primary energy in the world by far, the interlinkage between fuels and geographies sets Chinese coal in the centre of the energy stage.



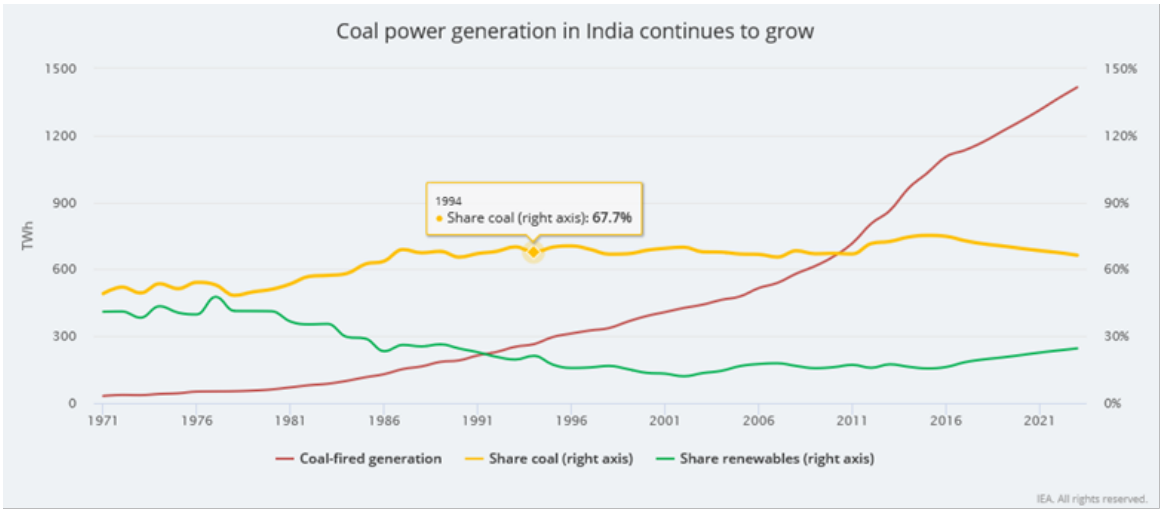


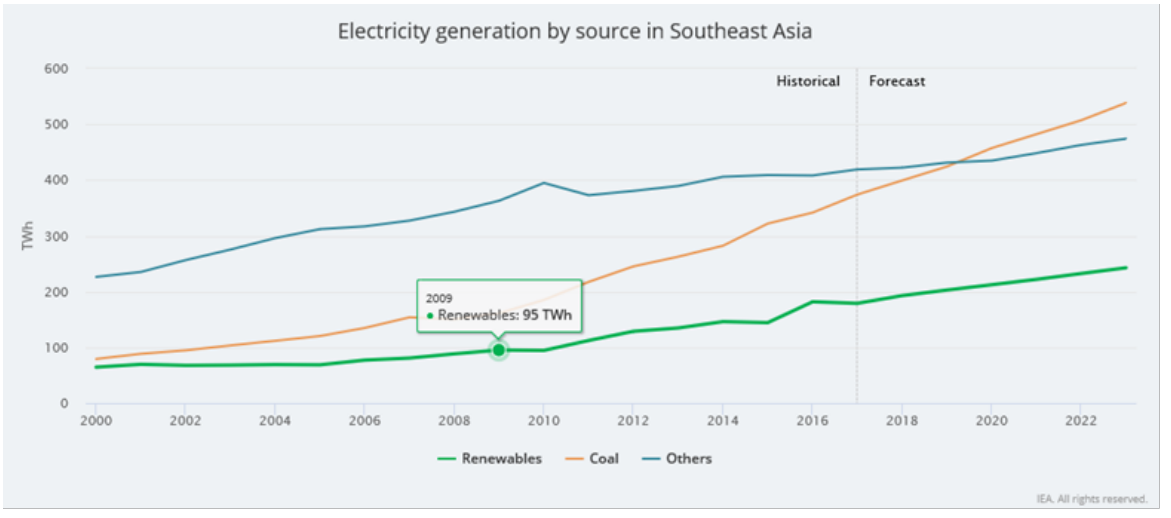
COAL'S ENGINES OF GROWTH

Meanwhile, the unmatched period of coal power generation growth in India is set to continue, having grown continuously since 1974. With the Indian economy expected to grow over 8% per year to 2023 and the electrification process continuing, power demand is forecast to rise by more than 5% per year over the period.

South and Southeast Asia are the second engine of growth

Indonesia, Pakistan, Bangladesh, Philippines and Vietnam have more than 800 million people combined, yet their average annual per capita electricity consumption is just one seventh of that in Europe. Increasing coal power generation, supported by new coal plants under construction, will be the main driver of coal demand growth in those countries.





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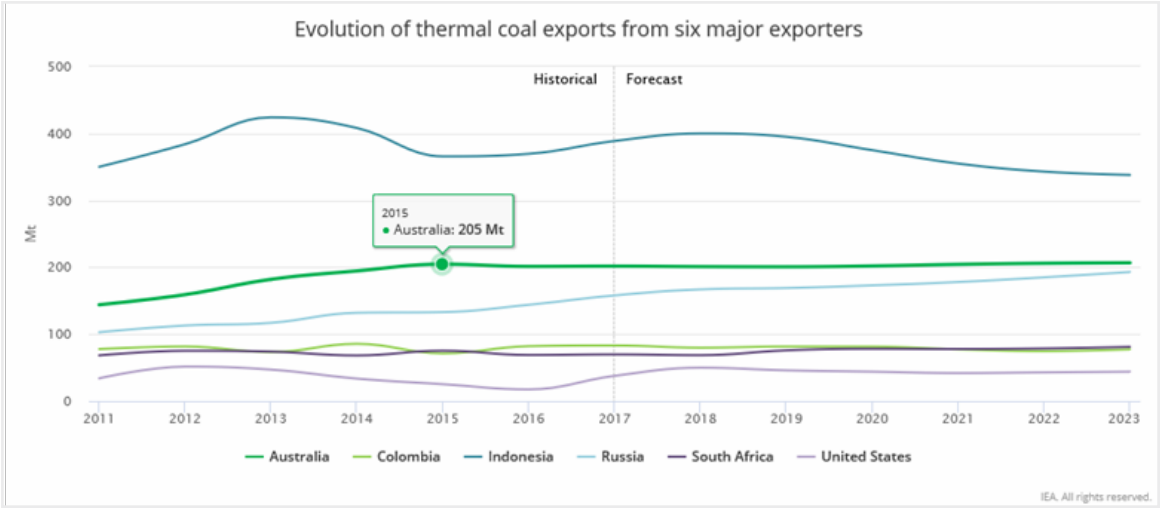

Over the past few years, uncertainty has been a major feature of the import forecast – for example imports to China have been swinging wildly from year to year. Forecasts for India are also uncertain because imports are used to balance a much bigger domestic market, with both coal production and demand growing significantly.

Despite this uncertainty, Colombia and South Africa have proved over the years that exports are more the result of domestic circumstances than the market conditions. Meanwhile, most producers in Australia and Russia are also well placed with expansion in export capacity. In the case of Indonesia and United States, we see many producers on the right side of the supply curve. This is confirmed by the price sensitivity of exports from both countries.

CCUS: THE FUTURE OF COAL

Over the past few years, coal's shift to Asia has resulted in the emergence of two worlds: one with coal power generation and the other without.

This has made it difficult to build agreements on coal and emission reductions. Some countries have committed to end unabated coal power generation by 2030, while in others, the end of coal generation is unlikely given the role that coal plays for securing access to affordable energy.

Carbon capture, utilisation and storage (CCUS) is the bridge between these two worlds. However, while 2018 brought some good news in terms of policies and projects, the world's progress with deploying CCUS remains woefully off-track with what is required for a sustainable energy future.

The IEA is committed to continue to build momentum on this crucial technology, as evidenced by this year's International CCUS Summit, co-hosted by the IEA and the United Kingdom in Edinburgh on 28 November. The Summit contributed to significant new momentum for CCUS and the IEA will continue to support these efforts in 2019 and beyond.

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MARKETER MEMBERS (12)

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Charah, LLC
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Lafarge/Holcim
MRT - A CEMEX Company
National Minerals Corporation
Nebraska Ash
Salt River Materials
Separation Technologies LLC
The SEFA Group
Waste Management
ZAG International

SPECIALTY MARKETERS (6)

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Lehigh Cement
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Sphere One, Inc.
U.S. Minerals
USC Technologies

ASSOCIATE MEMBERS (69)

AECOM
Amec Foster Wheeler
Anne Ellis
APTIM
ASH Mineral Solutions
Beneficiate: North America
Bloomsdale Excavating Co, Inc
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Cementitious Solutions, LLC
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GEI Consultants, Inc.
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GHD
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Hanson Professional Services
HDR
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Hull & Associates, Inc.
Ish Inc
John Ward Inc.
Lhoist North America (formerly Chemical Lime Company)
Moretrench
MRR Southern
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National Gypsum Company
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Nu-Rock Technology Pty. Ltd
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S&ME, Inc
Saiia Construction Company, LLC
SCS Engineers
Sevenson Environmental Services Inc.
Silar Services Incorporated
Son-Haul, Inc.
SonoAsh
Stantec
Tetra Tech
Trans Ash
TRC Environmental Corporation
United States Gypsum Company
University of Kentucky - CAER
Waste Connections, Inc.

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Bethany Buckland, University of Missouri at Kansas City
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Sen Du, Washington State University
Livingstone Dumenu, University of North Carolina at Charlotte
Jenberu Feyyisa, University of North Carolina at Charlotte
Sarah Hodges, University of Kentucky
Ryan Holmes, University of Missouri Kansas City
Shinhyu Kang, Oklahoma State University
Richard Pepper, UNC Chapel Hill
Siamak Riyazi, University of Missouri at Kansas City
Christopher Swan, Tufts University
Ross Taggart, Duke University
Trevor Williamson, The University of Texas at Austin
Gang Xu, Washington State University

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Member Spotlights

AKJ INDUSTRIES, INC.
Contact: James Marcrum
10175 Six Mile Cypress Pkwy Unit 1
Phone: 239-939-1696
Fax: 239-939-2173
Website: www.akjindustries.com
Email: jimm@akjindustries.com
Categories: Chemicals, Dust Control, Liquid Solid Separation, Freeze Protection

ASGCO " COMPLETE CONVEYOR SOLUTIONS"
Contact: Aaron Gibbs
301 Gordon Street, Allentown, PA 18102
Phone: 610-821-0216
Fax : 610-778-8991
Website: www.asgco.com
Email: info@asgco.com
Categories: Coal Support Services

HARDSTEEL, INC.
Address: 702 Bear Creek Cutoff Road
Tuscaloosa, AL 35405
Phone: 205.343.9100
Fax: 205.343.0073
Website: www.hardsteel.com
Email: info@HardSteel.net
Categories:Abrasion Resistant Materials/Services

PHOENIX PROCESS EQUIPMENT CO.
Contact: John Waugh
2402 Watterson Trail
Phone: 502-499-6198
Fax: 502-499-1079
Website: www.dewater.com
Email:phoenix@dewater.com
Categories: Filters, Dewatering Equipment

HOWDEN NORTH AMERICA
7909 Parklane Rd., Columbia, SC 29209
Phone: 800.327.8885
Website: howden.com
Email: sales@howdenbuffalo.com

PENN LINE SERVICE, INC.
Contact: Don Dillinger
300 Scottdale Avenue, Scottdale, PA 15683
Phone: 724-887-9110
Fax: 724-887-2151
Website: www.pennline.com
Email: don@pennline.com

SUPERIOR INDUSTRIES
Contact: **Corey Poppe**
315 East State Hwy 28 PO Box 684
Morris, MN
320-589-2406
320-585-5644 Fax
Website: www.superior-ind.com
Email: corey.poppe@superior-ind.com
Categories: Fans, Material Handling, Ash Handling Systems

STRATO, INC.
100 New England Avenue, Piscataway, NJ 08854
Phone: 800-792-0500
Fax: 800-378-7286
Website: www.stratoinc.com
Email: customerservice@stratoinc.com

FORD STEEL COMPANY
Contact: Phil Cady
PO Box 54
2475 Rock Island Blvd.
St. Louis, MO 63043 USA
Mobile: 314-578-0205
Email: pcady@fordsteel.com
Category: Abrasion Resistant Materials

TRAXYS NORTH AMERICA

Contact: Matt Reed
PO Box 308 Ceredo WV 25507
Phone: 304-781-6618
Fax: 304-453-6917
Website: www.traxys.com
Email: matt_reed@traxys.com

FIRST ENERGY SOLUTIONS

Contact: Mark Fraley
341 White Pond Dr, Akron, OH 44320
Phone: 330-315-6767
Fax: 330-436-1916
Website: www.firstenergycorp.com
Email: fraleym@firstenergycorp.com
Categories: Coal Consumers

INDUSTRY EVENTS

NATIONAL COAL TRANSPORTATION ASSOCIATION

JUNE 10-12, 2019
Operations and Maintenance Conference
Clayton, Missouri
JULY 31, 2019
NCTA Scholarship Application Deadline
SEPTEMBER 9-11, 2019
Forty-Fifth Annual Business Meeting and General Conference
Baltimore, Maryland

RMEL

APRIL 17-18, 2019
Security Symposium
Phoenix, Arizona
MAY 20-22, 2019
2019 Spring Conference
Phoenix, Arizona
JUNE 26, 2019
2019 RMEL Foundation Golf Tournament
Littleton, Colorado
SEPTEMBER 16-18, 2019
2019 Fall Convention
Kansas City, Missouri

AMERICAN COAL COUNCIL

AUGUST 12-14, 2019
Coal Market Strategies
Park City, Utah
DECEMBER 9-10, 2019
Coal Trading Conference
New York, New York

AMERICAN COAL ASH ASSOCIATION

MAY 13-16, 2019
World of Coal Ash 2019
St. Louis, Missouri

NATIONAL MINING ASSOCIATION

SEPTEMBER 28-30, 2020
MINExpo INTERNATIONAL
Las Vegas

AMERICAN SOCIETY OF MINING & RECLAMATION

JUNE 3-7, 2019
36th Annual Meeting
Big Sky, Montana

To submit more events for publish or to include information about your organizations calendar of events, please email info@martonick-publications.com . Thank you.

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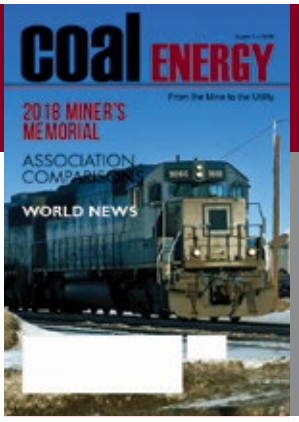

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