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ACC is Stronger than Ever!

John Ward, ACC President & Vice President Marketing & Government Affairs, Headwaters Inc.

This issue of American Coal magazine is illustrative of the increasingly dynamic nature of the utility-coal industry and of the American Coal Council’s (ACC) role in providing timely, critical information on marketplace and public policy issues.

The ACC’s coal-focused, broad-based membership – which includes coal suppliers, consumers, traders, transportation companies and support service firms – uniquely positions the Association to address the diverse, but interrelated, issues of importance to our industry. A scan of the table of contents on page 1 provides readers with a snapshot of the complexity and breadth of these issues.

In the marketplace arena, we’re witnessing the emergence of new opportunities for deployment of technologies that convert coal to gas, liquid fuels and hydrogen. We’re also seeing an increased interest in and demand for coal-based generation, primarily in response to natural gas supply and cost challenges. Meeting emerging and increased market demand requires investment in and maintenance of infrastructure, including mines, rail, ports and terminals, and transmission.

Among the many strategic management decisions confronting utility-coal executives is how to mitigate risk, including the use of financial hedging tools and initiatives to comply with Sarbanes-Oxley. These decisions are being made in the context of a new energy policy – the Energy Policy Act of 2005 (EPAct) – that will likely lead to significant consolidation in the utility industry with the repeal of PUCHA.

Overlying all of this, of course, are environmental mandates, including proposed changes to the Endangered Species Act (ESA) and the increasing adoption of Renewable Portfolio Standards (RPS). In the face of increasingly stringent environmental regulations, the need to develop, demonstrate and commercialize advanced clean coal technologies has never been more critical. Industry and government continue to work collaboratively to ensure North America’s environmental and energy security needs are met through the use of reliable, domestic coal resources.

Please enjoy this issue of American Coal. Consider it a tool in your information arsenal. Call the ACC office if you’d like more copies to pass along to colleagues, neighbors, investors, community leaders, teachers, public policy makers and others you feel would benefit from a greater appreciation of our industry.
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In the 25 years I’ve been associated with the utility-coal industry, I can’t recall a more exciting and hectic time. The variety and volume of issues confronting coal suppliers, consumers, trading and transportation companies is overwhelming. And the need for timely marketplace and public policy information is more critical now than ever before.

With this edition of American Coal, we examine many of the issues affecting our member companies, providing what we hope is valuable information for industry associates, public policy makers and community leaders. Now in our fourth year of publication, American Coal has gained increasing respect and visibility among these groups, owing in large part to the editorial contributions of our esteemed authors. We’re grateful to them and to the members of our Editorial Review Board for their participation.

The American Coal Council’s vision is to serve as the pre-eminent business voice of the American coal industry. This magazine is just one element of a portfolio of products and services the Association offers in fulfillment of that vision and in an effort to meet the industry’s information needs. Our current information resources include:

- Educational conferences and seminars:
  - Mercury & Multi-Emissions Compliance (March 14-16)
  - Spring Coal Forum (May 22-24)
  - PRB Coal Use Seminar (August 1-3)
  - Coal Market Strategies Conference (October 9-11)
  - Coal Trading Conference (December 13-14)
- Annual Buyers’ Guide
- American Coal Advisory Quarterly Newsletter
- ACC Members’ Update Electronic members-only newsletter
- Industry Fact Sheets
- Technical & Economic Studies
- Web site – www.americancoalcouncil.org
- Web-based index of information resources
- ACC Excellence Awards

The ACC’s leadership is working to develop additional information resources to enhance the marketing and management capability of our members and to educate policy makers, community leaders, teachers and the media about our business.

We welcome your comments and suggestions on this issue of American Coal and on our other information resource services.
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Mine Safety
An Ever Present Concern

Jason Hayes, American Coal Council

Since the majority of this magazine was well underway before the Sago tragedy and the other mining accidents that have, as of mid-February this year, claimed the lives of 19 American coal miners, we had not initially planned to highlight the issue of mine safety in this edition of American Coal.

In fact, prior to these accidents, most of the American coal industry was enjoying record safety accomplishments at the same time as it enjoyed ever increasing levels of production1. Happily, the coal mining industry entered 2006 having experienced an all time low number of deaths; only 22 miners died in job related incidents last year.

In the first two and a half months of 2006, however, the coal mining industry has already experienced 19 deaths. The most notable of these accidents was the Sago Mine Tragedy. In this case, 12 miners died after an explosion in the mine trapped them below the surface for approximately 48 hours. One other miner in that accident suffered serious injuries, but survived. Media reports indicate that although he has a long road to recovery, his condition is improving. The other seven fatalities this year involved falling rocks, fires or a vehicle-related incident2.

Industry and government reaction to the deaths has been swift and has involved a mix of measures to mitigate the potential for any further accidents. The Mine Safety and Health Administration (MSHA) recently encouraged industry to undergo a national “safety stand down.” Industry eagerly accepted the opportunity and feedback on the event indicates that the stand down was a success.

Companies used the time to re-emphasize their commitments to worker health and safety and to ensure their employees were aware and up to date on safety programs and regulations.

Further industry and government work is targeting the need to develop communication devices for underground mines. To that end, MSHA has begun accepting proposals from manufacturers of emergency tracking and communications devices. With these, trapped miners should be located and rescued more quickly.

MSHA has also just invoked a rare temporary rule-making ability to help ensure coal miners are working in a safe environment. A central aspect of the new standards is that new or extended safety measures use only proven techniques. For example, before employing new communications devices in the mines, these devices must undergo extensive testing. As hundreds of feet of solid rock make wireless communications in mines difficult at best, only those devices that have a demonstrated ability to work in underground conditions will actually aid in improving miner safety.

The list of proven safety enhancements that are required under this emergency rule include3:

- Mine operators will be required to maintain Self-Contained Self Rescue Devices (SCSRs) for each miner in an underground storage area. SCSR would also need to be easily accessible in case of emergency.
- Lifelines would be required on all primary and alternate escape routes out of the mine to help guide miners in poor visibility conditions.
- Mandatory quarterly emergency evacuation drills including training on how to transfer from one SCSR to another would be required.
- Mine operators would be required to “immediately contact” the MSHA within 15 minutes of an accident.

Industry groups, such as the National Mining Association (NMA) have come out in support of these improved safety measures, noting that they will simplify and standardize safety practices that are already voluntarily used at many American coal mines.

Recognizing the importance of employee safety is not only good for the employees, it is good for the mining companies as well. Apart from the fact that doing so saves lives and the obvious benefits associated with healthy and safe miners, mines that provide the safest work environment possible will avoid safety violations, shut downs and interruptions in production schedules.

It is true then, “a safe mine is a productive mine.”

---

1 Total U.S. coal production in 2004 was 1.125 billion tons (just under a 4 percent increase from the previous year). NMA projections suggest domestic production in 2006 will be 1.156 billion (a 3 percent increase over 2005). EIA projections predict increasing rates of production out to 2030 (see the AEO2006 Overview - http://www.eia.doe.gov/oiaf/aeo/index.html)
2 Information on mining accidents are available at http://www.msha.gov
3 See http://www.msha.gov/MEDIA/RPTSINF1.HTM and select the 02/07/06 News Release.
Safety First

• Since 1970, coal production has increased 83 percent while fatal injuries have decreased by 92 percent.
• Injuries have fallen by two-thirds in the last 15 years.
• Over half of U.S. coal mines operate each year without a single lost work time injury.
• According to the Bureau of Labor Statistics, coal mining is not among the top 10 most dangerous occupations in America.
• Pilots, truck and taxi drivers, loggers, fishermen, roofers and other occupations face greater on the job risks than coal miners.

Safety Facts

• Underground coal mines are thoroughly inspected at least four times a year.
• With 584 coal mine inspectors - about one for every four coal mines - MSHA spends on average over 200 hours annually inspecting each coal mine.
• MSHA and its inspectors:
  ◦ issue citations and establish a time frame for correcting violations;
  ◦ remove miners from all or part of a mine in the face of hazardous conditions or repeated failures to correct violations; and
  ◦ levy fines that increase with the severity of the violation.
• Coal miners can report violations and can request additional inspections and cannot lose their jobs for doing so.◆

For more information: http://nma.org/statistics/pub_mining_safety.asp
Membership Coupon

Please join the nearly 150 companies that recognize the importance of belonging to an Association that serves as the pre-eminent business voice of the American coal industry and advocates for coal as an abundant, economic and environmentally sound fuel source.

The American Coal Council (ACC) is an alliance of coal, utility, trading, transportation, terminal and coal support service companies, advocating a non-adversial, partnering approach to business.

The ACC facilitates the lawful exchange of ideas and information regarding the American coal industry. It serves as a essential resource for companies that mine, sell, trade, transport or consume American coal. The ACC also serves as a resource for those wishing to expand or enhance business relationships in North American and international coal markets.

**Membership benefits include** educational programming and technical seminars, advocacy support, broad-based networking, web site, electronic and printed membership directory inclusion, newsletter and members-only electronic updates, database resources, policy input, referrals and discounts on events and industry publications.

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March 14-16, 2006 – Columbus, OH

**Spring Coal Forum**  
May 22-24, 2006 – Birmingham

**PRB Coal Use Seminar**  
August 1-3, 2006 – Milwaukee

**Coal Market Strategies**  
October 9-11, 2006 – San Antonio

**Coal Trading Conference**  
December 13-14, 2006 – New York

For additional information visit  
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Vision Statement

The American Coal Council (ACC) strives to serve as the pre-eminent business voice of the American coal industry.

Mission Statement

The American Coal Council (ACC) is dedicated to advancing the development and utilization of coal as an economic, abundant, and environmentally sound fuel source. The Association promotes the lawful exchange of ideas and information regarding the coal industry. It serves as an essential resource for companies that mine, sell, trade, transport, or consume coal. The ACC provides educational programs, advocacy support, peer-to-peer networking forums and market intelligence that allow members to advance their marketing and management capabilities.

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**To learn more about the Benefits of Membership,** contact Steve Read at 303-254-3081 or via e-mail at Steve@westernfuels.org.
Ask the typical American what the word “energy” means and the answer you are most likely to hear is “oil.” A far less likely response will be “coal.”

The United States boasts the world’s largest reserves of coal, so large that on a BTU basis they represent more energy than all the oil under the Persian Gulf. And yet Americans overlook the energy source that is literally under their feet and that supplies more than half of their electricity. Instead, they think of gas or oil – fuels that we must increasingly import.

Seen another way, the oversight is understandable. The explanation is the gas pump, and the prevalence it gives to oil in the mind of the typical consumer. Hardly a week goes by when Americans don’t stop at the gas station and fill ‘er up. Spikes in oil prices escape no one’s attention. Coal, meanwhile, is out of sight and out of mind.

That’s about to change – at least for the next generation of Americans. If analysts are right, technology will soon give birth to a new age for coal. In addition to providing fuel for power plants and steel production, coal is increasingly being viewed as a fuel capable of powering everything from cars and trucks to jet aircraft. Thanks to the rising prices of oil and growing concerns about America’s dependence on oil imports from unstable regimes, interest in coal liquefaction technologies is spreading. In both private and public sectors, coal liquifaction is opening an exciting new chapter in the long history of American coal.

The Department of Defense has launched a program to develop so-called coal-to-liquid, or CTL, technologies for use in fighter aircraft. On Capitol Hill and in coal state capitals from Montana to Pennsylvania, new incentives and partnerships are stimulating interest in CTL production facilities, creating what energy analysts see as serious momentum for using more of the nation’s most abundant energy source.

With global oil prices rising to a new higher floor, the break-even point for costly CTL facilities—between $30-to-$40 a
barrel—is here. The result has been significant interest in the CTL area from both industry players and financial investors. “All see a great opportunity for working together (on CTL projects), while financial investors find the upside very attractive,” says Credit Suisse energy analyst Paul Ho. The U.S. Energy Information Administration (EIA) is taking notice of this interest. In a projection missing entirely from its long-range forecast last year, EIA’s current forecast now calls for liquefied coal demand to yield an additional 144 million tons of U.S. coal production by 2030.

The U.S. isn’t the only player. Rising oil prices have stirred renewed interest in CTL far beyond our shores. China has announced plans to invest $15 billion in CTL production over the next several years. The world’s largest coal producer is building a facility in Mongolia capable of converting 1 million tons of coal annually into liquid fuel by 2007, with plans to ramp up output to 20 million tons a year by 2020. The Philippines is examining plans to build a 60,000-barrel-a-day CTL plant at a cost of $2.8 billion that could produce 15 percent of its transportation fuel, saving consumers $3.2 billion a year. India, the world’s third-largest coal producer, has already formed two joint ventures to develop a CTL project and augment the coal production it needs.

CTL’s fast start around the world is echoed here in the U.S., although somewhat more faintly. In the Energy Policy Act of 2005, Congress provided a 20 percent investment tax credit for certain gasification projects, changed the tax code to allow half of the cost of a liquefied refinery to be expensed—the remaining half can be depreciated under current law—and targeted another $350 million in tax credits for gasification projects certified by the IRS. Federal loan guarantees are also available for up to 80 percent of the cost of new gasification equipment at refineries. Even the Department of Defense is climbing aboard the CTL train with a “clean fuel initiative” that will assess the feasibility of converting engines for aircraft, ships and vehicles to alternative fuels including liquefied coal.

Some coal states aren’t waiting for Washington or Wall Street to finance the full cost of their liquefaction projects. Governor Ed Rendell has already showcased Pennsylvania’s plans to match a federal loan with $47 million in state tax credits and $465 million in state loan guarantees to build a liquefaction plant. It’s designed to convert 1.4 million tons of coal each year into 40 million gallons of diesel fuel, heating oil and aviation kerosene. The state’s transportation fleet would ensure a ready market for the plant that promises to create 600 full-time jobs in about three years.

Persuading state taxpayers to underwrite CTL projects suggests a powerful appeal is at work. Promising to expand job opportunities by increasing the supply of clean energy at a time of volatile energy prices for households and manufacturers is a compelling political message. So, too, is the message that Americans must rely more on their domestic energy supplies if they’re ever going to reduce the nation’s growing vulnerability to energy shocks from foreign suppliers.

Coal state governors are not only capitalizing on financial incentives and their state’s coal reserves, but also seizing the environmental benefits of producing clean, sulfur-free diesel fuel.

Fueling the optimistic outlook for coal liquefaction is the fact that the technology isn’t confined to the laboratories, nor does it require more research. It’s ready for deployment today. First used by
Flip a switch.

Play a tune.

Warm your home.

Fuel your car.

Yeah... coal can do that.

Today, coal fuels more than 50% of U.S. electricity. America has the largest coal reserves in the world... and greater use of this clean and affordable fuel can reduce our reliance on foreign oil and liquefied natural gas.

Peabody Energy (NYSE: BTU) is the world’s largest provider of coal to fuel 21st Century energy solutions.
Germany in the 1930s, and more recently perfected by South Africa under apartheid sanctions, the fully functioning heart of CTL technology is a proven method of gasifying coal and converting the gas to high-quality diesel fuel. Since 1980, South Africa has used a version of the Fischer-Tropsch technology to produce more than 700 million barrels of synthetic fuels from coal.

For the U.S. economy, burdened by the weight of rising prices for oil and natural gas, a reliable supply of transportation fuel from our own abundant coal reserves would be a welcome supplement to imported energy. Also, it would diversify our refining capacity away from the Gulf of Mexico, where it is now heavily concentrated and vulnerable. The National Mining Association (NMA) is proposing a national goal of 2 million barrels per day by 2025—which equals the peak production from Alaska’s Prudhoe Bay field—as a reasonable target for U.S. CTL production.

To achieve this goal, however, we’ll have to overcome initial barriers to CTL projects, beginning with the reluctance of lending institutions. Banks are slow to finance costly refineries employing a technology little known in this country. Congress can help jump-start development by including CTL plants among the refineries that qualify for federal loan guarantees, tax credits and other financial incentives. Streamlining the permitting process to expedite construction would also get America moving with coal-based fuel.

For the nation with the world’s largest coal reserves, the logic of CTL deployment is undeniable and will soon cause more Americans to equate energy with coal.

Kraig R. Naasz is the President and CEO of the National Mining Association (www.nma.org).
Advanced Coal Technologies: Meeting Environmental and Energy Security Needs

By Carl O. Bauer, National Energy Technology Laboratory

Our nation is heavily dependent on fossil fuels for electricity production, with coal, natural gas and petroleum accounting for more than 70 percent of today's total, and coal alone accounting for nearly 50 percent.

The Energy Information Administration (EIA) projects that coal will remain the dominant fuel for the foreseeable future. Domestically, coal is the most abundant, reliable and economical of the three fossil fuels. To meet growing energy demand, maintain competitive and secure energy, and sustain economic growth, the United States must continue to rely on its proven coal reserves. In addition, coal can serve as the bridge to the hydrogen economy. However, for coal to remain a source of clean, affordable and secure energy, advances in energy conversion systems are necessary.

The U.S. Department of Energy (DOE), through the National Energy Technology Laboratory (NETL), supports R&D in advanced, cost-effective combustion, gasification and environmental control technologies for the existing fleet of coal-based power plants, as well as new generation systems. Further, the R&D program provides a roadmap to energy production in the future, with associated projects that will lead to near zero-emissions coal-based energy plants. These activities directly support the President's National Energy Policy and the 2005 Energy Bill.

The improvement in coal-based power generation embodied by gasification-based systems is a major success in technology.
development, spurred by increasingly stringent pollution control standards, the need to reduce carbon dioxide (CO$_2$) emissions and the flexibility to utilize a wide variety of feedstocks while co-producing electricity, fuels and chemicals. Coal-based gasification systems have been proven capable of achieving extremely low levels of pollutant discharges to the environment, setting a new standard for coal-based power plants. Moreover, its inherently higher efficiency significantly reduces the discharge of all pollutants, including greenhouse gases, per megawatt-hour of electricity generated.

Gasification technologies were developed in the late 18th century. In the 19th century, gasification was used extensively for the production of “town gas” for urban areas. Although the availability of pipeline natural gas has made this application obsolete, gasification has found new applications in the production of fuels and chemicals and in large-scale power production. For example, gasification has been a part of Eastman Chemical Company's chemical complex in Kingsport, Tenn., for over 20 years. They have demonstrated the ability to produce a clean syngas that is used as a chemical “building block” for a wide range of consumer products. Of particular significance, Eastman has been removing >95 percent of the mercury from its syngas, using relatively inexpensive sulfur-impregnated activated carbon technology for nearly 20 years, while mercury control from conventional pulverized coal (PC) power plants is still in its infancy.

DOE has been instrumental in the development of coal-based gasification systems for power generation, known as integrated gasification combined cycle (IGCC). The first two coal-based IGCC plants built in the U.S.–Wabash River and Polk Power Station–were demonstrated through the Clean Coal Technology Demonstration Program in the late ’90s and early 2000s. DOE continues to contribute to IGCC development with the selection of the Excelsior Energy and Southern Company Services projects in Round 2 of the Clean Coal Power Initiative (CCPI).

Improvements to PC plants also are part of the DOE R&D portfolio. Although early subcritical PC plants had efficiencies of around 20 percent, the average operating efficiency for today’s plants is around 33-35 percent. Starting in the 1960s, supercritical PC plants (operating at >3,600 psig and 1,100° F) were
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developed and deployed in the U.S., and these units had efficiencies approaching 40 percent. Construction materials are the main impediment to reaching even higher steam temperatures. Ongoing research is aimed at developing advanced materials that will allow steam cycles to be extended even further, to the ultra-supercritical range, with pressures and temperatures approaching 5,000 psig and 1,400° F, respectively. The higher steam temperatures will equate to increased cycle efficiency, and ultimately, fewer emissions.

Oxy-combustion is another developing technology that holds promise for reducing NOx emissions and enabling carbon capture. In oxy-combustion, oxygen rather than air is used to combust a fuel resulting in a highly pure CO₂ exhaust that can be captured at relatively low cost. The major obstacle to oxy-combustion is the cost of generating a large volume of nearly pure oxygen. DOE is funding research that is investigating low-cost methods for producing pure oxygen. This is an example of a cross-cutting R&D activity since a nearly pure oxygen stream is also a prerequisite for most gasification technologies.

A major DOE initiative is the FutureGen program, which will be the culmination of many intensive research efforts and will result in the world’s first near-zero emission coal-based power plant. FutureGen is a 275-MW, gasification-based plant that will produce hydrogen and electricity in a combined cycle mode. The $1 billion DOE-industry partnership will provide the technical and economic basis for co-producing electricity and hydrogen from the nation’s abundant supply of coal, while at the same time capturing and sequestering CO₂.

FutureGen is scheduled to begin operating in 2012 and virtually every aspect of the prototype plant will be based on cutting-edge technology. Technologies planned for testing at the plant, if successful, could provide future electric power generation with near-zero emissions at a cost only 10 percent higher than today’s electricity. FutureGen will also generate a highly enriched hydrogen gas that can be burned more cleanly than coal. Alternatively, hydrogen can be used in a fuel cell to produce ultra-clean electricity, fed to a re-
finery to help upgrade petroleum products or used to demonstrate its effectiveness as a transportation fuel.

Energy security and energy independence are Presidential priorities. Environmental performance is a much greater factor now than in the past as emission standards tighten and market growth occurs in areas where total allowable emissions are capped. The reduction of $\text{CO}_2$ emissions is one of the major challenges facing industry in response to concerns over global climate change. To help meet these challenges, there is a need for more environmentally sound, flexible, efficient and reliable systems that remain cost effective in competitive markets. Advanced coal-based technologies are poised to meet these requirements.

The majority of existing applications are geared toward the production of a single product (electricity). The potential of tomorrow’s advanced coal-based technologies is promising because of their ability to use low-cost and blended feedstocks, their ability to produce multiple products and their exemplary environmental profile. With escalating natural gas prices and increased security and environmental concerns, advanced coal-based power generation technologies will become the cornerstone for market flexibility. As they do, advanced technologies will also reduce capital, operating and maintenance costs of coal-based plants, achieve near-zero emissions of all pollutants, demonstrate higher thermal efficiencies and capture $\text{CO}_2$.

Further deployment of these advanced technologies will allow coal to continue to support our energy infrastructure while helping to sustain a clean environment. Clean coal technologies will play a vital role in the future well-being of the U.S. The same dynamics that make clean coal technologies attractive in the U.S. will apply in many other regions of the world. As a result of DOE’s R&D programs, the U.S. is in a position to serve a significant segment of the global market for clean coal technologies. Exporting these technologies will help the U.S. improve its balance of trade and increase employment opportunities. It will also help other nations to achieve a common goal: a cleaner environment.

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Westmoreland’s Northern Tier BNSF Routing Avoids the Wyoming Bottleneck

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W e’ll look back on the winter of 2005-2006 as the time when the U.S. electric power industry finally got the message that overdependence on natural gas has put it in an uncomfortable, even dangerous position. For the first time in decades, there was a risk of power outages not caused by falling trees or the machinations of energy traders. Extremely cold weather coupled with short supplies of natural gas might have forced rolling brownouts or blackouts in gas-dependent regions like the Northeast.

Fortunately, that warning has been heeded–better late than never–and U.S. utilities are taking a closer look at their generating mix. The results can only be positive for coal, and for nuclear power, in the longer term. Under the greatest pressure are power companies and regions with a newly high dependence on gas. California, Texas and New York are especially vulnerable, but even New England boosted its natural gas usage from 13 percent of the total in 2000 to 29 percent in 2004.

The tight natural gas markets of the 2005-2006 winter may be traced back to the triple blows of Hurricanes Katrina, Rita and Wilma in the Gulf of Mexico. But in reality, natural gas supplies have been tight, and prices rising, for three years. The natural gas industry did a great job of selling its product, but a less stellar one of replacing diminishing reserves.

How did the electricity industry’s overdependence come about? It took a couple of decades, but really accelerated in the late 1990s due to increased deregulation in many important markets. The driving force from the first, however, was that natural gas was abundant, cheap and clean. In hindsight, we’ve discovered that it is merely clean. With public concerns and the heavy hand of the EPA weighing on the thinking of power companies’ management, switching to natural gas at the expense of coal seemed like a no-lose proposition. Coal may have been cheap and abundant, but natural gas was clean.

Put aside the short-term effects of the three recent hurricanes and this is what you see: the U.S. has a natural gas industry whose center of gravity is moving away from the Gulf and heading inland. The natural gas industry also is moving to explore and exploit the kind of reserves it always shunned in the past–natural gas that was too expensive to produce. It has never been a secret that there are considerable reserves of natural gas in such formations as tight sands, gas shales and coal beds. What has changed is the now almost desperate need to get at them. Such reserves were regarded as non-commercial at $2-3/MMBTU, but they look more attractive at today’s natural gas prices of $6, $8 and higher.

Improvements in exploration and completion technology – such as 3D seismic surveys and lateral drilling, both fairly recent...
technologies – have helped turn the Barnett Shale of northern Texas into a boom territory for natural gas production. The same is happening in the Rocky Mountain states. Drillers are now contemplating the possibility that there may be huge, neglected reserves of natural gas deep below the Appalachian basin and other Midwestern areas that had previously been thought depleted, at least at shallow depths. And there’s a good deal of excitement about coal bed methane, and not just in the Powder River Basin.

The reality, after the hype is discarded, is that all of these reserves are expensive to exploit, and that some are, perhaps, even conjectural. Examples of the latter include resources believed to exist in offshore U.S. continental shelf waters, where drilling has been (and continues to be) barred. Disappointing results in deep-water Gulf of Mexico and offshore Nova Scotia production may be telling us that these resources are not what they purport to be. You can’t find what is not there.

At present, no less than 50 percent of all domestic gas production is coming from what the Energy Information Administration (EIA) calls ‘unconventional’ sources: sands, shales and coal beds. It’s estimated that about 90 percent of exploration dollars are chasing such resources. This situation is not forecast to change in coming years.

If we move beyond the lower 48 states, then we see that Canada – long a reliable supplier of pipelined gas to America – has hit the same problems as the U.S. Where it once had 30 years’ reserves, Canada now has 10 years, despite much higher levels of exploration. Some think that natural gas from the Mackenzie Basin or even Alaska will flow south via pipeline and save everyone’s bacon. That possibility is unlikely. Construction of both pipelines has been endlessly stalled, and in the meantime, Mackenzie gas is being used to make synthetic crude oil out of oil shale and oil sands.

Another sign of desperation on the part of the natural gas industry is the blossoming of schemes to import liquefied natural gas (LNG) from overseas. Deeply unpopular with residents outside of the U.S. Gulf, terminals to handle the regasification of LNG are proposed for California and along the East Coast. This concept is rashly championed by the U.S. Department of Energy and by the Federal Energy Regulatory Commission (FERC), which has so far had courts uphold its right to override states’ objections to siting these projects.

Our view of LNG importation is that it is folly. The major producers of natural gas – in descending order of importance – are Russia, Iran, Qatar, followed by a dozen or more nations, nearly all of which are OPEC members. Even if the natural gas were virtually free at its source, it wouldn’t be cheaper than $3-4/MMBTU in a U.S. pipeline. Realistically, both OPEC and a new body – the Gas Exporting Countries Forum, which includes most of the large players – have their eyes on ‘price stability’ and ‘fair prices.’ We already learned what that means with crude oil. Unfortunately, some in the U.S. have not learned the lessons of relying on imported energy. Misguided optimists are constructing several new LNG terminals, even as the existing four U.S. terminals run half-empty for want of importers or cheap enough gas to fill them.

This ‘natural gas problem’ is not just one for the U.S. In Europe, where various countries have become dependent on natural gas imported from Russia (or elsewhere), alarm bells are ringing. When Russia cut off natural gas to the Ukraine on
Jan. 1, 2006, panic over reliability of the gas supply erupted in Europe and caused energy ministers to rethink fuel mixes. About 30 percent of European energy already comes from imported natural gas, and that was set to rise to 50 percent by 2025. ‘Clean coal’ is now a high priority in the latest EC energy policy. France has always had its strongly pro-nuclear policy, and now other nations are reviewing their decisions to walk away from nukes under ‘green’ pressure. How long will it be before they start to like the look of coal imports again?

It’s not as if there aren’t better uses for natural gas than power-raising, even at the former ‘cheap’ prices. U.S. chemical companies are hopping mad at the way they’ve been forced to invest in fertilizer production and other activities overseas to get access to cheap natural gas. What the natural gas industry calls ‘demand destruction’ has proved to be ‘job destruction,’ with hundreds of thousands of well-paid chemical positions lost. Notice, too, that the chemical companies aren’t even thinking of importing LNG to their now-idled U.S. plants. They know it makes no economic sense!

There are two possible scenarios for 2009-2010: In one, imported LNG (and perhaps a better run of exploration luck) will have restored natural gas supply/demand to a better balance, with prices around $8/MMBTU (far higher than coal is likely to be at that time). In the other, power companies will have turned their backs on natural gas for future investment, and begun to build ‘clean coal’ facilities. Until then, it’s going to be a rough ride for utilities that have allowed natural gas to creep into their baseload capacity. The ‘Back to Coal’ scenario makes more sense.

And the government? With the 2005 Energy Bill, Congress showed it’s not taking sides. Companies are free to pursue coal and nuclear investments. Our bet is that those with common sense will do so. And there are other trends occurring that will change the U.S. energy scenario. Power companies with sizeable coal fleets are going to become hot acquisition targets. Meanwhile, natural gas plants are selling below book cost and merchant companies like Calpine going into Chapter 11—a sure sign that betting the farm on natural gas is a losing proposition. The market is voting, and the most likely winner is coal. ♦

Peter ‘Ray’ Savage is a co-founder of The Thinking Companies, Inc. and author of Natural Gas in Crisis: How Power Companies Can Keep The Lights On (www.thinkingenergy.com).

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Many states have implemented specific policies to encourage renewable energy development. The range of policies include tax incentives, direct grants, low interest loans, rebates, equipment leasing or sales by utilities, and production incentives. In addition, 19 states have implemented renewable portfolio standards (RPS), legislation or regulation that obligates electricity suppliers to include certain percentages of renewable resources in their generation portfolios. These mandates hit low-income ratepayers particularly hard. The mandatory purchase required by RPS has not and likely will not enable states—or utilities—to achieve their stated goals.

A Renewable Portfolio Standard (RPS) is legislation or regulation that requires electricity suppliers to include renewable resources in their electricity generation portfolios. To date, 19 states and the District of Columbia have adopted RPS policies or renewable purchase obligations. Initially, many states adopted RPS policies as part of electric industry restructuring, but more recently, several states have implemented policies by legislation or proceedings that are separate from restructuring activities.

Each state has made their RPS different in terms of which technologies satisfy the purchase obligation, size limitations, special set-asides for some technologies and whether utilities may own the renewable facility.

In general, mandated renewable energy purchases are likely to work counter to their stated intents, and will impose a large hidden tax on electric consumers. Such requirements make consumers pay a higher price for energy than they would otherwise, and the price differential of renewables is at least 2 cents per kilowatt-hour. The premium is even higher in low cost states that rely more heavily on coal. The cost to consumers of such standards is difficult to quantify, but is surely massive. On a national level, 3,680 billion megawatt-hours of electricity were generated in 2003. Assuming a conservative price premium of 2 cents per kilowatt-hour (not including the available production tax credit of 1.8 cents per kilowatt-hour paid by taxpayers), the standards in those 19 states already cost consumers more than a billion dollars per year. Some proponents have claimed that the RPS actually reduces consumers’ total energy bills, but that claim is predicated on the questionable assumption of continued and unabated increases in natural gas prices.

What are RPSs supposed to accomplish?

Perhaps the two most significant goals behind RPS are climate change and energy "independence." Additional goals include improved local environmental quality, energy price stability, development of local industry and job creation, reduced reliance on coal, other fossil fuels and nuclear plants or to solve location specific problems like forest thinning and fire protection in the case of biomass.

Renewable energy technologies can significantly reduce greenhouse gases from electricity generation. Of course, various renewables have different net effects on greenhouse gas emissions. Although CO2 emissions from biomass facilities are not "counted" in GHG inventories, they also provide (in various scenarios) a significant sink for CO2. This last aspect has been used in most locales and at the federal level to limit the designation of biomass as a renewable fuel to only closed loop, or so-called energy crops.

There are likely other reduction schemes that can achieve GHG reductions at less cost, such as improved efficiency at coal stations or other sectors. Most greenhouse gases stem from non-generation sources, such as transportation.
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The economic risks of intervention must be assessed along with the environmental risks. A poorer economy, resulting from high cost energy, will be less able to deal with and adapt to a changing climate than will a wealthier economy. Policies that increase or prolong higher energy prices will be self-defeating in this regard.³

As a future goal, it appears that climate change is becoming less important. Polls reveal that public concern for global warming has been dropping for several years. A Gallup Poll in 2002, that investigated public concern over global warming, found that the issue was "a bit of a yawn" to most Americans. A follow-up Gallup Poll on global warming found that "the public is practically dozing" on this issue. "Energy Independence" is another pervasive argument used by almost all proponents of renewable energy mandates. The argument is that by developing indigenous resources, our energy security is enhanced and we are thus immune to the vagaries of geopolitical events and cartel behavior. While energy independence is not a new idea—it's been embraced to varying degrees by every national, and most state level, politicians over at least the last 30 years—it's the sort of thing that sounds good at first blush, but looks ridiculous the more you think about it.

To begin with, the vast majority of electrical generation already comes from indigenous sources—mostly domestic coal and hydroelectricity. Less than 3 percent of U.S. electricity is generated with oil. Further, proponents of energy independence fail to account for the global market for petroleum. Moving oil around the globe is so easy that a shortage of oil anywhere in the world increases the price of oil everywhere in the world. That is why the oil-price shock set off in 1979 by the Iranian Revolution increased the price of oil in Great Britain just as much as it increased the price of oil in Japan. It did not matter that Great Britain was energy "independent" at the time and that Japan was 100 percent reliant upon imports. Similar logic is likely to apply to the emerging global market for liquefied natural gas (LNG).

Two types of renewables are more ‘domestic’ than others. Biomass and geothermal are domestic resources for both equipment and fuel. Wind and solar, while domestic for ‘fuel,’ rely heavily on imported equipment (wind turbines and PV cells) from Asia and Europe. Thus, energy independence is changed but not improved by moving dramatically to renewables. The public and politicians that call for renewables for energy independence do not understand the real market for equipment and fuels. State RPS mandates seldom account for differences between various renewable technologies.

Clearly, most renewable technologies have less air pollutant emissions than conventional generation technologies—at the point of generation. They also use less water, which is becoming an increasingly important issue in the western states. These environmental attributes are argued by environmental groups as illustrations of why renewables are preferred and as a basis for mandated Renewable Portfolio Standards. Environmental groups and the public at large focus narrowly on just the generation operation and typically just on air, and less frequently on water. There is scant evidence of a fuel cycle awareness (or acknowledgement) or of other important environmental impacts.

Electric consumer groups also argue for the price stability benefits of renewables. Renewables can provide a hedge against fuel price volatility; renewables are significantly more capital intensive than fossil fueled generation sources. This capital intensiveness moderates the effect of fuel price increases since the cost of the renewable is reflected in fixed (and likely debt) cost. This effect also works to moderate any
downward price of fuels (i.e., the benefit of downward price swings is not captured). The higher cost of renewables is often justified as an ‘insurance premium,’ although few consumers are aware of the cost of that insurance. More importantly, fossil technologies can provide price stability through supply contracts; stability is not a function of technology but of contract.

Labor groups and state economic development agencies push the idea that expanded development of renewables is a boon for jobs and the economy. In this case, there will clearly be winners and losers with respect to jobs creation. Yes, new jobs will be created, but at the expense of existing jobs that support traditional generation. It is unclear if there will be a net increase or decrease, but it is clear there will be disruption.

Overall, interest groups successful in getting RPS implemented have used combinations of the above goals, customized to the specific demographics and political leaning of the state involved. Success has come from painting only part of the picture, and often takes advantage of the public’s limited understanding and/or fears. With respect to mandatory standards versus voluntary approaches, RPS proponents have been successful in avoiding the complete arguments altogether. Engaging the full debate might prove damaging to their cause.

The good news is that 30 states have avoided imposing RPS on their customers.

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1 The actual name of RPS may vary from state to state, as do the strictness of compliance. For example, in Iowa, the RPS is a “set-aside,” but the effect is the same—a certain percentage of resources must be renewable, as defined.

2 Research into a phenomenon known as the “Environmental Kuznet’s Curve” has indicated that, in general, a more wealthy (or developed) economy and society will have a better environmental record. This occurs because increased wealth allows citizens a degree of freedom to focus on environmental concerns than less wealthy, less developed societies, where citizens live in a more “hand-to-mouth” manner.
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The Endangered Species Act (ESA) has been called the “pit bull” of environmental law because of its power to keep people from harming endangered animals. In Oregon in 2001, for example, the federal government cut off farmers’ irrigation water from the Klamath River to protect two endangered fish. In the 1980s, the government stopped logging in the Pacific Northwest to protect northern spotted owls and did the same in North Carolina for the red-cockaded woodpecker.

Yshmael Garcia’s home in Riverside County, Cal., went up in flames in 1993 after the Fish and Wildlife Service told Garcia that he could not disc his land to create a firebreak. Also in California, a proposed hospital shifted location in San Bernardino County, and 13 miles of highway in Oklahoma were never built, even though they would have enabled indigent residents to reach a hospital without going through the mountains on dirt roads. In each of these cases, overzealous implementation of the ESA, with the professed intent of protecting threatened species, hindered or stopped these important activities.

As these examples illustrate, the Endangered Species Act enables people, citing listed species, to trump the needs and wishes of others—“making innocent species the enemy,” in the words of economist Richard L. Stroup. Not only does the ESA arouse anger from landowners, it discourages the protection that the Act is meant to provide. Without the penalties of the ESA, says Stroup, most landowners have always been willing to help protect endangered species. For example, they let conservationists put up nest boxes for endangered birds, such as the wood duck and the bluebird, long before the ESA was passed in 1973.

Given the provisions of today’s ESA, many landowners do not want endangered species on their property and they do not want the government to know if they have them. Some landowners have managed their land to make it unattractive to species such as the red-cockaded woodpecker. And, according to some reports, some people even “shoot, shovel and shut up” when they find such species on their property.

At long last, Congress has taken note...
of this ironic and perverse impact of the law. In September 2005, the House of Representatives passed a bill that would compensate owners for the loss of property value if it occurs because of governmental restrictions to protect species. The law (the “Threatened and Endangered Species Recovery Act” or TESRA) would give the Fish and Wildlife Service (or, in the case of marine species the National Marine Fisheries Service) six months to determine whether an action, such as building a house or plowing the ground, could harm a species’ habitat. If it did and the agency told the owner to stop, the owner would have a right to compensation.

In addition to allowing compensation, this provision would make the agency more accountable. Knowing that barring an activity could lead to compensation for a property owner would give agency officials an incentive to seek more efficient ways to protect species than simply demanding vast acreages of land. The six-month deadline would also end landowners’ uncertainty about whether an activity is acceptable.

No one knows whether this provision will actually appear in the final law, however. On the positive side, the House bill had some bipartisan support. Although TESRA was introduced by Richard Pombo, a Republican, and passed primarily by Republicans, it received more than 30 Democratic votes. That could improve the prospects for adoption of similar language in the Senate.

On the other hand, one major bill introduced in the Senate (CRESRA or “Collaboration of the Recovery of Endangered Species Act”) does not have a comparable compensation provision (it has a complex, but limited tax credit). Another bill, likely to make even fewer changes, has yet to be introduced as of the writing of this article.

Environmentalists, who are key lobbyists over this bill, by and large oppose compensation. This is the case even though some of them, including Environmental Defense, recognize the perverse incentives now facing landowners. The Sierra Club and the National Audubon Society take the position that the Act has been a success and that the “pit bull” characteristic – the ability to prohibit certain activities – is essential to maintaining that success.

Yet the recovery rate of species on the list is not very good. There are currently 1,868 (both U.S. and foreign) plants and animals on the Fish and Wildlife Service’s list of endangered and threatened species. Only 17 species have been removed from the list because they were successfully restored (and 9 have become extinct). Some of the recoveries owe little to the law. For example, the peregrine falcon likely came back because of the 1972 ban on the pesticide DDT. Most biologists believe that buildup of DDT, which was used excessively in the U.S. after World War II, caused the falcons’ eggshells to thin.

Ameren Energy Fuels & Services Company (AFS) provides a full range of fuel-related services to the Ameren group of companies. However, AFS also works with some unaffiliated businesses, assisting with specific fuels and emission related issues.

AFS procures over 37 million tons of coal from the Powder River and Illinois Basins for use in the Ameren generation fleet. In addition to procurement, AFS provides transportation services related to negotiating and administration of rail, barge and truck contracts, as well as the management of over 5000 system railcars.

Management and marketing of three river terminals on the Mississippi River is another responsibility for AFS. These terminals provide blending and rail to water trans-loading services for both in-house and third party users.

Combustion by-product services for beneficial use such as flowable fill projects as well as ash disposal options are additional services provided by the AFS team.

AFS provides all procurement of natural gas on both the wholesale and retail level to over 925,000 customers in the Ameren UE, Ameren Energy Generating Company, Ameren CILCO and AmerenIP territories. AFS is also currently working to develop coal bed methane (CBM) projects as well.

Market research is an additional function of AFS, providing senior management as well as plant operations with the necessary information required to keep on top of the ever-changing fuel and transportation markets.

Renewable energy resources and the development of “green generation projects” is yet another area of responsibility for the AFS group.

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interfering with reproduction. But even with DDT out of the picture, the falcon might not have recovered had it not been for captive breeding of falcons by Thomas Cade of Cornell University.

Supporters of the Act reply that it is keeping species from extinction. They point especially to extremely rare animals, such as whooping cranes and condors, which have been the objects of major federal government recovery programs. They argue that the chief problem is lack of sufficient government funds. Liz Godfrey of the Endangered Species Coalition says that TESRA would “dismantle the protections of one of our nation’s strongest conservation laws.”

Paul M. Reagan
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Such arguments and counterarguments will be prominent throughout 2006. Republicans have been leading the fight to amend the ESA and may turn up the heat. According to one political observer, Republicans expect to lose seats in Congress this year, which will make amending the Act even less likely in the future. Thus, some may view 2006 as the last chance for introducing compensation. The danger, this commentator says, is that the Republicans will make major compromises simply to “get a bill.”

Numerous other changes are under consideration as well. TESRA would authorize more funding for cooperative programs with landowners—something that would probably be acceptable to defenders of the Act. TESRA also would eliminate the designation of “critical habitat” on federal lands and would require the Interior Secretary to define criteria for listing additional species.

One important element has been left out of the discussion. Although the act is called the Endangered Species Act, it includes in its definition of “species,” both subspecies and “distinct population segments.” Most of the news about the ESA has to do with listings of subspecies or populations. For example, the northern spotted owl, whose listing under the Act halted logging in the Pacific Northwest, is a subspecies of the spotted owl. (The other two subspecies are the California and the Mexican spotted owls.) And while the grizzly bear is not close to extinction as a species, its “distinct population segment” in the lower 48 states, including Yellowstone National Park and the surrounding area, is considered threatened (a risk level just below endangered).

Matthew A. Cronin, a biologist with the University of Alaska, says that 70 percent of all the “species” of mammals on the ESA list are not actually species; they are subspecies or distinct populations. Narrowing the Act to deal only with species would eliminate most of the conflicts between government and landowners and would focus recovery on the most severe cases. So far, however, this is not the route that reform is taking.

Since it was enacted in 1973, the ESA has become extremely divisive. The Act is increasingly recognized as being unfair to landowners and of doubtful effectiveness. But it remains to be seen whether Congress can end the divisiveness and make the Act effective as well.◆

Jane S. Shaw is a senior fellow of the Property and Environment Research Center (PERC) in Bozeman, Montana (www.perc.org).
Western Energy Company (WECo), a subsidiary of Westmoreland Mining LLC, has operated the Rosebud Mine since 1968. The mine is located in Rosebud County, Montana near the town of Colstrip and produces approximately 12 million tons annually. The coal seam is flat lying, uniformly 24 foot thick, and located from 50 to 200 feet below the land surface.

Mining activities at Rosebud impact approximately 350 acres annually; since the mine opened, a total of approximately 15,500 acres have been altered. To mitigate these alterations, WECo reclaims an average of 200 acres per year. As a testament to WECo’s commitment to managing the area’s sustainability, approximately 7,100 acres of the mine have been reclaimed. Of these 7,100 acres, more than 4,600 acres have been released from Phase I and II bonding requirements by the state regulatory authority. The bond release of these acres attests to the success of the reclamation. Taken in perspective, the reclaimed area is equivalent to 11 square miles. This is a larger area than the permitted acres for all but one other coal mine in Montana.

Reclamation Challenge

During ongoing reclamation activities at the Rosebud Mine, WECo recognized an opportunity to preserve valuable habitat features associated with the area’s adjacent pre-mine topography, such as steep slopes, cliffs and rock outcrops. To implement this change, WECo worked with the state regulatory authority to develop a creative Post-Mine Topography (PMT) plan. The goal of this plan was to minimize disturbance of unmined areas, where possible, thereby enhancing post-mining reclamation effects and allowing reclaimed areas to more closely mimic original landscape features and contours. The approved PMT design received a National Award from the Office of Surface Mining in 2005.

In one area, WECo was able to reduce the area of final highwall reduction, allowing approximately 5,000 mature ponderosa pine trees – and associated plant and animal species – to remain undisturbed. Other PMT changes minimized mining disturbances and their adverse impacts on fish and wildlife values in the mine area, as well as areas adjacent to the mine.

Reclaimed areas at the Rosebud Mine provide practical demonstrations of how effective innovative reclamation activities can be when attempting to conserve the natural environment and meet state and federal reclamation requirements. They exist as proof that those proactive attempts to surpass regulatory requirements can be worthwhile.

To advance the unique reclamation opportunity found at the Rosebud site, three significant challenges were identified:

• The new PMT needed to provide stable drainage through the reclaimed area and to tie the undisturbed areas above and below the mine together.
• The mass spoil piles needed to be decreased to balance the cut and fill volumes required as a result of the restricted highwall reduction.¹
• Recognizing that more cut material would be required from the spoil side, careful planning was required to ensure
sufficient volumes of cut and fill would remain for reclamation activities.

Reclamation Solutions
Design of Stable Drainages

Drainages were designed to run from the undisturbed area above the mine (the highwall zone), through the reclaimed areas and out into the undisturbed downstream zone. Drainage slopes varied with the elevation difference between the highwall and downstream zones and were designed to ensure stable slopes and to encourage more natural hydrologic functions (i.e., through slope and side-channel design and flows).

Balancing Cut and Fill Volumes

To reduce the area of the highwall reduction zone and preserve natural pre-mine features, PMT plans required monitoring of two factors:
- The volume of available cut material on the spoil side.
- The length and angle of slopes to be constructed on the highwall side that would blend – stably – with pre-mine topography.

For the PMT design to work, it had to be environmentally sound, operationally feasible and cost effective. To ensure that these requirements were met, fill material locations and regrade equipment (such as bulldozers and scrapers) worked within the following constraints:
- Maximum material pushes were kept below 600 feet.
- Maximum scraper hauls were greater than 600 feet, but less than 1,500 feet.

Blasting plans were also optimized; highwall segments to be reduced were selected based on the depth of material to be removed.

Engineers used an iterative process to design and redesign approximately 15 PMT landscapes. Dividing the area into logical blocks, based on equipment types and materials to be moved, allowed equipment operators to optimize the reclamation process. The use of a Global Positioning System (GPS) to guide equipment further refined the process by informing operators of optimum push directions and when activity in a block was complete.

With the more coarse work of determining cut and fill locations accomplished, the fine tuning of surface features could be addressed. As part of this effort, several minor tributaries to the main drainages were developed on the downslope portion of the PMT design. These tributaries were added to better approximate pre-mining topography, to control erosion, to improve floral and faunal responses to – or use of – the reclaimed area and to improve the aesthetic qualities of the post-mine area.

Without the tributaries, and associated ridges between them, the area would have much less topographic diversity. Variable soil replacement depths compliment the revised PMT and play an important role in encouraging vegetative diversity. Laying down salvaged and stockpiled topsoil on a variety of slopes and aspects, as well as in a mosaic of soil substrates and depths allows diverse vegetation seeding. These variations in vegetation recreate important microsite diversity needed for natural mixes of ponderosa pine, several shrub species and grasses. Varied natural plant communities help ensure that post-mine vegetation is resilient and permanent.

Long-Term Benefits

The long-term benefits of reproducing pre-mine topographies at the Rosebud Mine were reduced mine-related disturbances as well as the preservation...
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of valuable plant and animal habitat provided by native steep slopes, sandstone cliffs, rock outcrops and other natural topographic features. Through novel planning techniques, the total area required for highwall reduction was greatly reduced; this lead to the preservation of approximately 5,000 mature ponderosa pines and associated plant and wildlife species.

This Rosebud Mine reclamation effort demonstrates how a cooperative effort with the state regulatory authority can result in an innovative and successful reclamation technique that has resulted in an outstanding on-the-ground product. Perhaps more importantly, the methods used in the development of the Rosebud Mine PMT plan act as a practical ‘how to’ for other mines and mine operators in the development of their final pit reclamation plans.

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1 A highwall is the unexcavated face of exposed ore and/or overburden in a mine that remains at the cessation of mining activities (for example at a setback from a property line or the end of an ore body). Highwalls are typically reduced to ensure ground stability and to avoid falling debris by cutting the top of the wall back away from the mine. Material cut from the top of the highwall is then deposited in the mine pit to lessen the angle of the wall and bring the slope of the mine face closer to the “angle of repose” or flatter as required by the regulatory authority. The angle of repose is a slope in which debris from the mine wall will come to rest quickly and not roll or fall for long distances.

2 “Spoil” is the excavated, broken rock and overburden that is moved when mining activities are carried out. “Cut” as used here is the overburden material that is removed from spoils higher than the designed post-mining topography. “Fill” is spoil or overburden material that is deposited to a lower area in the reclamation area to meet the designed post-mining topography.

3 The goal is to recreate the approximate original contour (AOC) of the area. By doing so, one can more reasonably expect the reclamation to mirror pre-mine conditions.
Who would have predicted that significant help in managing operational risks would come from such an unlikely source: Section 404 of the Sarbanes-Oxley Act? But, by voluntarily extending the Sarbanes-Oxley model to encompass management’s study and evaluation of controls beyond financial reporting and control to operational reporting and control, forward-thinking coal mining and utility companies may more effectively uncover and manage regulatory and business risks, resulting in increased investor confidence.

The scramble continues into Year 2: Many public companies have staffed up internally and hired outside resources to comply with Section 404 of the Sarbanes-Oxley Act. These companies are investing a great deal of time, manpower and money to document, test and evaluate their internal control structures and procedures for financial reporting. For most of these companies, the end product of these significant investments may result in an internal control report from management that accomplishes two key objectives. First, it will help confirm management’s responsibility to establish and maintain an adequate internal control structure and procedures for financial reporting. Second, it will help assess how well the structure and procedures work.

The company’s external auditors must attest to, and report on, management’s assessment as well as the effectiveness of internal controls over financial reporting as of the assessment date.

Through our audit and compliance work in the mining and utility industries, it has become clear that companies should consider taking the next step and voluntarily extend the Section 404 framework from the financial reporting and control to the operational risk arena.

Yes, that’s right – voluntarily extend the Section 404 mindset to operations, proactively immersing the entire organization in the identification, documentation and testing of operational controls.

Making the Most of Your Investment

Many companies view elements of Sarbanes-Oxley as time-consuming and expensive. However, beyond the direct improvements resulting in financial reporting, such efforts have additional upside potential as well.

The upside lies in taking the expertise developed in documenting, measuring and testing financial controls and applying it to operations.

In many ways, it is no more than the logical next step. We believe that those who translate everything they’ve learned on the financial side of the house to the operations side will emerge from the 404 process the strongest.

Needed: New and Improved Operational Controls

The need for better operational controls and reporting has never been greater in the mining and utility industries. Over the past decade, new players, new regulations and new market forces have shaken up these once-stable industries. The landscape is littered with ill-fated attempts at deregulation, high-profile business failures and scandals at trading organizations. Consumers are angry and confused, investors are wary and state and federal legislators and regulators are determined to return order to an industry that they believe is in desperate need of it. All of these factors – plus the capital-intensive nature of the business – point to the increased need for vigorous risk management practices, policies and procedures.

In all but the most sophisticated companies, operational controls traditionally have been underdeveloped compared with the financial side. The group most often charged with operational controls – the internal audit function – is usually focused on compliance, instead of the operational issues that ultimately affect financials. This focus on financial con-

By Jeffrey M. Holloman, Michael Barrett and Andrew Miller, Ernst & Young, LLP
controls will only grow as compliance with Section 404 is institutionalized.

In many companies, oversight of operational processes and controls is scattered throughout the organization. More often than not, the job of mandatory operational reporting – to various state and federal energy, health and safety, and environmental regulatory agencies – falls on different functions within the organization, such as human resources. By default, these departments within a company become the keepers of various bits of data and information and report them to regulatory agencies on a regular basis. Because it lacks systemic control, standardized processes and oversight, this ad hoc reporting style can create significant risks.

As a result, internally driven challenges to what organizations are doing operationally are often nonexistent. We see a lot of upward reporting going on, but not a lot of peer review or systematic checks and balances. And it’s only through those approaches that gaps can be uncovered and addressed before they create problems.

Sarbanes-Oxley is forcing companies to be more forthcoming and expose their financial control risks. However, to truly control financial risks, companies should think about looking even deeper to identify the operational risks from which their financial risks emanate. The principles of Section 404 can give them the tools to do so.

The Payoff: Fewer Surprises

Having stringent operational controls and reporting processes in place can alert management to potential trouble spots long before their effects show up in financial statements.

This is because there is a very clear and close link between operational and financial reporting. Financial reports are simply a reflection of what has happened in operations. Unfortunately, management’s first look at what happened operationally frequently occurs when the financial statements are produced. When the results aren’t what they’d expected or hoped for, it’s then that they try to fix the problem. Unfortunately, it’s usually too late. In essence, we find that management works backward from the financial statements.

Operational controls and processes that are in place, documented and monitored would serve as an early warning system and allow a company to address what is happening operationally on a more real-time basis. Long before financial statements are produced, management would recognize that things aren’t going as anticipated and be able to take corrective action. We believe that many of the recent headline-grabbing corporate scandals and failures might have been prevented or mitigated with better operational controls and oversight. With better operational controls, management at these companies could have known early on that they had a fundamental business problem developing and they could have acted on it, avoiding the tragedy that followed. Unfortunately, they didn’t understand what was happening in their companies operationally, and, by the time they discovered it, they didn’t have enough time to manage it.

So Many Risks, So Little Time... and Money... and People

Companies that determine to extend assessment of controls beyond those dealing with financial reporting will immediately be faced with a daunting task: deciding where to start.

The mining and utility industries face no shortage of operational risks. There are essentially four ways to address them:

- Insuring them
- Hedging them
- Learning to live with them because they don't pose a threat for significant loss
- Mitigating them through improved operational and financial controls

Because it’s impossible, and unnecessary, to address every risk, we suggest employing two criteria for identifying those risks to tackle immediately. First, zero in on the critical “handfuls” that pose the most significant potential for loss. Second, consider addressing those that lend themselves to mitigation by improved internal controls. This would include defining and mapping the process as it currently exists, defining what it ideally should look like and implementing a plan to fill in the gaps.

Internal audit functions are the likely candidates to make suggestions to management for implementing 404-like practices in operations. But to do so, they will need to create a new model for developing, implementing and monitoring operational controls—a revamp that is long overdue in most companies. In the future, the internal audit groups that deliver the most value to their organizations will be those that offer innovative solutions to operational control problems.

Though each company faces a unique set of challenges, there are a handful of likely candidates for Section 404-like documentation, review and testing at most companies.

Near the top of the list are procurement and commodity trading activities. In the mid- to late-1990s, many companies took advantage of price-risk protection offered by the use of derivatives by creating their own trading groups to interact and transact with major trading houses. These groups quickly gained tremendous market power — constrained only in limited fashion by their regulatory authorities — and developed significant expertise and sophistication in negotiating transactions using complicated derivatives.

But as these trading groups grew in sophistication, their operational controls did not keep up. As a result, they present significant risk from lack of, or inappropriate, controls over the segregation of duties, as well as the authorization, validation and confirmation of transactions. Even today, after numerous high-profile industry collapses, many companies still need to increase the level of scrutiny over controls within their trading departments. While 404 has caused them to focus on controls regarding segregation of duties between the front, middle and back-office functions, the initiation of transactions and the ensuing confirmation, there are still major operational control issues that utilities should address, including:

- Determining the appropriate authority limits, including spending limits, contract length limits, capital at risk or other parameters in line with the corporate governance objectives of the organization and the expectation of shareholders.
- Credit policies, including collateral requirements and credit limits for counterparties.
- Document retention and price reporting policies to provide a harbinger relative to regulatory requirements.
- Segregating transactions between regulated and unregulated entities under the same corporate umbrella.
- Realigning compensation models vis-à-vis the trading strategies of the organization.
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• Reassessing the controls surrounding the physical movement of the commodity, including scheduling to minimize imbalances.

Another likely candidate for operational control overhaul is the process surrounding approval, initiation and management of capital construction projects. Long-term, tangible assets remain the backbone of the mining and utility industries, and their integrity must be maintained through frequent upgrades, expansion, repair and replacement. This includes everything from developing new mines for coal companies, to constructing new power plants, to developing transmission and distribution networks.

Companies often lack appropriate controls over project approval and initiation. Because field personnel and operations crews are tasked with completing capital projects within tight deadlines and budgets, projects can be established and executed with minimal scrutiny from an operational standpoint.

As utilities and mining companies embark on their strategy development beyond the first year of 404, they must discover resources capable of reviving their own industry expertise, market intelligence and regulatory insight. As these resources are added, implementing a framework in which operational controls are present provides the best opportunity to manage risk and prevent many past mistakes.

**Who Will Lead the Way?**

Because recent business failures and scandals have created an environment that puts internal operational controls under the microscope, it’s logical to think that many companies will embrace this idea. But that’s not likely to happen.

Management is so focused on 404 implementation that they may fail to recognize that assessing financial reporting controls is only half the battle. To date, the investment community has not placed a great deal of emphasis on strong operational controls. But it reacts negatively to financial reporting control failures, often not realizing that these failures usually result from the lack of appropriate operational controls. Investors and other constituents of these companies will come to that realization when another scandal occurs despite Section 404 compliance.

If Section 404-weary management does not lead the charge to extend this concept to operational controls and reporting, the call for stronger operational controls will likely come from regulators, boards of directors, audit committees, investors, rating agencies and other stakeholders as they realize that Section 404 compliance does not address all of a company’s risks. When this happens, investors and other constituents will place a premium on organizations that are well-managed and have best-in-class operational controls.

The irony is that for companies consumed with the Section 404 compliance flurry, a promising solution for addressing their operational risks could be right in front of them.

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The United States has a significant domestic coal reserve that provides our nation with economic prosperity through relatively inexpensive electrical power. Yet during the past five years, there has been phenomenal growth in the importation of coal along the Gulf and East Coasts, through Canada and to U.S. insular areas (such as Puerto Rico, Guam, the U.S. Virgin Islands and American Samoa). This year, the U.S. will import over 30 million tons of coal from 19 different countries.

Since 2000, U.S. imports of coal have grown 140 percent from 12.5 million tons to a projected 30.5 million tons in 2005. Approximately 95 percent of the increase in imported coal has come from three countries - Columbia, Venezuela and Indonesia.

Utilities along the Gulf and East Coasts have moved beyond the testing of imported coal and are now adding the fuel to their portfolio of fuel supplies. As an example, the Port of Charleston received its first import coal cargo in 2000 with shipments to a single utility. By 2005, coal through the port reached 18 different power plants and eight industrial consumers.

Why Imported Coal? Why Now?

It is no secret that the U.S. coal production and distribution system has been strained during the past few years. Production restrictions in the east and transportation disruptions in the west have utilities looking for ways to ensure a consistent coal supply.

In the east, Central Appalachian (CAPP) coal production is down 40 million tons from its peak, and shows no signs of returning to higher levels even though the price of the coal has nearly doubled. The markets supplied by CAPP coal in the southeast are natural consumers of imported coal from South America. Since CAPP and imported coals have nearly identical qualities,
there are few adjustments required at the power plant. A switch to lower rank sub-bituminous coals, by comparison, would require significant operational adjustments.

Plants in the east and southeast that are currently using Powder River Basin (PRB) coal also are looking to diversify supply chain risk by including imported coals in their fuel supplies. Supply chain disruptions in the spring of 2005 brought to the forefront the risk of a 2,000-plus mile rail haul. Plants with the ability to burn the lower rank coals have the ability to take in some of the super compliant Indonesian sub-bituminous coal.

**Port Infrastructure**

During the early 1980s, the U.S. coal industry experienced significant growth and provided fuel to international markets. A host of new terminals were built to move America’s most abundant fuel. Unfortunately, the capacity of the terminals far exceeded even the peak year of U.S. coal exports.

These underutilized facilities are now seeking ways to gain a share of the emerging imports market, converting some of these export terminals to import terminals. Such a change can be nearly as expensive as developing a new port site. However, converting an existing site offers the advantage of greatly reduced permitting requirements and a much less complicated regulatory environment in which to work.

**Gulf Coast Terminals**

A host of terminals on the lower Mississippi River have the ability to receive, store, blend and reload back to barge and/or to rail. Current estimates indicate that the major lower river terminals have over 12 million tons of import capacity. While the final numbers have not been tabulated, the lower river will receive about 2 million tons of imported coal in 2005.

Mobile/Alabama State Docks (ASD) is the largest port supplying service to the import coal trade. During 2005, ASD will receive more than 10 million tons of imported coal for primary delivery along the inland waterways and the intracoastal waterways to Florida.

One of largest expansion projects for imported coal is underway at ASD. The $28 million to $30 million investment will add new unloading capability at Berth 1, coal handling equipment in the storage yard and unit train loading capability to complement the current barge loading operation. The expansion project will increase the import coal potential to 16-18 million tons per year and is expected to be completed by Q3 of 2006.

With the expansion of ASD, the Gulf Coast is in a solid position to handle a significant increase in import coal tonnage.

**Southeast Coast Terminals**

There are a host of private and open terminals along the East Coast that provide a variety of services to the import coal industry. In the Southeast, terminals include Savannah Electric, Kinder Morgan’s Shipyard River Terminal in Charleston, S.C., and Progress Energy’s midstream operation in Wilmington, N.C.

Total imports in this region have grown significantly, from 600,000 tons in 2000 to more than 2.5 million tons in 2005. The southeast region will see significant increases in imported coal in the next few years by virtue of their proximity to South American markets and favorable inland transportation competition.

Kinder Morgan has announced a significant terminal expansion project in Charleston that will increase capabilities from the current 2 million tons per year to a capacity in excess of 10 million metric tons per year. The project includes adding a second receiving dock, four Gottwald unloading cranes and two unit train batch weigh loadouts.

**Mid-Atlantic Terminals**

The largest concentration of high capacity coal terminals lies in the Mid-Atlantic region, where export tonnage in the mid-1990s peaked at over 65 million tons. Even with the recent resurgence in coal exports, these facilities handle less than half of that peak throughput at the present time.

Two significant projects have been announced to handle import coal in the region. Dominion Terminal Associates and Kinder Morgan’s Pier IX have announced projects that will convert the existing export-only terminals to import and export coal terminals. The combined import coal capacity of the two projects will
be in excess of 15 million tons per year. The announced timing of the two projects is late 2007 to early 2008.

Several smaller projects have been announced and are in various stages of development. Kinder Morgan’s Fairless Hills Terminal in New Jersey will be ready to receive import coal in the first quarter of 2006, and will have an annual capacity of 2 million tons per year. Baltimore also has two projects in development. Chesapeake Bulk Stevedores at Sparrow’s Point is expected to handle 750,000 tons in 2006 with potential to grow to 3.5 million tons with the addition of a new crane during the second quarter. While no specific plans have been published to date, Consol’s CNX terminal in Baltimore is rumored to be looking at import capability as well.

Florida Terminals
Florida terminals have been more deliberate in their development as they generally serve a more local market and are more dependent on railroad acceptance. The Florida market for import coal can approach 13 million tons with the support of the railroad. Without support, the market will remain limited to municipal utilities within trucking distance of the terminals and utilities that can receive product directly from vessel or by barge.

Two terminals in Tampa service the local truck and barge market. Both Kinder Morgan’s Tampaplex and Drummond Coal’s Terminals are in operation today with limited throughput. While both operations have the desire to expand, both are dependent on acceptance and support of the railroads.

On Florida’s east coast, the Jacksonville Electric Authority (JEA) has been active in the import market for several years. In addition, a recent announcement has been made concerning a new private terminal in Jacksonville – Jaxport. Although early in development, this operation could supply import coal to the interior utilities in central Florida and southern Georgia.

Summary
After years of rising import coal throughput, terminal capacity must be increased to handle the additional production in South America and utility demand along the U.S. coasts. Import coal is no longer an experiment, but has become an integral part of a total fuel supply strategy that includes diversification and compliance. With the support of long-term contracts, new infrastructure projects will be built to accommodate the rising tide of imported coal.  

Michael Ferguson is the Vice President-Regional Manager of Kinder Morgan Bulk Terminals, Inc. (www.kindermorgan.com).  

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Repeal of PUHCA May Spur Mergers

By Robert P. Edwards and Kimber L. Shoop III, Troutman Sanders LLP

The U.S. Congress recently passed comprehensive energy legislation that will dramatically change energy policy in the United States. Addressing all sectors of the energy industry, this legislation—entitled the Energy Policy Act of 2005 (“EPAct”)—became effective Feb. 8, 2006. It contains a repeal of the Public Utility Holding Company Act of 1935 (PUHCA) and creates a substitute regulatory framework. PUHCA, the high water mark of the New Deal era, contained burdensome restrictions on the activities of utility and utility holding companies. By repealing PUHCA, the EPAct terminates the regulatory framework previously headed by the Securities and Exchange Commission (SEC) and creates a new regulatory structure under the Federal Energy Regulatory Commission (FERC). Of greatest significance, the repeal of PUHCA opens the door for utility and energy mergers that may not have been possible in the past.

PUHCA repeal removes several burdens on utilities and utility holding companies. First, existing or potential utility holding companies will no longer be concerned that their operations require them to register with the SEC or become subject to comprehensive and frequently cumbersome monitoring of their regulation and financings. These regulatory requirements have burdened and deterred entry into the utility and utility holding company business. Second, the repeal of PUHCA removed the “integration requirement” that prohibited utility holding companies from acquiring or merging utilities that could not be operated as a single integrated system.

Third, PUHCA repeal also removed “functional relationship” restrictions on business diversification by utilities and acquisitions of utilities by non-utility companies. Prior administration of PUHCA required utility holding companies to divest their transportation properties and, in the case of electric utilities, any natural gas and oil interests that were unrelated to fueling power plants. As late as 2000, E.ON AG, a major multi-national energy company headquartered in Germany that acquired Louisville Gas and Electric Company and Kentucky Utilities Company, was required to divest its European chemical business in order to register as a holding company in the U.S. Over the years, while the SEC gradually liberalized this “functional relationship” requirement, there were still restrictions on utility and utility holding company investments.

As a result of PUHCA repeal, utility and utility holding company investments no longer need to be functionally related to the utility system, and can represent an actual diversification. Such diversification may allow a utility holding company to hedge risks or harness growth in other regions of the country. These changes would also permit utilities to acquire fuel and transportation assets which may be of particular interest to utilities in light of the dramatic increases in fuel and transportation costs that are affecting utility earnings.

Even though the removal of PUHCA’s onerous restrictions has opened up the utility industry to potential mergers, it does not mean that utility mergers will be completely unfettered by regulatory oversight. EPAct provides FERC with increased authority to protect consumers from the anti-competitive effects of utility mergers and acquisitions that would permit the exercise of horizontal or vertical market power. In addition, utility holding companies will be subject to enhanced information reporting to both FERC and state utility regulators to facilitate rate regulation and protection of ratepayers from abusive affiliate company transactions. In addition, there is still an existing and significant regulatory framework in place to oversee such mergers and prevent market abuses.

EPAct replaced the former PUHCA SEC regime with a new regulatory scheme headed by the FERC. FERC continues to have authority under the Federal Power Act (FPA) to ensure that any sale of a public utility or any FERC-jurisdictional facilities is in the public interest. In addition, EPAct contains revisions to the FPA that expands and clarifies FERC merger review authority to include: (i) public utility acquisitions of certain generation facilities; (ii) utility holding company acquisitions of public utilities; and (iii) utility holding company mergers with other utility holding companies. In addition to reviewing these transactions to determine whether they are in the public interest, FERC now has the authority to determine whether these transactions will result in the cross-subsidization of non-utility members of the utility holding company system.

Also, EPAct provided FERC (and state commissions) with additional authority to protect energy customers from accounting abuses. FERC and state commissions now have increased access to the books and records of utility holding companies and their affiliates and subsidiaries. FERC also has
The Calvert City Terminal is a new, modern coal transloading and blending facility located at Mile 14 on the Tennessee River. This terminal offers connections with five Class I railroads through the P&L Railroad, and is in the heart of the inland river system. SCH Terminal Company's parent company, Southern Coal Handling Company, designed and built this terminal to meet the needs of utilities interested in receiving western coal or blends of western coal and Illinois Basin coals. The facility incorporates five belt scales, interlocked with the system PLC, to monitor two and three-part blends accurately and efficiently.

The terminal includes a loop track that will accommodate up to 150 railcars and a rotary dump for efficient, low-cost handling of western trains. CCT is presently transloading over 6.5M tons per year and expects to be at 10M tons per year within the next three years. The facility operates at a nominal rate of 3500 tons per hour and there is 1,000,000 tons of ground storage available.

Please call one of the contacts below if you are interested in the services provided by CCT, or if you are interested in other coal handling concepts and services available through Southern Coal Handling Company, Inc.

Gary Quinn (423) 899-0591 gquinn@sch-ces.com
Bill Rager (270) 841-9907 brajer@sch-ces.com

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Coal mining, coal-based generation and coal trading may seem like strange bedfellows at first glance, but they have a great deal in common. The same focused discipline that miners and utility generators apply to their businesses to ensure that coal or the electron is produced as safely and as efficiently as possible is used by traders in these same organizations to safely and efficiently optimize the financial health of their companies. Over-the-counter (OTC) and futures trading in coal is no longer a concept, it is a reality. This article summarizes the key components of OTC and futures trading: the participants, facilitators, products, liquidity and key reasons for trading.

OTC Participants

Hedgers: Hedgers are companies whose financial fortunes fluctuate according to the price of coal. The biggest group of hedgers is comprised of those with natural positions. The ‘natural shorts’ are the companies that use coal, but do not produce it and are, therefore, in a naturally net negative holding position for that commodity (i.e., generators). The ‘natural longs’ are the companies that produce coal, but do not use it and are, therefore, in a naturally net positive holding position for that commodity (i.e., miners). However, there are many other companies that also have a horse in the race, including shareholders, lenders, reserve companies, transportation carriers, transshipping terminals, exporters/importers, competing fuel producers, electricity marketers, etc.

Speculators: Who needs speculators if there are a sufficient number of shorts and longs with clearly opposite risk profiles? Some shorts and longs are concerned about prices in the prompt quarters (i.e., upcoming quarters); others are concerned about prices 1 to 2 years in advance. Some companies want to take action in the beginning of the year; others want to take action toward the end of the year. Some companies have small volumes to manage, others have huge volumes. Some companies want protection and they want to benefit from
favorable market moves; other companies are willing to live within a price range and simply want floor and ceiling prices. Speculators are experts at taking on risk. Then they slice, dice and repackage it into innovative risk management solutions and often live with some residual risk. Speculators include banks, hedge funds and energy marketers. They make up 80 percent of the OTC volume; without their participation, there would be insufficient liquidity to sustain trading.

Brokers: This often misunderstood group provides the lifeblood to the OTC market. OTC brokers are market-neutral – they never take positions. OTC brokers continually canvass the market for the highest bid and the lowest offer. They broadcast this information to potential counterparties. When they find a buyer for the lowest offer or a seller for the highest bid, they match the two together and the counterparties enter into a trade. There is no further negotiation because OTC market participants have already accepted the standardized specifications, terms and conditions. Credit is not an issue in these transactions because brokers will only match up counterparties that have credit approvals in place. OTC brokers work hard for their few pennies per trade (paid by both sides of the trade). In a market that is continually fluctuating according to supply/demand drivers and changing price sentiments, brokers must continually seek out the highest bids and lowest offers on various products throughout numerous delivery periods. It is a non-stop job.

The Coal Trading Association (CTA): The CTA comprises virtually all of the participants in the OTC coal market. It provides a vital role by meeting regularly to create a consensus on issues that are critical to a healthy OTC market: standardization, scheduling, indices, booking out procedures, credit and new products. (www.coaltrade.org)

The Products
Theoretically, any coal product can trade in the OTC market and often a ‘one-off’ product, such as an Illinois Basin coal, will trade. However, liquidity is the name of the game – lots of bids and offers to discourage the dreaded ‘roach motel’ (easy to enter, hard to exit). To achieve this outcome, market participants choose standardized products that walk the tightrope of including as many qualities as possible and, at the same time, ensuring that the standardized product can still be used effectively by the end-users as a hedge.

Coal Products
• CSX 12500 1% (& 1.2 lb. SO2)
• Nymex ‘Look-alike’
• PRB 8800 (& .55 lb. SO2)
• PRB 8400
• NS 12500 1% (& 1.2 lb. SO2)
• Northern Appalachian Products

OTC Instruments
• Standardized Physical Contracts
• Basis Spreads (Calendar, Quality and Transportation)
• Put and Call Options
• Swaps and Indexed Physical Transactions

Market Liquidity
If you build it, they will not necessarily come. Fortunately, the OTC participants have invested a great deal of resources to make sure the market functions properly. The chart below shows the monthly reported volume of OTC trades, including standardized physical contracts, swaps, options and spread trades. Due to the fact that many trades are ‘private and confidential,’ the actual trading volume may be as much as 40 percent higher. The year 2005 showed healthy growth and the entrance of many new participants, including major players in the financial sector.
OTC vs Futures
The majority of coal trading is conducted in the Over-the-Counter market, in which counterparties are matched up via OTC brokers in a lightly regulated market. However, the coal market is also fortunate to have a futures contract: the Nymex Capp Contract. The Capp contract is traded on a highly regulated electronic futures exchange. Instead of being matched up with another counterparty, your counterparty is the Nymex futures exchange – a superior credit candidate. Many OTC trades in the ‘Nymex-look alike’ are converted to futures contracts for the sole purpose of clearing. In contrast to the OTC market, a futures contract requires counterparties to put up ‘margins,’ or deposits to cover the financial risks, for each contract traded. While the futures contract provides many advantages, the OTC market provides valuable flexibility in terms of the variety of coal products and numerous risk management instruments such as options, swaps and basis trades.

Reasons for Trading
Regardless of whether you are a hedger or a speculator, using the OTC market requires a disciplined approach to risk management and entails creating extensive procedures and protocols to ensure that the process achieves the desired outcome in a safe and efficient manner. It requires a focus on the forward curves and input throughout the organization – back office, production, sales/marketing, credit, legal, treasury and trading. This process alone can pay dividends. Other specific benefits include:

- **Innovative Risk Management Solutions**: Price ceilings, price floors, price collars, swaps, indexed physical transactions, basis trades, etc.
- **Predictable Revenues and Costs**: Hedging results in efficient cost and revenue management.
- **Price Transparency and Price Discovery**: The OTC brokers are continually broadcasting the forward curves and the bidders/offerees are continually creating the curve.
- **More Bidders and Offerors**: The OTC market increases the number of potential bidders and offerors beyond the natural shorts and longs.
- **Efficient and Speedy Trade Execution**: The magic of standardized contracts enables counterparties to transact in a matter of seconds.
- **Reversibility**: Positions can be reversed as quickly as they were put on.
- **Anonymity**: Your bids and/or offers are anonymous. After transacting, only your counterparty knows your name.
- **Separating the Financial Outcome from the Physical Outcome**: The use of swaps enables both sides to get what they want. For example, the buyer wants a fixed price, but the seller wants an indexed price.
- **Monetizing Your Assets**: OTC trading enables counterparties to monetize storage, blending, transportation, quality and generation flexibility.
- **Eliminating Force Majeure Risk**: OTC trades are not subject to outages at specific mines or power plants.

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  - National market leader in architectural stone veneer and siding accessories
  - Developer of innovative FlexCrete™ aerated concrete