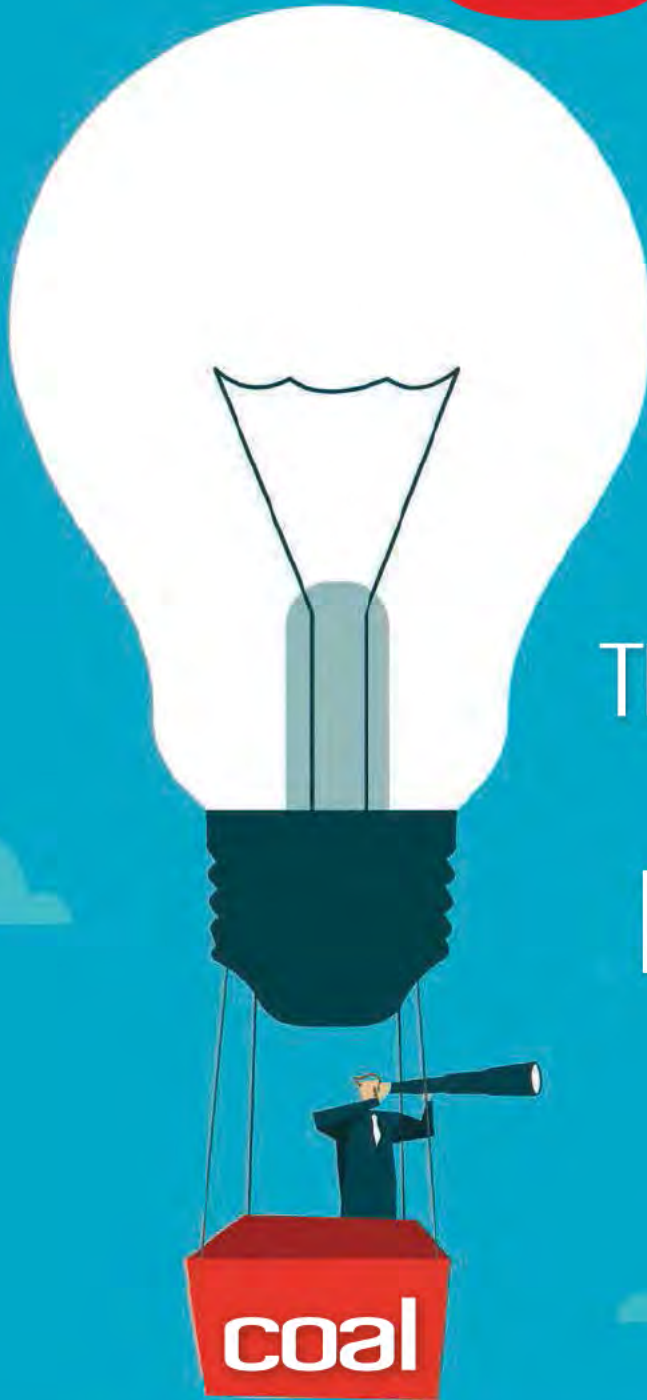


Issue 1 2016

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By Jason Hayes, American Coal Council

I recently received a copy of Mountain Whispers: Days Without Sun in the mail. The author, G. Coleman Alderson, sent me a copy, inviting me to discuss my thoughts on the work with our readers.

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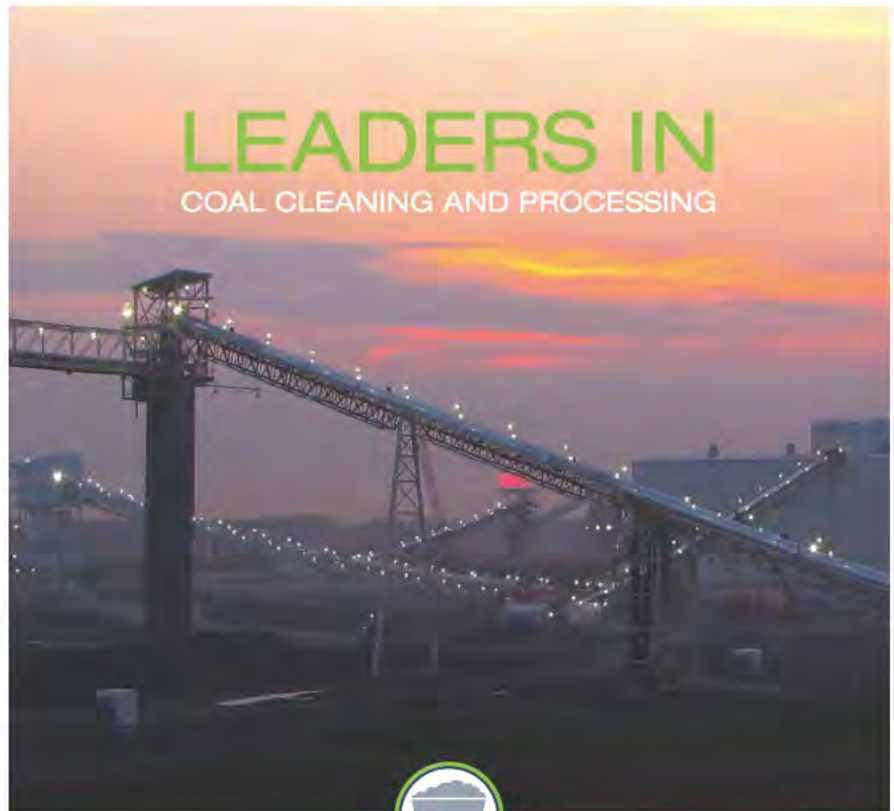
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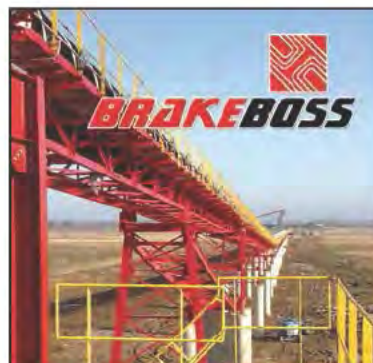


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Retaining CoalBased Energy



Jason Hayes,
Editor-in-Chief,
American Coal
magazine and
Associate Director,
American Coal Council

"Progress, far from consisting in change, depends on retentiveness. When change is absolute there remains no being to improve and no direction is set for possible improvement: and when experience is not retained, as among savages, infancy is perpetual. Those who cannot remember the past are condemned to repeat it." — George Santanya "The Life of Reason"

Human history is replete with stories of essential people and resources being pushed aside by those who were willing to abandon proven allies and/or resources in favor of new and ultimately more expensive and unreliable options. I regularly see stories of elected officials, federal agencies, green groups, and even states and provinces stampeding along, blinded by a mob mentality that demands the closure or divestment from proven, affordable, reliable energy resources. Impacts on human health and well-being, on people and their communities are ignored; service to the political goals of minimizing human impact and favoring politically-selected industries are the primary goals.

I was struck by the similarities of the push to abandon an ally in favor of hasty, short-term ideals when I recently re-read the story of Philoctetes. While different versions of this tale exist, the basic story is that Philoctetes was a mythical Greek hero and key player in the Trojan War. The son of Poeas, King of Meliboea, Philoctetes was admired as an expert archer after receiving the bow and poisoned arrows of Heracles (a.k.a. Hercules) for his willingness to light Heracles' funeral pyre.

During the Greek's fabled journey to the city of Troy – before entering the Trojan War – Philoctetes was bitten by a snake and developed a festering wound on his foot. The intense pain of the wound impeded Philoctetes



WE must have the foresight to retain coal and fossil fuels as key aspects of our energy battle plan.

and caused his Greek allies to abandon him on the isle of Lemnos while they continued on to engage the battle at Troy.

After more than a decade of fighting, the Greeks had not been able to capture the city. However, in one key skirmish, the Greeks captured the son of Priam, an oracle named Helenus. While detained by the Greeks, Helenus prophesied that they would never take Troy without the bow and arrows of Heracles – both of which were still in the possession of Philoctetes.

Odysseus and a group of Greeks returned to Lemnos and with the aid of (the now deified) Heracles, they convinced Philoctetes to join them at Troy where Greek physicians were able to heal his wound. Upon entering the battle, Philoctetes challenged and killed Paris, the son of King Priam, and then hid with others in the Trojan Horse and took part in ending the battle by sacking the city.

The key takeaway from this story is that the Greeks could move forward only after admitting it was a mistake to abandon their ally. In fact, turning their back on Philoctetes cost them many thousands of lives and over a decade of fruitless battle against the well-guarded city. When they came to their senses and sought out the aid of Philoctetes, they were able to press their advantage and win the war.

American energy policy has recently followed in this same misguided mindset. Policy makers are pushing to abandon proven allies like coal in favor of other overly expensive, unreliable energy options. Beset by the lobbying and marketing efforts of wealthy and powerful green groups, some policy makers are seriously considering abandoning coal and other fossil fuels, offering up naive slogans like “leave it in the ground” in place of sound policy options.

We cannot afford to forget, however, that the end results of these misguided energy campaigns could be every bit as hazardous as those experienced by the Greeks at Troy. Permitting processes for mines, transmission lines, or new generation facilities can take as much as a decade. Construction of new facilities, or ramping up of new production can take many more years after that. Energy production choices made in response to poor policy decisions can ladle on billions in additional costs or even leave energy users languishing in the cold and dark.

Stated more succinctly, leaving people in the cold and dark can be deadly.

For example, the British Department of Energy and Climate Change’s 2015 *Annual Fuel Poverty Statistics Report* stated that “10.4 percent of all English households” live in a state of “energy poverty.” This means that rising energy costs literally push these households below the poverty line. Age UK, a senior-focused charity, took that energy poverty statistic a step further by describing how energy poverty and cold-related “excess deaths” are becoming a national crisis. The group reports that almost 28,000 British pensioners, the disabled, and other “vulnerable” groups suffer premature death annually as a result of exposure to cold; a direct result of high energy and heating costs. According to these groups, people are literally being forced to choose between “heating and eating.”

Higher energy prices and reduced energy reliability – the direct result of abandoning coal-fueled generation – will, therefore, literally cost lives. However, we do not have to take that path. We can choose to keep using coal to provide the energy that we need; the energy that will improve and likely prolong these lives.

It is essential, therefore, that we reiterate the warning that nations that “cannot remember their past,” or who refuse to learn from reports of “excess deaths” due to exposure to cold, will repeat those same failures. We must not enter the energy battle trumpeting out the news that we have left our time-tested, affordable, reliable, and increasingly clean energy allies “in the ground.” We must warn against basing our new energy battle plans on unreliable and overly expensive energy allies.

People’s lives and well-being literally depend on the provision of affordable, reliable, and secure energy. Therefore, we cannot allow our efforts to be defeated against the walls of energy poverty, intermittency and diluteness, energy storage, transmission needs, and system instability; especially when those walls can be so easily breached and/or bypassed by continuing to rely on our greatest energy ally – coal.

We must have the foresight to retain coal and fossil fuels as key aspects of our energy battle plan. Doing so frees us to move on to other, greater future victories. We can avoid unnecessary battles, and in doing so, save literally thousands of lives.

It is with those thoughts in mind that I welcome you, our readers, to this issue where we will consider the future of our industry and look at some of the measures we must take to retain coal-based energy in our generation mix. ■



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ACC STATEMENT ON THE SUPREME COURT ISSUING A STAY ON THE EPA'S CLEAN POWER PLAN (02.10.16)

On February 9th, the Supreme Court took the unprecedented step of issuing a stay of the Environmental Protection Agency's (EPA) Clean Power Plan. This Supreme Court decision recognizes the irreparable harm that would occur in the absence of such a decision. The stay means the rule has been temporarily halted until the D.C. Circuit Court of Appeals considers the legal challenges currently being brought against the rule.

The court's decision ... gives a clear indication – as it did with its June 2015 rejection of the EPA MATS rule – that the EPA has likely overstepped its legal authority and that the nation's most senior legal authorities have serious concerns with the rule.

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ACC STATEMENT ON THE MORATORIUM ON FEDERAL COAL LEASES (01.19.16)

The Obama administration's decision to impose a moratorium on new federal coal leases is one more slice in the administration's 'death by a thousand cuts' policies enacted against coal. The moratorium fits an established pattern of stalling energy development with endless claims of a "need" for one more study, one more review, or one more hearing.

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If you want more of something, mandate it, subsidize it and exempt it from regulations. If you want less of something, punish it with taxes and regulations. Put more bluntly, the power to tax and regulate is the power to destroy. This is the First Rule of Government.

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SOMETHING TO DO

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August 8-10, 2016
Stein Eriksen Lodge,
Park City, UT

Coal Trading Conference
December 5-6, 2016
Marriott Marquis,
New York, NY

SOMETHING TO READ

*Mountain Whispers:
Days Without Sun*
By: G. Coleman Anderson

Spring Coal Forum
March 7-9, 2017
Opal Sands Resort,
Clearwater, FL



SOMETHING TO REMEMBER

We can't afford to forget that the extreme environmental movement is waging a war against energy use and our entire way of life; it's not just about coal.

"Fossil fuels have no part in America's energy future – coal, oil, and natural gas are literally poisoning us. The emergence of natural gas as a significant part of our energy mix is particularly frightening because it dangerously postpones investment in clean energy at a time when we should be doubling down on wind, solar and energy efficiency."

—Robin Mann, (then) Sierra Club President
(now Vice President)

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Leadership in Difficult Times



Matt Schicke, ACC 2016 President and Head of U.S. Coal Noble Americas Corp.

It takes vision for coal industry organizations to look beyond the immediate financial distresses plaguing our industry to implement difficult measures aimed at keeping this essential industry alive.

The coal industry has endured a tireless assault over the past eight years. However, the ACC remains committed to our core ideal of promoting the use of coal as abundant, affordable, reliable, and increasingly clean.

The combined weight of state and federal policy has been mounted against the American coal industry. We have faced multiple billions in added costs from a string of new and increasingly extreme regulations; presidential candidates have openly stated that they will bankrupt our industry and others have promised to continue the assault on the industry if they are elected in November; media reports regularly signal the death of coal and work to malign one of the nation's most valuable energy resources as "dirty" and "dangerous;" restricted economic growth has diminished demand for electricity, pressuring coal producers and forcing them to idle mines and reduce production; increasing market pressures from competing energy sources and government mandates have tightened generation markets. All across the nation, pressures on the industry have pushed the coal sector to its limits.

How can one industry take so much abuse and keep moving forward? In a word, the coal industry's continued survival relies on **vision**.

It takes vision for coal industry organizations to look beyond the immediate financial distresses plaguing our industry to implement difficult measures aimed at keeping this essential industry alive. Companies that survive the current downturn will be forever changed, but they will emerge stronger and far more competitive than the companies from the industry's recent past.

ACC member companies are relying on vision to bring in people with new, groundbreaking ideas; people who are willing to seek out new technologies and new markets; people who will enter into innovative leases and who will create and market processes that compete despite intense regulatory and market forces.

Our detractors are focused on the many injuries and indignities our industry has endured. However, we remain focused on that which has always driven the use of coal – the provision of life-sustaining, affordable, reliable, secure energy.

That reality is captured in the ACC's Mission Statement:

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.

To help coal survive, we must work tirelessly to spread that same vision to elected officials and the public and to openly reject the notion that coal-based electricity can (or should) be defined solely by misperceptions over a discharge,



rather than the clear benefits of its product – electricity. To that end, the ACC undertakes a variety of efforts to spread facts and balancing information about coal.

Publications: ACC publishes a variety of industry-leading periodicals including our flagship bi-annual print (and digital) magazine, *American Coal*. This magazine looks into the key issues affecting the American coal industry and provides explanations of current energy and environmental policy issues, international and domestic market forecasts and reports, shipping and transportation updates, education features, as well as a regular focus on key regulatory proposals.

Our monthly *ACC Members Update* and *American Coal* bi-monthly newsletters also allow members and industry leaders to stay informed about timely industry topics and association news whether they are in the office or on the road.

Our print and online Buyers' Guide and annual calendar provide additional means for our members and advertisers to reach out to the public and provide information on their goods and services.

Online Resources: ACC's website and social media outlets provide a mix of essential Association updates, as well as information on our various advocacy activities, events, publications, member companies, statements and comments on regulatory action, news releases, and important policy and regulatory issues.

Committees: ACC committee work pairs ACC staff with member company representatives and other trade organizations to support the market and advocacy needs of our industry.

- Our **Tomorrow's Leadership Council** works to vest, train, and equip new and up-and-coming executive talent.
- Our **Coal 2.0 Alliance** works to advance the development and use of engineered coal fuels and coal preparation technologies, and to help improve awareness of the environmental and efficiency benefits of new technology.
- Our **Communications Committee** pairs industry experts with ACC staff to act as a "sounding board" for ACC communications and marketing strategies and tactics.
- Our **Program Development Committee** works to identify expert presenters and key topics from industry, government, and academia for ACC events.

Educational Programs / Events: Our two major annual strategic issues conferences – **Spring Coal Forum** (March) and **Coal Market Strategies** (August) – inform and educate senior industry executives on key marketplace and public policy issues that impact the coal supply, consumption, and transportation industries. Our annual markets conference – **Coal Trading Conference** (December) – works with the Coal Trading Association to inform and educate industry leaders on trends in the marketplace and improve their understanding of coal trading issues while facilitating business relationships among the various sectors of the industry. Our monthly **Coal Q&A** webcast provides a forum for the discussion of critical issues affecting the U.S. coal industry by offering a timely topic briefing from an energy expert and following that up with a question and answer session.

Advocacy: ACC staff regularly takes part in industry events, giving presentations on coal use, forecasts, and implications of policy choices. ACC staff also provides expert comment and interviews, as well as news releases, to mainstream and trade media. ACC also regularly submits comments and statements to federal regulatory agencies during the regulatory process.

Collaborative Efforts: ACC partners regularly with other industry organizations and trade associations in their education and advocacy efforts including, National Mining Association, National Coal Council, Women's Mining Coalition, Coal Trading Association, American Coal Ash Association, Coal Utilization Research Council, and American Coalition for Clean Coal Electricity.

It takes a long-term, dedicated vision to stay focused through difficult industry conditions. There is no doubt that our industry is facing some of the most difficult market and regulatory challenges it has ever encountered. However, with over three decades of committed service and a vision for the maintenance of the American coal industry as a primary source of abundant, affordable, reliable, clean, domestic energy, the ACC is the place where industry leaders work through key industry issues and promote continued excellence, leadership, and training.

We welcome you to join us in this essential work. ■

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Coal – Digging Deep and Pushing Forward



Betsy Monseu,
Chief Executive Officer,
American Coal Council

As the coal sector contends with another challenging year amidst the swirl of markets, regulation, and politics, I suggested to our delegates at the ACC's Spring Coal Forum conference in March that an apt description to capture the essence of 2016 may well be the word "audacious". Here's why. First, consider the meaning of audacious: (1) extremely daring, unrestrained, or fearless, (2) extremely original, without restriction to prior ideas, and (3) recklessly bold in defiance of convention, property, law, or the like; brazen. Next, as the word is applied, note the following:

- President Obama's Chief of Staff began the year by proclaiming in January that 2016 would be a year of *audacious* executive actions.
- More recently, a legal brief filed by parties opposing the Clean Power Plan stated "EPA's *audacious* assertion of authority in this Rule is more far-reaching than any previous effort by the Agency".
- And what more suitable one-word description of a leading contender for the Republican Presidential nomination is there than *audacious*?

I also noted that the word *audacious* is fitting as applied to coal, from mining it, to consuming it, and more. It requires boldness, originality, and not being tied to convention. The coal industry is digging deep and pushing forward. Moreover, we're not alone. Changes in the oil and gas marketplace over the past year and a half have pushed prices for those commodities down to severely low levels. Thus, the entire energy space is under extreme pressure. Is the cure for low prices low prices?

If the administration and some federal agencies have their way, prices will necessarily rise – because costs will rise as additional regulations are proposed and implemented.

Already in 2016, the Obama administration has declared a moratorium on new federal coal leases, and it plans to change the royalty structure of the federal coal leasing program – a program with a demonstrated track record of delivering benefits. The economic success of the federal coal leasing program is evident in the nearly \$12 billion it has generated for Americans over the past decade. The proceeds are used by federal and state governments to pay for essential services including roads and schools. The administration has indicated plans to change the program to collect higher royalty revenues and direct money back to coal communities to help them train for non-coal jobs. However, such a policy change is more likely to result in lowering the dollars available to return to taxpayers and communities, because the realistic outcome would be reduced coal investment and mining on federal lands.

The federal leasing moratorium as issued by the Department of the Interior (DOI) fits a pattern of stalling energy development with endless claims of a "need" for one more study, one more review, or one more hearing. Each federal coal lease is already required to undergo a multitude of both state and federal environmental reviews prior to approval – a process that can currently take more than a decade.

In 2015, the DOI Office of Surface Mining Reclamation and Enforcement (OSMRE) proposed a new Stream Protection Rule. This was formerly known as Stream Buffer Zone. While the initial OSMRE focus was to consider surface coal mining operations in Appalachia, the rule as released had morphed into a sweeping and comprehensive national stream protection rule. Both surface and underground mining operations would be affected. The impacts were assessed by Ramboll

THE American Coal Council ... will continue to push back on policies that would reduce coal mining and use. The U.S. cannot afford policies that compromise so much and deliver so little.



Environ in a study for the National Mining Association. Dr. Gretchen Green of Ramboll Environ presented at ACC's Spring Coal Forum on the dramatic results of that study. They include:

- Total jobs at risk for mining and related sector employment – 112,757 to 280,809 (30% to 75% of current employment levels)
- Direct mining jobs at risk – 40,038 to 77,520
- Overall decrease in recovery of demonstrated coal reserves – 27% to 64%
- Annual value of coal lost to production restriction – \$14 billion to \$29 billion
- Annual federal and state tax revenue potentially foregone due to lost production – \$3.1 to \$6.4 billion
- Annual royalties lost to state and tribal governments – \$236 to \$629 million
- Funding of mine workers' pensions at risk if coal producers are unable to operate – currently totaling over \$170 million annually

This rule would severely limit the ability to mine and develop a world class resource critical to U.S. energy, economic, and national security. The United States has almost 30% of all global coal reserves, more than any other country. The rule would needlessly limit recovery of a vast amount of those reserves, up to nearly two-thirds of them. It would devastate coal communities and severely impact related employment. Dr. Greene's presentation at Spring Coal Forum referenced a far different outcome on job loss contained in the DOI Regulatory Impact Analysis (RIA) of the rule. The RIA showed that only 250 jobs would be lost – and those losing their jobs would become economic consultants! Additionally, the RIA showed that about 2,800 forested acres would be improved or preserved, although DOI did not know how much improvement there would be. It also showed that around 280 stream miles would be improved, but again DOI did not know by how much.

The DOI Stream Protection Rule and the moratorium on federal coal leasing are stark evidence of the administration's continuing efforts to keep coal in the ground. They are the latest in a series of harmful policies that will jeopardize affordable, reliable, and secure energy for all Americans, and trade economic well-being for bureaucratic morass.

Perhaps this illustrates why many Americans favor a big change from the establishment in this 2016 election cycle.

On another but related note, I must mention the historic and unprecedented decision by the Supreme Court (SCOTUS) in February to put a stay or hold on another far-reaching regulation – the EPA's Clean Power Plan. Significantly, the SCOTUS decision was rendered even before the lower court ruled on the legal merits of the case. This is a monumental SCOTUS decision and provides an indication – as the high court did with its June 2015 rejection of the EPA MATS rule – that the EPA has likely overstepped its legal authority and that the nation's most senior legal authorities have serious concerns with the rule. Paul Seby of Greenberg Traurig, speaking at Spring Coal Forum, clarified that Supreme Court and D.C. Circuit case law dictate that a judicial stay preserves the status quo and that all regulatory deadlines are therefore "tolled". This means that all CPP rule deadlines are halted for at least the period of time the stay is in place, not just those deadlines that actually fall during the time of the stay. That begins with the first deadline of September 6, 2016 and includes everything through and including the last deadline of January 1, 2030.

Meanwhile, fuel diversity and electric system reliability continue to be emphasized by industry leaders. Bob Flexon, President and CEO of Dynegy, delivered the keynote address at Spring Coal Forum. In describing Dynegy's coal generation assets, he mentioned their position in providing a natural hedge to gas generation and in maintaining system stability. David Boyd of MISO also spoke at Spring Coal Forum, and resource adequacy and reliability continue to be a focus there, especially after the winter of 2014. In MISO's modeling for future generation scenarios and needs, natural gas prices are the biggest variable.

Mr. Flexon candidly and comprehensively detailed the challenges for coal, from markets to climate change. He encouraged continued communication and education on coal's importance and the lack of a value proposition posed by these new regulations.

The American Coal Council is actively engaged in communication and education on these issues and will continue to push back on policies that would reduce coal mining and use. A threat to coal is a threat to our nation's energy and economic security – the lynchpins of our national security. The U.S. cannot afford policies that compromise so much and deliver so little. Coal is digging deep and pushing forward, because Americans deserve far better. ■

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The Board of Directors have reviewed and approved the following applicants for membership in the American Coal Council. The Board and staff would like to welcome these new members, as it is only through the support of our membership and industry that the ACC can continue to provide educational programs, market intelligence, advocacy support and peer-to-peer networking forums whereby we advance members' commercial and professional development interests.

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Follow this QR Code to learn more about membership in the ACC. Or contact us at American Coal Council – 1101 Pennsylvania Ave. N.W., Suite 600, Washington, D.C. 20004, info@americancoalcouncil.org, to request membership information. ■



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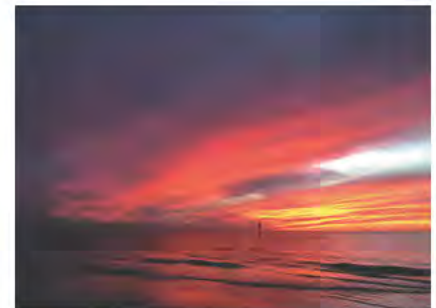
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American Coal Council (ACC) provides relevant educational programs, market intelligence, advocacy support and peer-to-peer networking forums to advance members' commercial and professional development interests. ACC represents the collective interests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

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The Tomorrow's Leadership Council (TLC) program began in 2009 as a means of helping to bring in, vest and advance new executive talent in the coal industry. Since its inception, the annual program has hosted more than 100 executives, all of whom have had the opportunity to better their professional skills and networks throughout the industry.

If you're new to the industry or are early in your coal industry career, you'd be a perfect fit for the ACC's TLC program. Get involved, and help build your industry.

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Returning Mined Land to Productivity Through Reclamation

By Jason Hayes, Associate Director, American Coal Council

This article was reprinted with permission, and was originally published in the Winter 2015 Issue of Cornerstone Magazine. (www.cornerstonemag.net)

Photos in this article depict various aspects of reclamation work at Coal-Mac Mining's Phoenix #2 mine.

Nearly 8.2 billion tons of coal were produced globally in 2014.¹ Although a great deal of activity occurs around the extraction of coal, a limited amount of land is disturbed during mining compared to total landmass. For example, Natural Resources Canada has estimated that less than 0.01% of Canada's total landmass was used

in metal and mineral mining in over 100 years.² Similarly, Haigh estimated that mining affected 0.16% of the U.S. landmass from 1940 to 1971.³ However, even if mining affects a relatively small amount of land, its impact can be significant and the extractive industries have an ethical and often legal obligation to return land to productivity.



Each coal mine has a limited life span due to the finite nature of the resource being extracted. Eventually the resource is exhausted, or the point is reached at which it is no longer profitable to extract for any number of reasons, such as increasing mine depth, increasing strip ratios, changing regulations, or market pressures.

When extractive activities cease, restoration processes must be completed, although they normally begin far sooner. In fact, reclamation processes typically begin while active mining is still occurring in another area of a mine. Thus, mining and restoration can be completed continuously and progressively throughout the life of a mine.

The costs associated with these restoration activities can be substantial: One estimate suggests US\$1.5 million per mine, although varied mine sizes, regulatory regimes, or the presence of legacy reclamation costs could result in wide fluctuations in cost.⁴

Today in many parts of the world, reclamation and restoration plans must be prepared prior to mining. An improved understanding of the

potential impacts of industrial activities, societal attitudes toward mining, increasingly stringent regulatory regimes, and dynamic market conditions now typically require companies to state clearly how their operating area will be restored before mining can begin.

There are various approaches to reclamation, and collaborative efforts between industry and government can help to improve mine management and reclamation processes. Thus, best practices and select case studies are worth exploring to highlight examples of successful mine closure and remediation.

The process of reclamation

Reclamation can be roughly defined as the replacement of soil materials – often to approximate original contour – and revegetation of mined areas

THE vast majority of contemporary reclamation and restoration efforts are based on technical reclamation, which exceeds simply repairing the affected property.

or areas adjacent to mines that have been affected by mining activities. An alternative definition, offered by the International Energy Agency's Clean Coal Centre, is "the process of repairing any negative effects of mining activities on the environment."⁴

Reclamation activities sometimes can also employ passive means of ecosystem restoration – wherein a less intensive management approach is taken and, for example, flora and fauna are allowed to self-colonize after soil replacement and stabilization are completed.⁵ However, the vast majority of contemporary reclamation and restoration efforts are based on technical reclamation, which exceeds simply repairing the affected property. Technical reclamation activities often aim to proactively manage a mined area for specific natural or recreational value, or other human uses, which can include infrastructure needs such as airports, schools, or shopping centers. Reclamation activities can also target agricultural or silvicultural (i.e., forestry) objectives. Plans to return mined areas to a more natural state, focusing on soil, vegetative, wildlife,

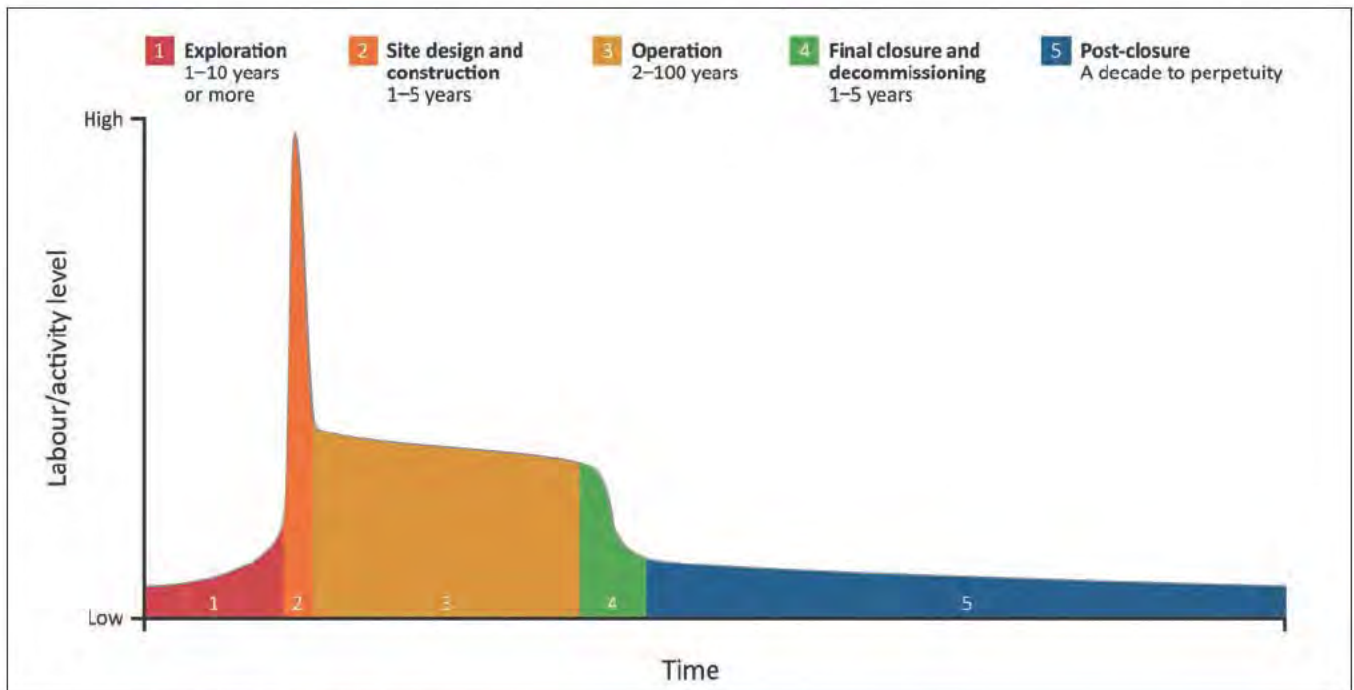


FIGURE 1. A mine project life cycle⁷

and/or water management values, can also play a large role in guiding reclamation activities.

Both underground and opencast mines require reclamation, but the approaches are different. Reclamation activities for underground mines will typically require less aboveground activity, but can necessitate extensive management to avoid drainage and flooding issues after mine closure. This management can involve techniques such as filling of excavated areas with mine spoil or fly ash and diverting or

controlling the flow of groundwater to keep it from entering existing mine structures. Doing so avoids the risk of rising water becoming contaminated by dissolved metals and other substances and potentially being discharged into rivers and streams. Notably, higher levels of calcite or carbonates in the rock, however, may neutralize acidic mine water, allowing metals to stay immobile.⁶

Reclamation of opencast mines typically involves replacement of overburden that was removed or

repositioned to access buried coal layers. When excavated areas are built up, re-landscaping or recontouring is completed along with drainage control measures. Recontouring will be guided by mine plan objectives (i.e., the intended end use for the land). Where natural processes are sought, recontouring will typically attempt to return landforms to the mine site's approximate original contour, or to mimic natural contours. Where other human uses are planned for, the land will often be leveled or shaped in a



manner that improves access or aids in future infrastructure development.

Ensuring best practices on reclamation

The timeframe extending from exploration to post-reclamation and closure requires decades (see Figure 1). In many cases, reclamation processes – which can include the mine closure and decommissioning stage, as well as the post-closure stage – can require as long as, or even longer than, the combined previous stages of exploration, site construction, and mining.

Even with mining plans in place, mining can substantially affect local or regional environments. Proper rehabilitation of mine sites, however, can avoid many risks, including unstable spoil piles, acid drainage and water quality issues, and potential cave-ins.

Best practice reclamation activities are designed to limit or avoid these impacts to the greatest degree possible. Although fully listing the legislative, regulatory, or best practices standards governing global mine reclamation is outside the scope of this article, a few prominent examples are worth highlighting. For example, general requirements for the approval of mining permits could resemble the conservation practice standards published by the Natural Resources Conservation Service (NRCS), U.S. Department of Agriculture (USDA). NRCS describes a threefold purpose for land reclamation:

1. Prevent negative impacts to soil, water, and air resources in and near mined areas
2. Restore the quality of soils to their pre-mining level
3. Maintain or improve landscape visual and functional quality⁸

Australia's Department of Industry Tourism and Resources gives similar guidance for land reclamation, but also encourages consultation, reporting, and monitoring with stakeholders during mine plan development and

mining activities. Companies are also urged to rehabilitate progressively through the full life cycle of the mine and, where possible, to manage and rehabilitate historical disturbances.⁹ Expanded regulatory oversight combined with a trend toward a lesser number of larger, mechanized mining operations that are governed by binding mining plans are decreasing concerns about unregulated or unmonitored activities.

Righting the past

Employing best practices during contemporary mine reclamation helps to avoid the challenges associated with mines that were not properly reclaimed in the past. The varied nature of reporting measures and regulatory regimes governing mine management worldwide are compounded by the fact that many private or unregulated mines have been created, especially in developing nations where regulatory oversight may

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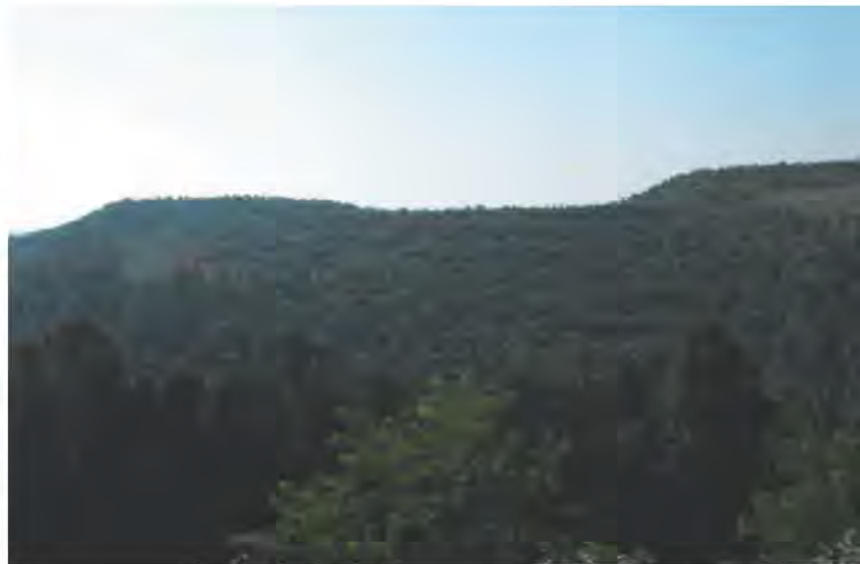
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not yet be as thorough. Thus, it is difficult – if not impossible – to get a full count of the number of abandoned coal mines worldwide.

The legacy of abandoned mines, however, is being addressed in many areas. For example, since the passage of the 1977 Surface Mining Control and Reclamation Act (SMCRA) in the U.S., direct fees have been collected by government agencies from existing coal mining companies. Various states and Native American tribes have used over US\$4.06 billion of those funds to reclaim almost “240,000 acres of hazardous high-priority coal-related problems”.¹⁰ As described by the UK Environment Agency (2008),⁶ similar programs are being carried out across the UK and internationally.

Reclamation collaboration

Collaborative efforts between mining companies and conservation organizations can promote successful mine reclamation as these organizations can lend expertise in developing best practices for wildlife, water, plant, and/or soil management. Demonstrating a transparent working relationship with conservation groups and other stakeholders can also help regulatory agencies when reviewing permit applications. If these agencies observe

widespread support for mine plans and objectives and are convinced the area will be properly reclaimed and managed in the post-mining stages, permit approvals can likely be obtained much more easily.

One example of a collaborative effort is the U.S.-based Appalachian Wildlife Foundation’s Mine Land Stewardship Initiative (MLSI), which enables industry to pair with conservation organizations to move ahead in a challenging regulatory environment. The MLSI is working to design voluntary reclamation standards that “elevate the overall ecological performance of the coal industry”¹¹ and help to enhance.

1. Conservation and restoration of ecosystem services
2. Conservation and restoration of wildlife habitat
3. Protection of water quality
4. Recreational opportunities for mining communities
5. Scientific and technical knowledge needed to protect and restore wildlife and aquatic habitats on mine lands^{11,12}

Efforts like the MLSI are a positive and proactive approach to reduce confusion and litigation, increase stakeholder involvement and buy-in, improve transparency, and ensure the

highest standard of reclamation is carried out.

Bonding and financial assurance

Even with proactive management efforts like the MLSI, reclamation can be an expensive endeavor. As the mine will not continue producing saleable material, no additional income will be brought in after operations cease. Therefore, most regulatory agencies require some form of a financial safety net, or bonding, to ensure sufficient funds are available for reclamation even if a bankruptcy occurs. In this manner, company insolvency or an abandoned mine will not impose mine closure and reclamation costs on taxpayers.

While having adequate funds for reclamation is clearly important, public policy must recognize that environmental protection, reclamation in this case, must be balanced with financial realities to avoid stifling economic activity and to allow mining companies to operate profitably. The International Council on Mining and Metals (ICMM) has reported that expectations from an increasingly risk-averse public and government have been forcing assurance costs higher.¹³ The ICMM described how, in 1998, a mining company based in Australia had “identified more than 1,056 financial

assurance instruments in place in four countries, which represents a contingent liability of greater than AUD\$20 million. By 2004 the comparative amount had risen to AUD\$60 million.¹³ ICMM expressed concern that setting aside growing levels of operating funds in bonds restricts investment and operational flexibility. In fact, increasingly conservative expectations of certainty relating to environmental protection could place such strict financial and administrative pressures on mining companies that mining projects could be cancelled as uneconomic.

Case study

Numerous mines around the world are demonstrating successful reclamation projects, several of which are profiled in other articles in the Winter 2015 issue of *Cornerstone*. One such project is Coal-Mac Mining's Phoenix #2 surface mine in West Virginia, U.S. The Phoenix #2 mine was the recipient of the U.S. Office of Surface Mining's 2010 Excellence in Reforestation Award for almost a decade's worth of reclamation efforts and implementation of the Appalachian Regional Reforestation Initiative's (ARRI) Forest Reclamation Approach (FRA).¹⁴

ARRI is a broad-based working group comprised of citizen representatives, industry, academia, and government formed to encourage planting of productive trees on reclaimed coal mine lands and abandoned mine lands.¹⁵ FRA is a means by which mining companies and forest managers can improve forest productivity, wildlife habitat, floral diversity, and water management on reclaimed mine lands. The FRA is made up of five steps:

1. Create a suitable rooting medium for good tree growth that is no less than four feet deep and comprised of topsoil, weathered sandstone, and/or the best available material.
2. Loosely grade the topsoil or topsoil substitutes established in step one to create a non-compacted growth medium.

3. Use ground covers that are compatible with growing trees.
4. Plant two types of trees: (a) early succession species for wildlife and soil stability and (b) commercially valuable crop trees
5. Use proper tree planting techniques

Phoenix #2 mine is a 560-acre (227-ha) operation, originally permitted in January 2001 under the approximate original contour (AOC)-plus backfill guidelines. Under these guidelines, final backfill elevations were established to mimic the natural terrain of West Virginia, avoid soil compaction, and enhance post-mine land use.

Conclusions

Finite resources entail a finite mining lifecycle. As coal reserves in a mine are removed or become uneconomical to continue mining, reclamation activities will replace removed soil and/or substrate materials and revegetate the mine in an effort to (1) return it to as close to natural state as possible or (2) redesign landforms to allow improved human access to, or use of, an area.

Key objectives in reclamation activities are to reduce potential damage and prevent negative impacts to the natural environment in and near mined areas, to restore the viability and growing potential of soils to their pre-mining level, and to maintain or improve landscape visual and functional quality.

Reviewing effective examples of mine reclamation from around the globe, such as those profiled in the Winter 2015 issue of *Cornerstone Magazine*, allows the extractive industry to develop a suite of best practices for successfully reclaiming mined areas. These properly reclaimed mines can provide essential lessons on technology, policy, and collaboration and serve as the gold standard for mine reclamation efforts. ■

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Fighting for **OUR ENERGY FUTURE**

By Tom Jenney,
Americans For Prosperity

Now what? That's the question many are asking after the U.S. Supreme Court rightly decided to put the brakes on President Obama's so-called "Clean Power Plan."

By placing a stay on implementation of the President's carbon rule, the Court temporarily removed states from the EPA's regulatory crosshairs. Unfortunately, the Court's decision to grant a stay does not mean that these potentially devastating carbon regulations are dead in the water.

Challenges to the regulations still have to make their way through the legal system, and there's no guarantee that the Court will ultimately rule against the EPA. But for now, the stay buys us time. We should use it wisely.

Instead of waiting to see what happens, state leaders should continue taking proactive steps to protect their citizens from the administration's overreach and the economic harm these regulations will cause. No matter what the Court finally decides in 2017, it

doesn't change the fact that President Obama's call to reduce carbon emission by an average of 32 percent would have a litany of devastating effects.

The regulations would shutter much of our nation's coal-fueled power facilities and set the stage for a complete restructuring of the energy grid. Instead of abundant, affordable, and reliable energy sources we use today, the president and his allies want to replace them with very costly alternatives such as wind and solar, which

are heavily dependent upon government subsidies.

How much more expensive are the alternatives? A recent study by the Institute for Energy research estimates that replacing an existing coal plant with a wind energy facility is nearly three times more expensive than the existing facility.

Here's what that means in practice. NERA Economic Consulting projects that at least 40 states would see their electricity prices go up by 10 percent or more *every year*, and 27 states would see annual increases of over 20 percent.

And then there are the higher prices we'd pay for groceries and everyday goods—all of which require electricity to produce and ship. Under the Obama administration's rule, hardworking Americans would be forking over hundreds of dollars more every year for the foreseeable future.

An expensive and forced transition like this may be good news to President Obama and his allies, but it's bad news for families. At the end of the day, everyday people like you and me would end up footing the bill when energy providers and businesses pass off costs associated with the carbon rule. For the millions of people who've seen their wages remain stagnant in recent years, this is anything but good news.

That's especially true for lower-income families who spend a disproportionate amount of their incomes on energy-related costs. A recent study by energy economist Eugene M. Trisko found that families earning less than \$30,000 spent approximately 26 percent of their after-tax income on energy costs. For families earning over \$50,000, it's 8 percent. The bottom line is that pushing electricity bills even higher pushes the worst consequences onto those who can least afford it.

We all want a healthy environment, but these costs are simply unacceptable. What the rule's supporters won't tell you is that the carbon rule would

produce virtually no positive impact on the climate. According to the EPA's own data, President Obama's carbon regulations would curb global warming by a mere 0.018 degrees Celsius over the next 84 years.

Moreover, the EPA's plan would have a very real and terrible impact on communities and hardworking families.

In my home state of Arizona, almost two-fifths of our electricity is produced by coal. It's vital to many of our communities, especially rural communities, and integral to our way of life.

BY placing a stay on implementation of the President's carbon rule, the Court temporarily removed states from the EPA's regulatory crosshairs. Unfortunately, the Court's decision to grant a stay does not mean that these potentially devastating carbon regulations are dead in the water.

That's why my organization, the Arizona chapter of Americans for Prosperity (AFP), began a campaign last year to educate citizens about what's at stake in the battle against the EPA's power grab. We are standing up for Arizonans' right to control their own energy future, and use the electrical power sources that make their lives better—not more expensive and less reliable.

So far, our most moving event took place late last year in Joseph City, a tiny wind-swept town on the high desert, 80 miles east of Flagstaff. Joseph City is home to the Cholla power plant, which has been targeted for termination by the EPA. The plant not only keeps the lights on for thousands of families in Arizona, it also serves as an economic engine for Navajo County—employing 300 people.

About a hundred people showed up at our Joseph City rally, including several local, state, and federal government officials. Some of the families at our event

had worked at the Cholla plant for three generations. Now they're looking at having to move away. Everybody told us the same thing: "The EPA's going to kill this little town."

Here in Arizona and across the nation, my colleagues and activists with Americans for Prosperity are working to ensure that citizens are protected from destructive changes to the energy system that powers our lives. In addition to encouraging legal challenges to the "Clean Power Plan" in court, we're urging state lawmakers to ensure that no taxpayer resources are wasted until all the legal issues surrounding the President's carbon regulations are resolved.

In Arizona, Governor Doug Ducey and Attorney General Mark Brnovich have taken a principled stand against President Obama's carbon rule, and the majority of members on our State Implementation Plan committee, headed by Senator Gail Griffin, are also opposed.

And we're not the only ones. There are many other states in which political leaders have taken strong stands.

In addition to some of the encouraging steps we've seen at the state level, two branches of the federal government are also pushing back against the EPA's overreach. Along with the Supreme Court's stay, the U.S. Senate passed two resolutions late last year to try to halt the EPA's efforts to implement the carbon rule.

We must continue to urge our elected officials—especially at the state level—to do everything in their power to protect their constituents from this plainly unaffordable federal mandate. Affordable and reliable energy has played a central role in helping our nation prosper. Will we protect it, or will we let it flutter away into the wind? ■

Tom Jenney is Arizona state director for Americans for Prosperity (<https://americansforprosperity.org>).



Sizing the Market

Where is Coal Demand Headed?

By Steve Piper, S&P Global Market Intelligence

Over several months of 2015, the market share of natural gas generation exceeded that of coal-fueled generation as a combination of mild heating season weather and retirement of coal plants nudged natural gas into the lead position toward the end of the year. With coal retirements largely behind, and cheap natural gas ahead, what

production levels face the restructured coal markets?

Current situation – large natural gas surplus

Coal markets were in 2015 confronted with a severe demand shock coming from natural gas that traded below \$3/mmBtu at Henry Hub and below

\$2/mmBtu in the Marcellus shale producing region. Since then, natural gas availability has grown continuously, and the surplus of gas in storage actually accelerated toward the end of 2015. Overall, the '15-'16 winter has again been mild. The EIA natural gas inventory report for the week ending Feb. 26 outlined a pull of 4.8 Bcf from

storage. As with most weekly pulls this winter, the withdrawal was small in comparison to the five year average for the week. The storage surplus at that time is estimated at 666 BCF (Exhibit 1), putting total storage levels in record contention for natural gas inventories at winter's end. Season-ending storage appears poised to come in at 2.4 TCF, similar to March 2012 levels when natural gas prices last fell below \$2/mmBtu. To put the surplus level in perspective, there is enough additional natural gas in storage to supply the U.S. generation sector for nearly 26 days.

Looking ahead to mid-year, today's natural gas pricing will spur significant additional demand from natural-gas fired generation, nearly 2.5 Bcf per day above 2015 levels. Combined with slower production growth from shale plays as a response to the low price environment, surplus natural gas in storage is expected to erode to a more manageable 200 Bcf by July or August. A more modest storage surplus combined with summertime demand should support Henry Hub spot prices higher than \$2.50/mmBtu.

For coal, any rally in natural gas may come too late

Coal producers, at the same time, can take little consolation from the prospect of a summertime rally in natural gas prices. A Henry Hub price of \$2.50/mmBtu, with a corresponding price at Leidy Hub below \$2/mmBtu, provides virtually no headroom for higher coal prices and less opportunity for coal plants to run more often.

There is no question that the retirement of legacy coal-fired generation has played an important role in the coal market's adverse fortunes over the last several years. Had these plants run at their historic operating levels S&P Global Market Intelligence estimates incremental demand of 50 Mtons per year.



Exhibit 1. Natural gas storage surplus vs. Henry Hub price
Source: S&P Global Market Intelligence

But the retirements themselves are also driven in part by the relentless economics of low natural gas prices. Faced with low power prices and reduced utilization, many of these coal plants could not earn an adequate return on investments to comply with the EPA MATS rule. Many of the initial rounds of coal retirements took place in the PJM region, where natural gas prices have been the lowest, and where coal plants bidding in to unregulated markets had less assurance of cost recovery on environmental retrofits.

During 2012-2014, the pain of natural gas switching focused mainly on eastern bituminous coal in Central Appalachia, where declining production and rapidly increasing costs accelerated a loss of market to natural gas, even as Illinois Basin and Powder River Basin increased production. A high level of investment in increasingly non-competitive Central Appalachia mines was behind the financial distress of James River, Patriot Coal, and Alpha Natural Resources over the last two years. However as natural gas prices

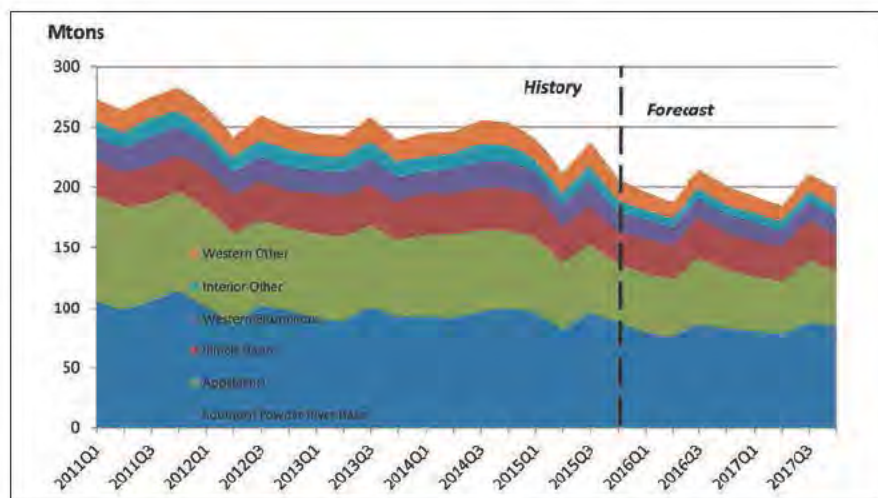


Exhibit 2. Coal production forecast to 2017
Source: S&P Global Market Intelligence

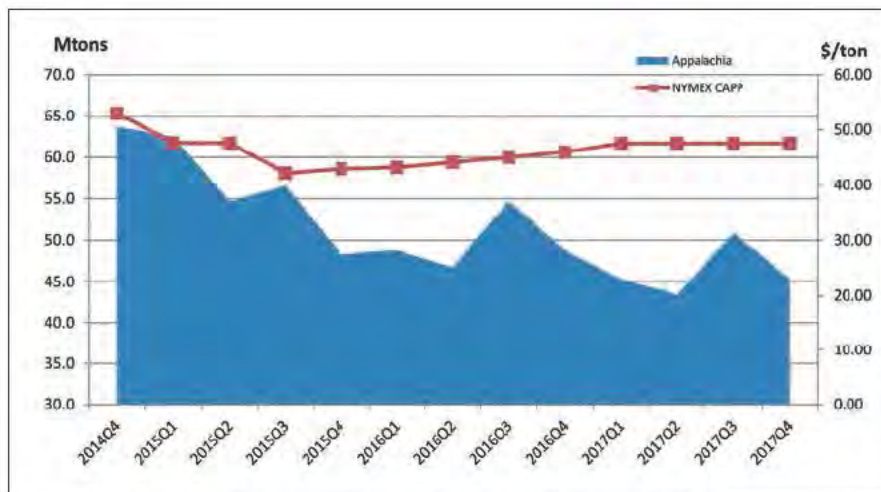


Exhibit 3. Central Appalachian production and price forecast to 2017
 Source: S&P Global Market Intelligence

continued to decline from 2015-present, competition against coal has now become so widespread that no region is spared from market loss. This can be seen in the more recent distressed financial condition of Arch Coal, Peabody, and Foresight, producers with a high proportion of mines in the Powder River Basin and Illinois Basin.

In short, the surplus of shale-driven natural gas production is driving a radical restructuring of the U.S. coal business and coal markets, with implications for both coal and natural gas. We see today a new market reality in which the mutual interplay of coal and natural gas supply and prices

BOTH coal and natural gas markets are oversupplied today, with only slight prospects for relief from generation demand growth. This has caused them to enter into a direct zero-sum competition for generation market share.

creates more pronounced seasonal patterns of demand for coal (Exhibit 2). Natural gas will retain some of its traditional seasonality under normal winter conditions, but as power generation increases its share of total gas consumption, summer and

winter pricing differentials may shrink significantly.

Central Appalachia production outlook

Central Appalachia is a region that faces continued decline, with only a limited ability to alter its cost structure to become more competitive with natural gas. As a result, we show steadily increasing prices in response to cost pressures from lower volumes (Exhibit 3). Producers may ultimately consolidate enough around high-volume steam coal mines to become competitive, or to create niche markets to build demand such as new regional minemouth coal plants such as Longview Power. But the trend over the next 2-3 years is for further production declines and a flat to increasing cost structure.

As steam coal operations in the region consolidate, regional production of metallurgical coal may also be impacted as shrinking economies of scale constrain met output. S&P Global Market Intelligence projects a cut in met coal production over the next 1-2 years before met markets re-align.

Powder River Basin production outlook

With higher volume production, PRB producers have greater ability to adjust pricing downward in response to natural gas, and it appears they will need every bit of that flexibility in 2016-2017. S&P Global Market Intelligence's current price projections call for flat to declining prices to preserve market share against essentially flat volumes moved to domestic steam markets (Exhibit 4). With a degree of spare production capacity, producers retain the ability to ramp up production to meet greater seasonal demand if it arises.

Illinois Basin producers are in a similar situation to PRB, with excess production capacity and more ability to discount against natural gas.

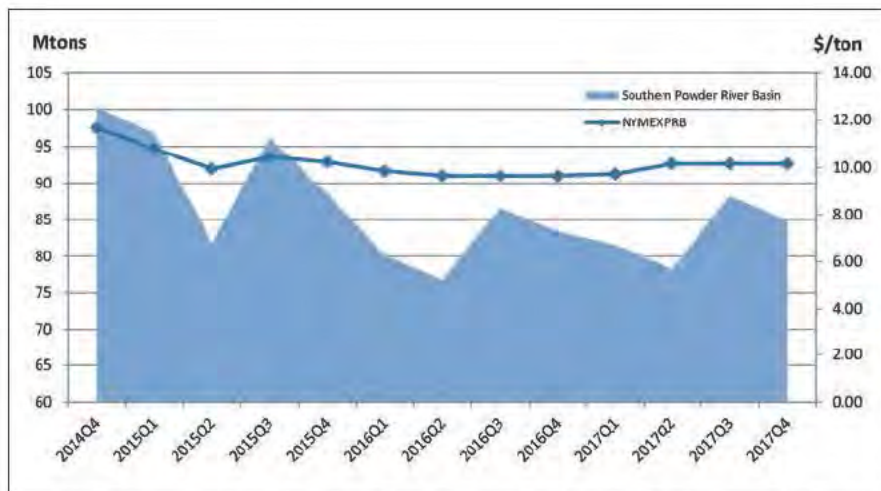


Exhibit 4. Southern Powder River Basin production and price forecast to 2017
 Source: S&P Global Market Intelligence

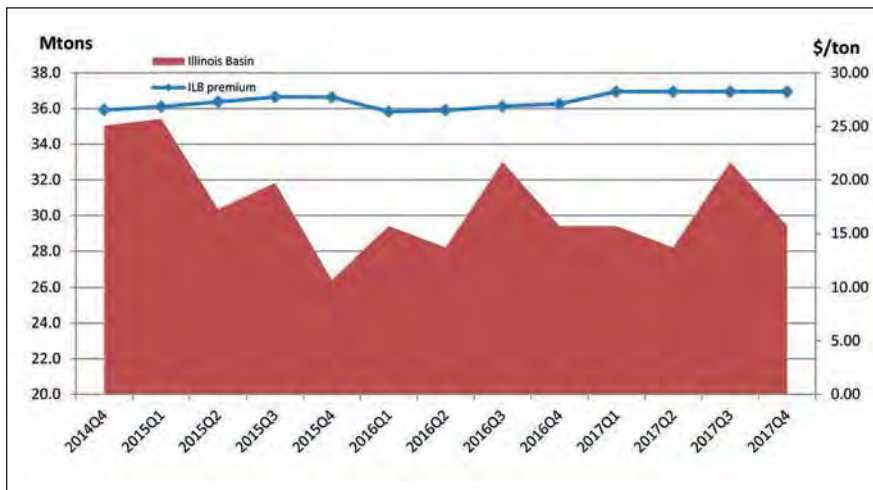


Exhibit 5. Southern Powder River Basin production and price forecast to 2017
Source: S&P Global Market Intelligence

Price forecasts move higher in 2017 as demand from former CAPP users supports a greater level of demand than would have otherwise occurred (Exhibit 5), but very little growth in the steam market is expected 2018-2019, keeping a lid on prices during this period.

In the longer term, a coal plant fleet that is static or slowly shrinking in size and ceding a portion of electricity demand growth to expanding renewables results in a smaller overall coal market than coal stakeholders envisioned 5-10 years ago. Appalachian steam coals – effectively priced out of the domestic market – will principally serve export and metallurgical demand going forward, with the possible exception of niche minemouth coal plants. Coal mines in Colorado and Utah face rapid decline as well, with few prospects domestically. Rockies-sourced coal will increasingly serve a specialty export market for low-sulfur bituminous users. The market share of producers in the Powder River Basin and Illinois Basin will grow to become the predominant suppliers of a lower-volume steam coal market.

Overall, S&P Global Market Intelligence estimates the domestic steam generation market in the long-term averaging 685 million tons per

LOOKING ahead to mid-year, today's natural gas pricing will spur significant additional demand from natural-gas fired generation, nearly 2.5 Bcf per day above 2015 levels.

year, nearly 300 million tons per year lower than 2014 (Exhibit 6). This translates to a total production (including non-electric end users, exports, and metallurgical) of approximately 800 million tons per year. Years with a relative surplus of natural gas may trend lower while years with greater price

support from natural gas may finish somewhat higher. If spreads between coal and natural gas move between \$1.00-1.50/mmBtu in favor of coal, demand upside is estimated at 80-100 million tons. However the need for coal producers to add revenue as well as volume tends to result in higher spot prices in advance of coal/gas spreads reaching those levels. But this indicates the level of sensitivity coal now has to natural gas pricing and dispatch going forward.

A significant retrenchment in coal markets appears inevitable. Both coal and natural gas markets are oversupplied today, with only slight prospects for relief from generation demand growth. This has caused them to enter into a direct zero-sum competition for generation market share. Natural gas producers have the initiative in this race to the bottom, but both coal and natural gas producers have reserves enough to remain in competition for the near future, such that a significant increase in the price of one can motivate a production response on the part of the other. ■

Steve Piper is director, Energy Research at S&P Global Market Intelligence (<http://www.spcapitaliq.com>).

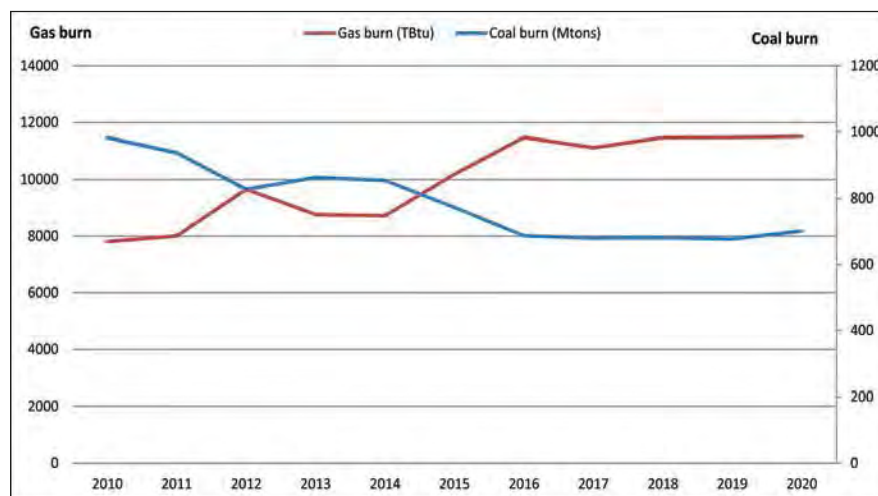


Exhibit 6. Generation burn for coal vs. natural gas, 2010-2020
Source: S&P Global Market Intelligence

Becoming Energy Advocates

Fossil Fuel Producers Must Begin to Work Together Pt. II

By Jason Hayes, American Coal Council

In the previous issue of *American Coal* magazine, I argued “Fossil Fuel Producers Must Begin to Work Together.” I discussed how important it was for energy producers to recognize the common threat we face from those working to target and stop the production of domestic fossil fuels.

This threat has expanded in many ways. It includes some environmental activist groups pushing well past the boundaries of reasonable involvement with federal agency officials. In fact, Christopher Horner and the Energy and Environment Legal Institute have “produced several hundred documents affirming the uncomfortably close working relationship between the current U.S. Environmental Agency (EPA) and activist left-wing environmental groups in their effort to make abundant energy resources, particularly coal, much more scarce in America.” It includes other groups keeping score of environmental “wins” and coal “losses.” On their “Beyond Coal” website, the Sierra Club openly brags that they have “retired” over 230 coal-fueled

power plants and state that they have another 290+ plants to go. It includes rolling out new “anti-fossil fuel” slogans.

Bill McKibben, who was described by the Boston Globe as “probably the nation’s leading

environmentalist,” coined the phrase “keep it in the ground” to describe his campaign to stop the production and use of at least 80 percent of fossil fuels.

The presence of a politically influential and well-funded movement to stop the use of fossil fuels entails that energy producers must work together to defend the use of abundant, affordable, reliable energy. But to make that happen, we need to do more than just state this need as a fact. We also need to provide industry stakeholders with a framework and the messages for making this cooperative effort possible, and then growing that effort.

At the end of 2015, I had the opportunity to take part in a 6-week program that instructs participants in the basics of becoming more confident, outspoken grassroots champions. The program was focused on the promotion of traditional rights and freedoms. However, I was able to easily mold the concepts from that program to fit the needs of our industry in the following six steps:

1) Make the case for fossil fuels: Get clear on what you want to do and why you want to do it.

In his book, *The Moral Case for Fossil Fuels*, Alex Epstein refers to this as developing “moral clarity”

on the issue. As coal industry (and fossil fuel) advocates, we support improving and bettering human life through the provision of abundant, affordable, reliable electricity.

When one compares the quality of life and life expectancy of people in developed vs. developing nations, it is immediately evident that living with access to abundant electricity is unmistakably superior. By advocating for energy abundance, you are serving humanity, and stand on the moral high ground when dealing with those who would impose energy poverty on people through restricted energy choices and increased energy costs.

2) Get clear on who and what we are dealing with: As I noted in the introduction to this article, we are facing a politically influential and well-funded force¹ that has, as its core goal, stopping the use of fossil fuels and nuclear energy. The end result of their goal is energy poverty, deprivation, and reduced options.

A 2015 Sierra Club, *Energy Resources Policy* document demonstrates this objective clearly when it explains that the Club officially opposes the use of any form of coal-fueled energy, boldly claims “There is no such thing as ‘clean coal,’” then





THE presence of a politically influential and well-funded movement to stop the use of fossil fuels entails that energy producers must work together to defend the use of abundant, affordable, reliable energy.

commits to “campaigning to end the use of coal no later than 2030.”² They continue by stating their opposition to nuclear energy, new large hydroelectric plants, the incineration of municipal solid waste, and energy production from landfill gas. They do allow for the restricted use of natural gas in the immediate future but cover that use with the following caveat. “The Sierra Club’s goal is to develop and use as little natural gas as possible and to wean ourselves from most fossil fuels, including natural gas, as swiftly as possible and by no later than 2050.”



Other green groups demonstrate they are equally inhospitable toward the development and use of fossil fuels. For example when Jeremy Nichols, Climate and Energy Program Director for WildEarth Guardians, was questioned about

the job losses and economic impacts of his group’s repeated legal actions against the Colowyo Mine near Craig, CO, Nichols responded, “My initial response is tough s**t. They [the Department of the Interior] didn’t appeal and there is nothing they can do about it now.”³

These groups clearly do not offer rational or realistic options when it comes to energy. They only offer demands that we “stop,” and little else.

3) Build communities: Energy producers need to work together with communities of like-minded supporters to promote the benefits of energy abundance. Those communities must be made up of people who are aware, engaged, active, and willing to support our industry.

When I speak to people and groups about energy issues, I find many of them are interested and concerned about how energy prices are rising

as trusted, reliable, and affordable energy resources are increasingly regulated out of existence. These people are concerned about tens of thousands of jobs being lost as extreme and unnecessary regulation shuts plants and closes mines. They know that the loss of direct jobs in these industries will cause further job losses, as indirect jobs in affected towns and counties also disappear.

People facing the loss of their way of life will likely be highly motivated to support fossil fuels and energy abundance. These people are more likely to take an active role in speaking up against the unreasonable demands of special interest groups whose respond with “tough s**t” when confronted with the loss of jobs and life associated with energy poverty. That’s what the people of Craig, Colorado did.

4) Build a story: Simply put, people relate to stories. This point reminds

me of the song we used to sing as kids when watching Sesame Street. “Who are the people in your neighborhood?” We can and should use the same sort of idea to explain, “who are the people in your industry,” as the people in our neighborhood are quite often our friends and family. We know and trust them.

In contrast, the anti-coal movement works to paint our friends and family in the coal industry as greedy, dirty, and uncaring. However, the real industry – the industry that you and I know – is made up of dads, moms, grandparents, cousins, friends ... real people. It is made up of companies who pay taxes and provide well-paying jobs to real people who just want to pay their bills and raise their families.

People in the energy industry breathe the same air as the green groups and drink the same water. Coal industry employees want our kids to grow up and have the same (or better) opportunities that we had and we know that providing those opportunities requires both a healthy environment AND a healthy economy.

That is your story. Get out there and tell it to your community and encourage them to do the same.

5) **“Going Viral” – Social Media:** We need to be active on social media because the reality today is that, if you’re not telling your story online, someone else is. The green groups have mastered the art of presenting inaccurate, emotionally charged stories about the energy industry. We must be actively countering those stories with ours and we must provide accurate, balancing information.

We can be aware of business realities in that we don’t need to share trade secrets or sensitive information; we don’t need to be extreme and irrational. We need to be connecting with other people, telling our social media friends and acquaintances about coal’s success stories, how working in the energy industry provides for our families and our nation. We need to be countering anti-energy misinformation.

6) **Develop effective written messaging:** There is a straightforward need for accurate, well-written, well-defended written materials, infographics, video, audio, etc. that tells the story of the good work that people in our industry are doing.



We provide a great deal of this information on our website – www.americancoalcouncil.org – with publications like American Coal magazine, the Coalblog, our newsletters, Issues Pages, and our submitted comments and statements on federal regulations.

Other related organizations like the National Mining Association (www.nma.org) produce in depth industry statistics, backgrounders and position papers, and have developed industry-leading safety programs. The American Coalition for Clean Coal Electricity (www.americaspower.org / www.coalfacts.org) has produced extensive fact sheet and infographic resources on how coal-fueled electricity is produced and used. The National Coal Council (www.nationalcoalcouncil.org) regularly publishes in depth reports on key issues like carbon capture and storage and energy policy.

It behooves us all to make use of those resources to share coal’s story with family, friends, co-workers, the media, elected officials, educational institutions, and the public at large.

So, the next step is to get started. I’ve given you a framework to help guide your activities.

Now what will you do to defend your industry?

What would you be willing to do if I told you that your job and your way of life depended on it? ■

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Footnotes:

- ¹ Hayes, Jason. (2012). When the Ends Justify the Means. American Coal Council. Retrieved March 22, 2016 from https://issuu.com/american_coal/docs/american_coal_1-2012-lr7e=12743319/8635439.
- ² Sierra Club. (2015). Energy Resources Policy. Sierra Club. Retrieved March 26, 2016 from <http://www.sierraclub.org/policy/conservation/energy.pdf>.
- ³ WildEarth Guardians spokesperson to Craig: “tough s__t” Advancing Colorado. Retrieved March 25, 2016 from http://www.advancingco.org/media/press-releases/wildearth-guardians-spokesperson-to-craig-tough-s__t/

Coal Supply: Will We Overcorrect?

By Andrew Moore, Platts

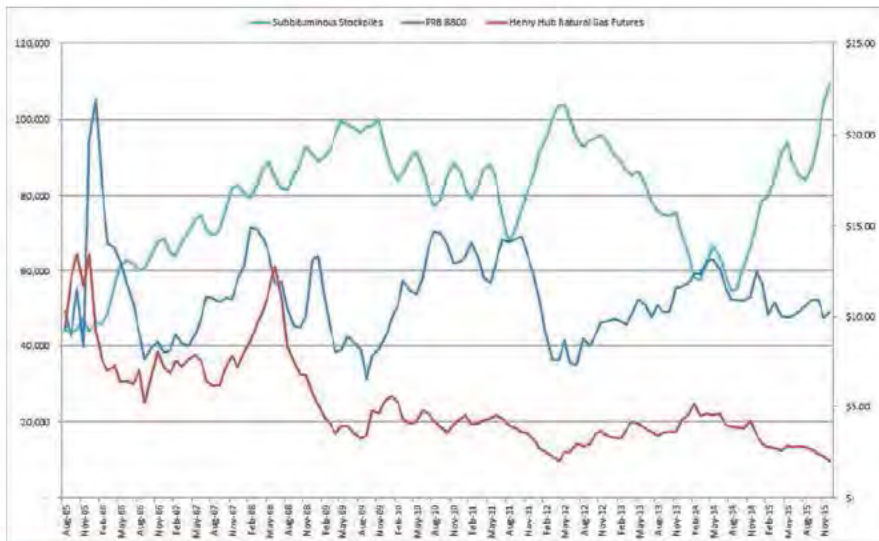
According to recent forecasts from the Energy Information Administration, U.S. coal production could dip to 784 million st in 2016, the lowest annual total since 1983.

Should the forecast prove correct, U.S. coal production will have dropped 21.4% since 2014. In percentage terms, it would be largest two year decline since the EIA began tracking coal production in 1949.

It's a similar story for power sector coal demand. The EIA projects 710.7 million st will be consumed in 2016, which would be a 3.9% drop from 2015. But in 2015, power sector consumption dropped 13.1% from the prior year, the largest year-over-year decline going back to 1949.

Some market watchers have suggested 2016's power sector demand could drop even further, as low natural gas prices continue to sap consumption.

Coal producers have reacted with production cuts. And while it's clear a structural shift is underway in the U.S. power market, coal remains a cyclical commodity, which begs the question: Is an overcorrection at risk?



“The market goes in cycles,” said John Hanou, of Hanou Energy Consulting. “Production cuts and stockpile depletion will inevitably cause another shortage, which will allow prices to increase. The question is when will it happen again.”

In December 2015, utility stockpiles averaged 197.1 million st, per the EIA. The monthly figure was 15.4% higher than the five-year average for the month, but just slightly below the all-time record of 203.8 million st set in November 2009.

A big reason for the increase in December was the ongoing impact of cheap natural gas on utilities that burned subbituminous (Powder River Basin) coal. With Henry Hub natural gas futures prices averaging below \$2.50/MMBtu in the fourth quarter, many PRB-burning utilities switched to gas.

As a result, subbituminous stockpiles grew to an all-time high in December of 109.4 million st, nearly 27% higher than the monthly five-year average.

Since then, subbituminous prices have tracked lower. The monthly average of the Platts assessment for the over-the-counter PRB 8,800 Btu/lb futures contract totaled \$9.82/st in February, a nearly three-year low.

“Those stockpiles need to drop to 50 million st,” said Hanou. “The only way to do that is to produce less and ship less.”

PRB production totaled 99.5 million st in the fourth quarter of 2015, according to the Mine Safety and Health Administration. The total was down 8.7% from the prior quarter and down 12.9% from the year-ago quarter.

For 2016, at least two PRB producers, Peabody Energy and Cloud Peak Energy, have said they plan to further cut production. The other two major PRB producers, Alpha Natural Resources and Arch Coal, both of whom have filed for bankruptcy protection, haven’t publicly discussed 2016 production but each showed quarter-over-quarter and year-over-year

declines in the fourth quarter, perhaps signaling the two will continue to scale back.

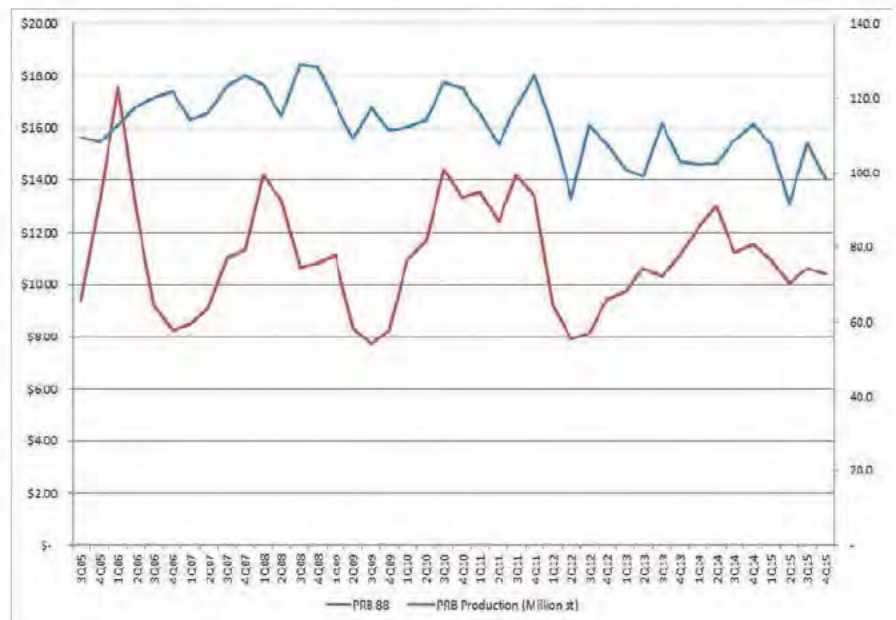
In addition, EIA estimates for the first quarter of 2016 show PRB coal production tracking roughly 27% below last year’s levels.

As PRB producers adjust to falling demand, there’s the risk that too much capacity could come out of the market, said Matt Preston, the research director for North American coal markets at Wood Mackenzie.

“In the short term, demand can be made up but in the long run, they start to park equipment and it makes it very difficult to recover,” said Preston. “If you’ve stolen all the tires off the big trucks you can’t go back and turn them on again.”

In addition, the railroads will also cut capacity to meet demand. Should PRB demand increase, it will be take several months for the logistics to catch up, which could add additional tightness to the market.

“If [natural gas] gets well above \$3/[MMBtu], I think we would find ourselves overcorrected but there are two parts to that,” said Preston. “Coal production might be a little overcorrected, but the rails might be a lot overcorrected, so



just like in the polar vortex, there was plenty of coal demand to go around, but nobody could deliver.”

“I think we’ll see a combo of that same thig, everyone scrambling to produce tons if they possibly can but the ability to get it delivered might be the problem,” Preston said.

Since 2005, the lowest that subbituminous stockpiles have dropped was 43.8 million st in September 2005. That month, the OTC price for the PRB 8,800 futures contract averaged \$8.90/st.

The contract quickly shot up in the following months to reach an all-time high in January 2006 of \$21.95/st, though the price was also pushed higher by an increase in natural gas prices.

Subbituminous stockpiles climbed from that 2005 low to reach a peak of 100.2 million st in November 2009. Two months prior, in September 2009, the OTC price for the PRB 8,800

futures contract dropped to its all-time low of \$6.47/st.

Subbituminous stockpiles then dropped in August 2011 to 67.8 million st, and the futures price that month climbed to an average of \$14.08/st.

In May 2012, after a record warm winter, subbituminous stockpiles reached what was then an all-time high of 103.9 million st, and the OTC PRB 8,800 futures price dropped to \$7.30/st in July.

Prices then climbed as stockpiles fell, and the May 2014 OTC PRB 8,800 contract averaged \$13.15/st. The contract has largely been in decline ever since.

Hanou said prices typically spike roughly every three years, “so if you believe in that three-year cycle, it will be early 2017 but it’s likely going to be longer than that.”

For some, this time is different. The current pull back might not lead to an upswing.

“Coal is cyclical, but in the past, we knew what the base was,” said a market participant who wished not to be identified.

In the short term, this summer will be an important variable for coal demand. A hot summer could lead to increased power burn and burn down coal stockpiles and push up prices for natural gas.

Should the weather not cooperate, many see increased demand for natural gas from LNG exports, growing exports to Mexico and higher power and industrial demand strengthening gas prices in the next two years.

“If natural gas prices increase to \$3.50/MMBtu, all of a sudden those coal plants start burning that coal, and those stockpiles will quickly deplete.”

Such a situation implies PRB prices will increase. But the timing is uncertain and not likely to be orderly. ■



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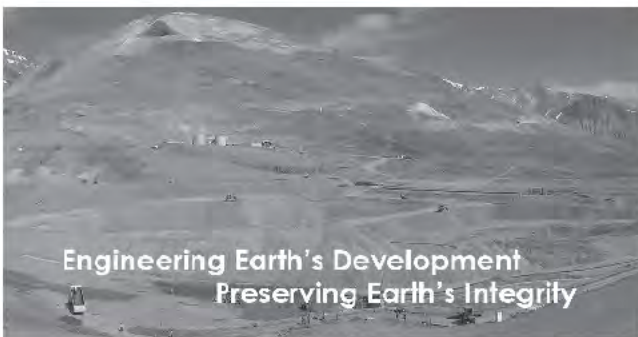
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“This President Has Adopted Al Gore’s View of the World...”

An Interview with Fred Palmer

I invited Fred Palmer to sit down for an interview during our 2015 Coal Market Strategies conference in Park City, UT and greatly enjoyed our nearly one-hour long discussion, which ranged over a variety of subjects relating to energy policy, energy poverty, climate change, and the use of coal to provide abundant, affordable, reliable electricity to the world. Few people in the industry have the depth of experience and background that Fred Palmer has, or have been as active and vocal a defender of coal as a necessary source of human wealth and well being.

Unfortunately space restrictions kept me from including this interview in our last issue, so it has been burning a hole in my hard drive since then. I am, therefore, very happy to see it in this issue of American Coal magazine, as we consider the future of our industry.

– Jason Hayes, Editor-in-Chief

JH: *When one takes a moment to review your background, they see a wealth of experience in the coal industry—over 30 years of service in Peabody’s senior ranks, and the Western Fuels Association, as well as in your service with the FutureGen Alliance, the National Coal Council, the National Mining Association, and the World Coal Association. Was there an experience or time with one of these organizations that sticks out as having had the most impact on your views and work?*

FP: I focus on the time from 1988 to when Al Gore’s book *Earth in the Balance* was published in 1992. That was also during the time of the adoption of Rio Treaty in the early 1990’s. Those 4 years really engaged me in the debate.

1988 was important; Yellowstone was on fire, there was a nationwide heat wave, and drought. Jim Hansen took the lead of the “computer model

scientists,” who believe only in themselves and their flawed models and went before Senator Tim Wirth (D-CO) in a subcommittee hearing on Capitol Hill and announced that the nationwide heat wave was the leading edge of catastrophic global warming.

Major media, magazines, and networks treated this claim as gospel. The apocalypse was upon us and we needed to change the way we led our lives.

“I knew then, as I know now, (anti-coal) ideas would devastate people everywhere.”



I immediately recognized this issue was a threat to coal plants, so I tried to educate myself on the science of climate change and the benefits of coal to American society and to the consumer utilities that I represented through my work with Western Fuels. I asked my staff to keep a file of everybody who disagreed with the paradigm of catastrophic global warming and why they disagreed. And that’s how I got involved in the science of global warming.

I didn’t do it because I represented coal. I did it because of the way (global warming) was presented; the hyperbole, the jarring inconsistency with how the world had evolved and how people were living their lives, and the shrill nature of the remedies that catastrophists were calling for, namely the elimination of

carbon-based fuels. I knew then, as I know now, those ideas would devastate people everywhere, particularly the people I was representing. So that was the key that got me involved.

JH: *We regularly see media reports describing how “king coal is dead,” or “coal is dying.” Most people in the industry would disagree and market reports of coal use internationally certainly dispute that claim. How have you addressed pressure to “get out” of coal or to stop supporting this energy resource? How should others address that pressure and continue to support this essential industry?*

FP: First of all, “King Coal” is not dying. I think it has a strong future in the United States and I know it has a robust future abroad. EIA numbers speak of (worldwide coal use going up to) 9 billion tons by 2019. A primary driver for this growth is urbanization abroad. Right now there’s 70–80 million people a year going into cities. The UN says this will go on until 2050.

If you do the math, 70 million times 34 years, it’s over 2 billion new people in cities. That’s 200 New York cities! That means met coal, steam coal for electricity, and steel in the ground. It’s infrastructure. It’s urbanization on steroids. IEA says 1.7 billion new people in cities by 2035 – that’s in their literature. So these numbers are very real.

Urbanization is why (those opposed to coal) are fundamentally wrong, or why Gore was wrong. You won’t find anything in Gore’s book on urbanization. You will find nothing in the Clean Power Plan on urbanization. You will find nothing the Climate Action Plan on urbanization. And you will find nothing in the draft of COP21 and this treaty on urbanization. And yet it is the fundamental driving force of economic growth, of demand for minerals, materials, fossil fuels, coal, met coal, fuel coal, gas, and electrification. It is the ultimate driving force in the human community.

The economic growth of human community lies in urbanization. And

With respect to the carbon capture and storage project that FutureGen represents, it’s an example of government saying one thing and doing another. First, George W. Bush put it on the table and Secretary Bodman talked him out of it for whatever reason. It was a terrible disappointment.

that is the *sine qua non* to understanding the story, and that’s why I’m so confident on the continued use of coal, including in the USA.

Whoever is elected President – even if it is Secretary Clinton – we will go right to them with this story, right away on day one. We’ll say that what you’re hearing from John Podesta; what you’re hearing from the Sierra Club; what you’re hearing from Michael Bloomberg; what you’re hearing from Al Gore is wrong. And this is why it’s wrong.

Good faith. Up with people. Pro people. Not angry. Not lashing out. But being willing to stand up for what you believe in and being willing to be honest about the deficiencies in the positions of these other people, without attacking them personally.

We will answer their drive to get the world to accept the elimination of fossil fuels by 2100. And our answer to that is “NO WE ARE NOT! We’re going to use more of it, cleaner and more efficiently so that every human on earth can live as well as the President of the United States lives.” Every human on earth has the right to live as well as we all do. Period. And that means fossil fuels.

JH: *What drives you in the morning to get up, get ready and go to work? What is it about coal and supplying energy to the public that has kept your attention for more than 3 decades?*

FP: What motivates me is the people who brought me to the table; rural electric interests, rural people,

smaller municipally owned plants, and customers of municipally owned utilities. These are the people that I represented and I know how important low-cost, always-available electricity is to their lives.

It’s what motivates the railroads. It’s what motivates the equipment manufacturers. It’s what motivates the barge guys. It’s what motivates the utilities. It’s what motivates most of the people in the coal industry. It’s why we’re in this industry.

I’m also motivated by the impacts of the push to stop using coal and to advance a climate change agenda on people. I’m motivated by where electricity prices are going and what David Christian, (CEO of Dominion Energy) talked about during his keynote (presentation at the 2015 Coal Market Strategies conference). When asked about electricity rates in Missouri, he said, “Yeah, Missouri rates are going up. How high are they going? California’s my proxy.”

As for those who want to go out and spend money on studies to see what will happen if we raise electricity prices. I ask, “Do you really need a study when I put California up”? I don’t need a study! I say, “Why don’t you look at California, Ontario, the European Union, Germany, and Australia; everywhere they’ve tried to impose their climate agenda. Why don’t you look at what’s happened there”? And why do I need a study to say what happens to people when electricity prices rise? It’s

“Res ipsa loquitur” – “the thing speaks for itself.”

JH: How has government refusal to fund the FutureGen project impacted the development of clean coal or high efficiency low emission (HELE) technologies?

FP: With respect to the carbon capture and storage project that FutureGen represents, it's an example of government saying one thing and doing another. First, George W. Bush put it on the table and Secretary Bodman talked him out of it for whatever reason. It was a terrible disappointment.

President Obama, to his credit, when he was running in 2008, ran on FutureGen and the future of coal. Now they talk about eliminating fossil fuels. So, when they said, “We eliminated FutureGen because funding was going to run out. Congress wouldn't renew it.” They made zero effort; zero to get Congress to extend the deadline on the funding, even though FutureGen was making progress.

So he said one thing when he was running for office in 2008. He did something entirely different in 2015 when we got down towards the end of the line on the funding. So it's an example of government saying, “we need clean coal technology and we need new advances and partnerships with industry” and then walking away.

JH: Earlier we discussed the growth of coal worldwide, but a mix of decreased demand, very low natural gas prices, and extreme pressure from environmental regulations has impacted coal use in the U.S. What recommendations would you give to policy makers to address the need to balance environmental concerns with economic stability?

FP: I think the industry needs to understand our adversary. There's a line in the movie, *Patton* that goes, “Rommel you magnificent bastard, I read your book.” Well, I read (Al Gore's) book in '92 and I read it when he reissued it in 2000, and today we

can still see its influence. The Obama Administration's approach to climate today, through the Clean Power Plan, is Al Gore. And it's not Al Gore lite; it is Al Gore. The rhetoric is Al Gore. The concepts are all Al Gore.

The President of the United States is as wrong about the industrial evolution of the human community – how we live our lives – as Al Gore has been for 25 years, even as Mr. Gore has become unbelievably wealthy in selling this climate issue. He's been successful, personally, but he's hurt a lot of people who rely on coal in the process.

Mr. Gore (and the President) have been as wrong as they could be on the sweep of human history, as evidenced by the expectations for a doubling of coal use and an increase in human population by almost 3 billion on earth, to 10 billion, by 2100. Mr. Gore was wrong as he called for population control in *Earth in the Balance*. He was wrong as he characterized American society as

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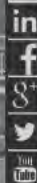
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dysfunctional—although he still wanted to be leader of it. He was wrong as he called for a deindustrialization of the Western economies—starting with the United States—which have made him both famous and wealthy.

Our industry also has to work to prevail legally, because I think the President’s Climate Action Plan and Clean Power Plan are deeply and fundamentally illegal and flawed—constitutionally, and from a statutory basis.

We’re also going to have to have a long-term societal discussion on carbon. How do you deal with that? It has to be educational, and you have to start with people’s values. You start with the strictures people will face under the grip of energy poverty and move on to the wonders of electrification and what it has done for everybody.

The next part of the work has to be that you paint a technology picture to show how technology is continually evolving. As you bring down the price point of advanced technology, we will be always more efficient. In fact, we are at near zero criteria emissions pollutants today in state of the art power plants. If we decide, as a society that we want geologic storage of CO₂, we have the means to do that, and we can do that. But, will we do that, because of the cost profile and the public skepticism toward it? I don’t know. Do we even need to do it? It doesn’t matter what I think. Could we do it? We can do it.

So, if you’re worried about climate, you better put in place something that makes that happen because we’re going to use more coal because of the benefits.

We also need new Congressional and state policies to give near zero CO₂ emission coal technology the same electric production tax credits and set asides as wind and solar as we preserve the existing coal fleet in our policy work. If that happens, I have no doubt the private sector will provide a number of alternatives superior to CCS as a long term carbon answer. ■



TOMORROW'S LEADERSHIP COUNCIL'S COAL COMMUNICATIONS KIT

WHAT DO YOU SAY WHEN SOMEONE ATTACKS COAL AS "DIRTY"?

The Tomorrow's Leadership Council (TLC) is an ACC committee designed to provide emerging coal sector leaders with an opportunity to enhance their industry knowledge and networks through projects and activities that advance industry-wide objectives as well as professional development goals.

The TLC undertakes a collaborative group project annually. In 2015, the group developed a "Coal Communications Kit" to help industry employees educate, inform, build bridges, and counter misinformation

about coal. This Coal Communications Kit provides ideas and information that coal industry employees and representatives can use to improve communications and relations with others in the public realm.

Whether on an airplane, at a business or community event, or seeking to inform relatives and friends, coal-related industry employees and representatives will now have useful facts and information to assist them in sharing the importance, value, and benefits of coal.

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"Twitter" Response



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The Coal Communications Kit provides ready responses to commonly held negative notions about coal. It offers convenient "elevator speeches", Facebook posts, and Tweets, as well as more detailed information and resources.

We're confident the members of the industry will find this information useful and easy to share. Watch the ACC website, the Coalblog, and our social media outlets as we post information from the TLC's Coal Communications Kit.

American Coal Council

An Environmental Atlas Shrugged

Review of: Mountain Whispers Days Without Sun

By G. Coleman Alderson

My Gym Trainer, 2015, 428 pages

Review by: Jason Hayes, Associate Director, American Coal Council

I recently received a copy of *Mountain Whispers: Days Without Sun* in the mail. The author, G. Coleman Alderson, sent me a copy, inviting me to discuss my thoughts on the work with our readers. I was sufficiently intrigued to begin reading after glancing at the opening lines on the back cover.

"Mountain Whispers—Days Without Sun begins in a future besieged by forces of nature and the unintended consequences of humanity's headlong shift from fossil-based fuels to totally green renewables. While those in power retain their comforts, ordinary citizens, both urban and rural, are subjected to increasing hardships."

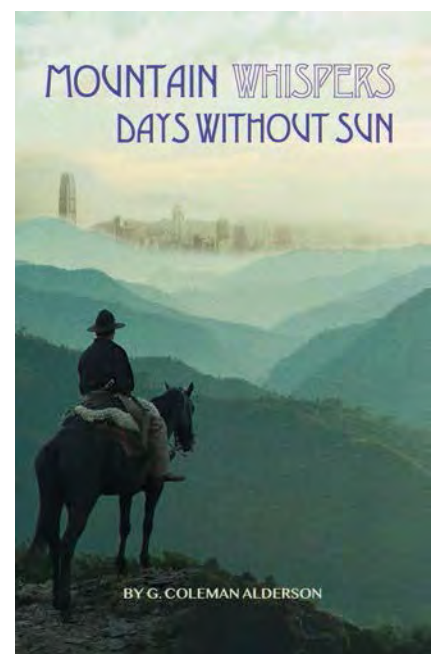
As I wrapped up this review, I was struck by the fact that I had an eerily similar conversation with a Utah-based reporter not that long ago. This reporter asked me about the impacts and costs of the push to remove fossil fuels from the nation's generation system. In response, I described the closing mines and generation plants. I described how those closures were leading to decreased electrical system stability, as well as the loss of tens of thousands of well-paying jobs/careers, the closure of until recently thriving communities, the increasing cost of electricity and of living, and—most disturbingly—the euphemistically-renamed "excess deaths" being reported across Europe as a result of energy poverty and rapidly

rising electricity costs. (Literally tens of thousands of people in "vulnerable populations" are being reported as having died early each year due to exposure to cold. Seniors in the UK are being forced to choose between "heating and eating" meaning they are consistently hungry and/or cold in winter months and, therefore, more susceptible to hypothermia and disease.)

Days Without Sun just happens to touch on many of the same impacts on human well-being when energy use is restricted or priced out of reach. So, while pondering over fitting ways to describe this book, words like "prophetic," and "disturbing" continually popped into my head.

Alderson's future world is built up out of two separate communities. One is urban, technologically-focused, tightly governed, ideologically-constrained by the constant inculcation of myths related to human impacts on the natural environment, and struggling to maintain complete control over the lives of citizens. The other population is rural, focused on survival and the reten-

I enjoyed and recommend *Days Without Sun* and look forward to the next two books in the trilogy, as I have seen that there are better options to energy policy and know that Alderson recognizes this fact as well.



tion of traditional rights and freedoms, and struggling to maintain control over their own lives.

Set in the early 2050's, the story depicts a future in which global government has taken over and manages most aspects of each citizen's life. Part of that management includes the Global Energy Enforcement Organization (GEEO) moving the majority of the population in to urban centers like "Progress City," undoubtedly named in deference to Orwellian doublethink.

Civilian life in Progress City is closely watched, tabulated, and managed. Government officials appropriately refer to urban areas as "manageable

regions” as the close proximity of inhabitants allows the management, control, and consequently reduced use of, most resources. Electrical generation is based primarily in renewables. So access to electricity is heavily rationed and the use of lights and heat is limited. Each individual is registered with their activities closely tracked through the implantation of locator chips beneath their skin. Transportation is limited to public transit or bicycles/walking, unless needed for government activities. Food consumption is tightly controlled and employment is typically appointed as opposed to chosen.

As you progress through the story, you quickly learn that the urban residents exist in a false state of progress, actually living off the rapidly decaying scraps of a once-productive past. The activities and consumption of urban residents are increasingly limited as energy and food supplies dwindle and they experience a regressing state of well-being.

In contrast, a small contingent of humanity refuses to join life in Progress City and chooses instead to live outside of governmental control in the hills and mountains. They are derided by government officials as “retros” and live a largely subsistence-based existence, without electricity, running water or plumbing. They hunt and plant limited gardens for food, and use traditional knowledge for medical needs.

Without giving away essential parts of the story, the pressures between the two populations increase as the GEE0 attempts to force “retros” to register and move into urban areas. The introduction of a potentially life-saving energy technology in the hands of the rural communities only serves to complicate matters. Eventually the two sides clash causing disruptions and difficulties for both groups.

In his “Afterword,” Alderson gives his reasons for writing the book. The

following is likely to be the most relevant to the readers of this magazine.

“The fact is, humanity has advanced this far on the basis of cheap, available, abundant fuel from carbonaceous material—coal, natural gas and, did I mention coal? The call for an immediate end to burning fossil fuels, if achieved, would be an unmitigated disaster. It’s a future begging for dystopia. Yet, these do good planetary redeemers insist that disaster hangs like the Sword of Damocles, tethered by a thin hope that we can save this planet if only we can shut down all carbon intensive activities and bring on climate justice.”

Sadly, *Days Without Sun* could quite easily be a prescient prophecy, foretelling our (potentially) dystopian future IF we continue down the misguided path of basing energy policy in environmental extremism. The book presents a bleak vision that forces the reader to

wonder if we are currently living in the early stages of the story.

However, there is still hope for the future! Alderson also notes in his “Afterword” that *Mountain Whispers* is a trilogy and that Book 2 - *Mountain Whispers: Echoes*, as well as Book 3 - *Mountain Whispers: Legacy* are forthcoming.

I enjoyed and recommend *Days Without Sun* and look forward to the next two books in the trilogy, as I have seen that there are better options to energy policy and know that Alderson recognizes this fact as well. The reality is that options, which focus on the application of technology to promote the production of abundant, affordable, reliable energy are the best means to promote and ensure human well-being. I am intrigued to see if the GEE0, the citizens of Progress City, and the “retros” will figure this out before it is too late. ■



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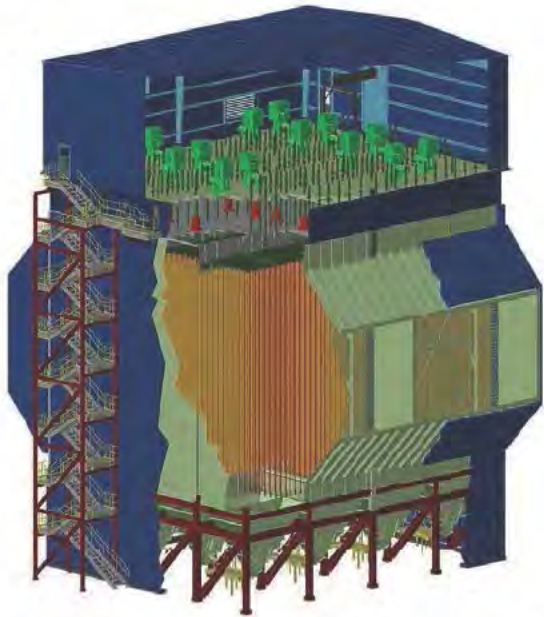
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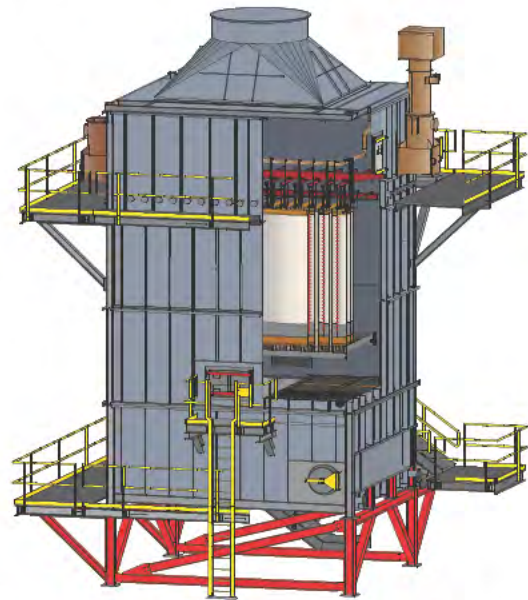
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*—Andy Withers
Manager of Mechanical Engineering
Metropolitan Mine
Peabody Energy Australia*

Hydraulic Fluid Injection Injuries Can Be Devastating

Over 9% of U.S. mine safety incidents involve fluid power systems, with 1% of those resulting in serious injury or death. In 2010 alone, the Sydney Hand & Eye Hospital in Australia reported 2,460 cases involving hydraulic fluid release. Costs of an injection injury can exceed \$750,000 between the worker's medical bills and lost production costs. That doesn't even factor in lawsuits or government fines (up to \$100,000 in the U.S.)

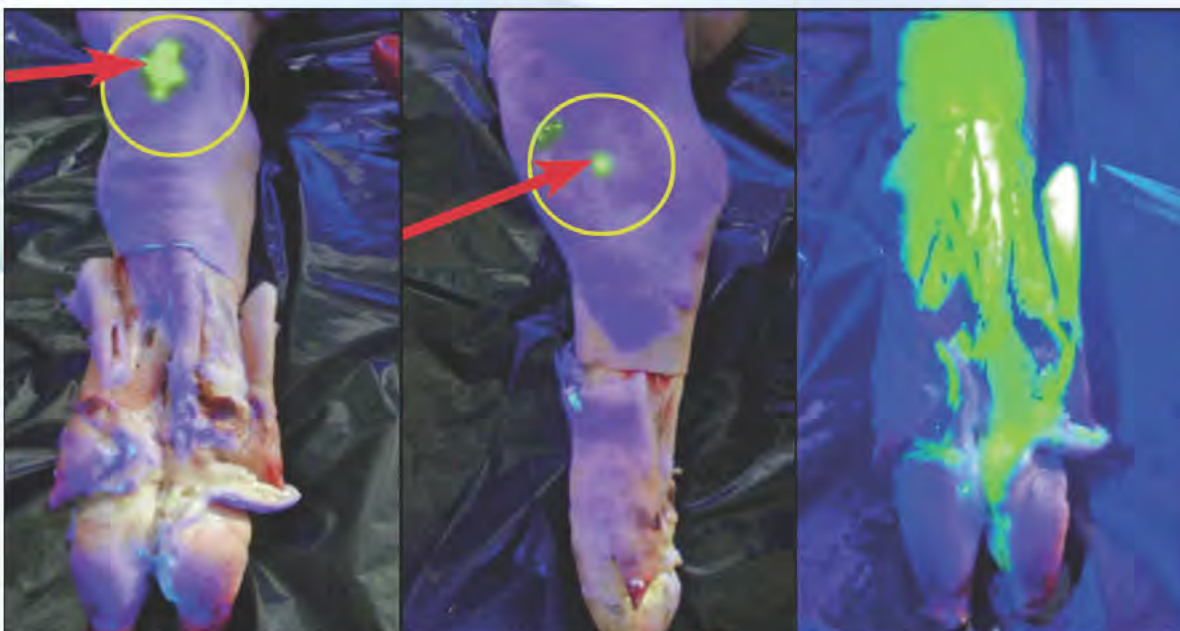


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Sample of hydraulic fluid with FluidSafe additive at 0.015% under high-intensity blue light

Studies have shown that the quick and accurate detection and treatment of a fluid injection injury by trained first aid personnel can greatly reduce the injured worker's pain and suffering, disfigurement and recovery time, as well as improve worksite safety.

In one case study, there were 16 instances at three mining sites where, with the use of FluidSafe additive, paramedics were able to determine that fluid splashed on mine workers did not actually penetrate the skin. In all instances, the miners were able to quickly return to work and production losses were minimized.

In January 2012, at a mine in Australia that uses FluidSafe, a worker suffered a penetrating injection injury. With the aid of FluidSafe and an associated blue light inspection kit, surgeons were able to clearly see the boundaries of the penetration within the subcutaneous tissue and minimize damaged tissue removal. The lessened pain and disfigurement allowed the worker to return to the job sooner.

Peabody Energy Australia reported a dramatic decline in the number of hydraulic fluid release incidents following the introduction of FluidSafe in all of their fluid power systems in late 2010. In the three years prior to FluidSafe's implementation, they suffered 155 fluid release incidents. After implementation, they had only 39 incidents in a similar period. In each of those incidents, the use of blue light inspection kits allowed the quick determination of fluid penetration. Only one incident in 2012 turned out to require surgery, and the costs of unnecessary surgical procedures were avoided.

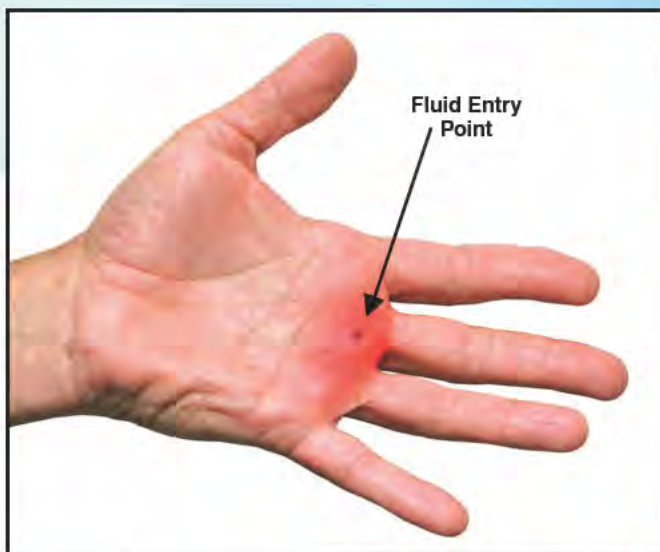
FluidSafe additive is available in two unique blends to work with both oil-based hydraulic fluids and oil-in-water emulsion hydraulic fluids.

High-pressure fluid injection is a major medical emergency on the worksite. When a confirmed case of accidental fluid injection occurs, all work operations must stop to remove the injured worker and investigate the incident. This can cost upwards of \$50,000 per hour in lost labor and production!



FluidSafe confirms a fluid injection injury by its fluorescent glow under blue light

- 🔍 Quickly and accurately detects high-pressure fluid injection tissue injuries on site
- 🔍 Allows triage of cases not requiring surgery, thus preventing unnecessary surgery, needless claim costs and trauma to the patient
- 🔍 When used correctly, helps to pinpoint the exact location of hydraulic fluid under the skin, which assists in limiting soft tissue dissection when surgery is required
- 🔍 Aids in detecting leaks in hoses, fittings, seals and other components that have degenerated to the point where their safety and integrity have been compromised
- 🔍 Helps prevent fluid injection injuries — worn hoses are accidents waiting to happen
- 🔍 Reduces equipment downtime and associated costs
- 🔍 Minimizes the loss of hydraulic fluid and resulting environmental damage
- 🔍 Ideal as part of a preventive maintenance program



Photographs showing the innocuous appearance of a fluid injection wound and the extent of the surgery needed to treat it

FluidSafe provides an added benefit in today's tough mining environment—operating cost savings! FluidSafe makes it easier to detect leaks in fluid power system hoses, fittings, seals and other components. This decreases consumption of hydraulic fluid, reduces the potential for equipment breakdowns, minimizes environment damage, and helps prevent fluid release incidents.



**Hydraulic
leak detected**



**Hydraulic
leak repaired**

FluidSafe Is Ideal for Preventive Maintenance Programs

FluidSafe additive enhances the management of fluid power systems by aiding in the early detection of leaks. When used in combination with a SafetyBlu™ blue light inspection kit or blue lens filter specially designed to fit over a variety of mining lamps, FluidSafe can quickly and easily detect leaks that are hard to find under normal circumstances. Users have reported savings in hydraulic fluid consumption of 5% to 7%, vastly surpassing the cost of FluidSafe.

Potential Areas for Fluid Injection:





Longwall Systems










Development Panels



-  FluidSafe glows a highly visible green color when viewed using a blue light source — on the skin surface, in soft tissue underneath human skin, and at leak sites on hoses, fittings, seals and other components
-  Helps prevent accidental fluid injections by pinpointing small leaks before they lead to catastrophic failures



SafetyBlu™ SB-450 Blue Light Inspection Kit

-  Aids in limiting soft tissue dissection required during surgery, minimizing pain and disfigurement and reducing rehabilitation time
-  Reduces hydraulic fluid replacement costs by 5% to 7% annually
-  Has no adverse effect on the physical properties of hydraulic fluid, making it safe for use in any mining operation
-  Successfully used in a variety of open-pit and underground mining equipment since 2010
-  Non-hazardous and environmentally safe
-  Passed all industry standard tests
-  Used by major OEMs



Outbye Services



Surface Areas



Workshops

Helping the mining industry worldwide

Mining companies that use FluidSafe

Peabody Energy	Wollongong Coal
Glencore	Yancoal

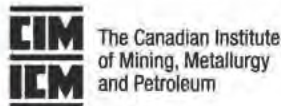
Oil companies that use FluidSafe

BP	Quaker Chemical
Castrol	ALMC
Fuchs	

Mining contractors that use FluidSafe

Joy Mining	CRAM Fluid Power
Caterpillar Global Mining	Custom Fluidpower
Sandvik	Wilson Mining Services

Proud to be a member of:



To learn more about FluidSafe™

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1-800-491-6868

(Outside the U.S. and Canada: 516-333-5580)

Visit our website:

www.spectroline.com/fluidsafes



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