

Issue 1 2026

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Workers Shaping the Nation's Next Chapter

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The Energy Policy Wars

Odin and Thor
How the Norse Gods Helped BNSF
Achieve Its Safest Year Ever

The Reliability Factor
Solar Will Never Surpass Coal

From Coal Ash to Coal Asset
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Published for:



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Published by:

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Printed in Canada.

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NATIONAL & GLOBAL ENGAGEMENT

- **National Advocacy:** Participated in a high-level federal discussion on U.S. coal exports with the U.S. Commercial Service, Department of Energy and Department of Commerce, highlighting market access, international commitments and coal's strategic role in global energy security. Strong member and board participation underscored growing federal recognition of coal's importance to reliability and global competitiveness. Honored to attend Coal Day 3.0 at the White House.
- **International Outreach:** ACC participated in the Indo-Pacific Energy Security Ministerial & Business Forum (IPEM) in Tokyo, joining ministers, CEOs and energy leaders from across the region. Discussions centered on energy security, supply chain resilience and long-term planning.
- **Policy Presence:** Published op-ed April 21 in the *Cowboy State Daily*: "Facts, Not Fear — What Oakland's Air Data Really Shows About Coal Trains."



COMMUNICATIONS & CAMPAIGNS

- **Coal Nation Podcast:** Launched and recorded episodes spotlighting coal's human impact, industry leadership and energy security. Featured voices from across the supply chain, including miners, engineers and community leaders, to elevate coal's story in authentic, resonant ways.
- **Coal Newsletter:** Published monthly issues highlighting industry milestones, policy updates.
- **Social Media Campaigns:** In late 2025, the ACC launched "With Coal," a national advocacy campaign designed to highlight how deeply everyday life is connected with coal. Each week, the campaign delivered a focused message supported by engaging graphics or short videos that illustrated coal's role in modern living. Engagement across platforms was consistently strong and the campaign maintained a unified, recognizable message throughout the month. Launched messaging around coal's diverse applications under hashtags like #coaliscool, #withcoal, #proudtobecoal.



MOMENTUM & VISION

The ACC continues to advance its grassroots advocacy work with strong, deliberate momentum.

The 2026 campaign is built as a dual-track model that strengthens coal's national story on two fronts:

- **Flagship Industry Narrative:** A cohesive, high-visibility storyline that reinforces coal's essential role in American energy, steelmaking and industrial resilience.
- **Worker-Driven Social Content:** Authentic, real-voice storytelling from miners, plant operators, logistics teams and community members whose lived experience gives the industry its credibility and heart.



CONFERENCE HIGHLIGHTS

The Miami Coal Forum proved once again what makes this community exceptional. With more than 200 participants joining us, supported by generous sponsors and a dedicated team that crafted thoughtful, timely programming, the event showcased the very best of our industry. Our speakers continue to inspire and challenge us, setting a standard of excellence we're proud to uphold.

Throughout the Forum, we saw the ACC's mission — Shaping the Future of Coal — on full display. From forward-thinking discussions to innovative perspectives on reliability, markets and policy, the conversations in Miami reflected a shared commitment to strengthening coal's role in America's energy future. The collaboration, insight and momentum generated here will carry our work forward in meaningful ways.

Thank you to everyone who contributed to such a successful and memorable event. Together, we are truly shaping what comes next.

Washington D.C. Fly-in – July 20-22, 2026. We are pleased to share that the American Coal Council has rescheduled the 2026 Washington Fly-in to the week of July 20. This updated timing allows us to deliver an even stronger program for our members. You won't want to miss this year's event.

Our tentative schedule includes:

- **Monday afternoon:** Coal industry updates, including rail, market and policy briefings
- **Tuesday – Wednesday:** Meetings with congressional leadership and key federal agencies
- **Tuesday evening:** Reception co-hosted by the Washington Coal Club and the American Coal Council

The Fly-In remains one of ACC's most impactful opportunities to come together, exchange insights and engage directly with national decision-makers. We look forward to seeing everyone in Washington this July and to a productive, well-coordinated Fly-in.



COAL INNOVATION & MARKET STRATEGIES – PARK CITY, UTAH

CIMS 2026 is shaping up to be one of our strongest conferences yet, and we're already energized by the momentum building around attendance. With a great lineup of speakers who will bring insight, expertise and forward-looking perspectives to the industry, this year's program is designed to deliver real value and meaningful connection. We're looking forward to welcoming our members, partners and new faces to an event that continues to grow in impact and relevance, and we can't wait to share what's ahead for CIMS 2026 and our speaker lineup.

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For 250 years, coal has been part of the American story.

From the railroads that connected a growing nation, to the steel, manufacturing, agriculture and infrastructure that helped build it, coal has supported generations of progress and opportunity.

Technologies have evolved. Industries have transformed. New challenges and new possibilities continue to emerge.

Through it all, the men and women of the coal industry have remained committed to innovation, stewardship and the responsible development of one of America's most important natural resources.

As our nation celebrates 250 years of independence, we recognize the workers, companies and communities whose contributions have helped shape the past, strengthen the present and build the future.

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Coal at 250

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EMILY ARTHUN
CEO,
American Coal Council

As our nation celebrates its 250th birthday, it's impossible not to reflect on the extraordinary journey that brought us here. Two-and-a-half-centuries of grit, ingenuity and determination transformed a young republic into a global leader. But anniversaries aren't just about looking back — they're about understanding the forces that shaped us and the ones that will carry us forward.

And through every chapter of America's story, coal has been there.

Coal helped forge the steel that built our railroads, bridges and cities. It powered the factories that turned a rural nation into an industrial powerhouse. It lit homes, fueled progress and gave generations of Americans the freedom to pursue their full potential, no longer bound by daylight, distance or circumstance. Coal didn't just support America's growth. It enabled it.

Coal powered the rise of the middle class. It anchored communities that became the backbone of our economy. It provided the reliable energy that allowed innovation to flourish. And it gave millions of Americans the opportunity to build better lives for themselves and their families. Coal has been a constant companion in America's pursuit of possibility.

However, the story doesn't end there. Coal's role in America is not confined to the past.

As we look ahead to the next 250 years, we face a future defined by technology, innovation and adaptability. New materials, new manufacturing processes and new demands will reshape how we power our world and how we build the products that keep our economy moving. And coal — in all its forms — will continue to be a foundation for that progress.

We're already seeing it.

From advanced carbon products to mineral fibers, from rare earth recovery to next-generation manufacturing, the coal value chain is evolving in ways that would have been unimaginable even a decade ago. These innovations are happening in the very communities that powered the first Industrial Revolution and now they're helping power the next one.

It is important to remember the future won't unfold in a straight line. It never has.

The moments that define a nation are often the ones we don't see coming: the unscripted challenges, the unexpected opportunities, the turning points that demand readiness and resilience. Coal has always been there in those moments, providing stability when the country needed it most. And it will be there again.

Our responsibility as an industry and as a nation is to stay prepared: To continue innovating, remaining confident in



the value of our resources and the people who work them, ensuring that coal remains a strategic asset for America's security, economy and future prosperity.

And that brings us to the work happening right now.

Today, the American Coal Council is expanding its reach and strengthening its voice in ways that reflect both our heritage and our future. We are embracing innovative platforms to tell coal's story clearly, confidently and creatively. The Coal Nation Podcast continues to grow, giving members and industry leaders a place to share their experiences, their expertise and the real-world impact of coal communities. Our With Coal campaign is bringing fresh, modern visuals and messaging to audiences across the country, reminding people that coal is not just part of our past — it is part of our daily lives and our national strength.

We are expanding our social media presence, meeting people where they are and ensuring that facts rise above fear. We are increasing CEO-level speaking engagements, showing up in rooms where decisions are shaped and narratives are formed. And we are building new ways for members to engage, collaborate and amplify the message that coal remains essential to America's future.

The American Coal Council is not standing still. We are growing, adapting and preparing for the next 250 years with the same determination that powered the first 250.

America's story is still being written. Coal will continue to help write it, supporting our economy, strengthening our security and giving future generations the same opportunity to rise, build and thrive that defined the first two-and-a-half centuries of this nation.

Proud To Be American | Proud To Be Coal

Emily Arthun



Robindale



BEFORE



DURING



AFTER

In the heart of Western Pennsylvania, where remnants from past decades of mining have scarred the land, Robindale stands as a beacon of environmental stewardship. These refuse coal piles, once deemed eyesores and environmental hazards, are meticulously removed and repurposed by Robindale. The company employs innovative technologies and sustainable practices to not only mitigate the environmental impact but also to turn this waste material into a resource.

The reclamation process undertaken by Robindale goes beyond mere cleanup. It is a concerted effort to restore the land to its natural beauty and vitality. By employing state-of-the-art methods, the company not only addresses the environmental challenges posed by these coal piles but also contributes to the creation of affordable energy

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Strong People Ensure the Coal Industry's Future



FRAN TAGLIA
President,
American Coal Council

Coal mining is hard. It always has been. Coal mining demands physical endurance, technical skill, resilience and sacrifice. It asks men and women to work long hours in difficult weather, under demanding conditions, often far from recognition or appreciation.

It requires companies to make long-term commitments in an industry shaped by volatility and shifting policy. Even as technology has advanced and safety standards have improved dramatically, coal mining remains one of the most challenging professions in America.

And yet, generation after generation, people continue to answer the call. That reality says something important about the character of the people who make up this industry.

Coal miners, engineers, operators, geologists, equipment manufacturers, railroad workers, plant employees and countless others connected to this sector share a common understanding: meaningful work is not always easy work.

In many coal communities, mining is more than employment. It is identity, heritage, pride and purpose. Families have built lives around this industry for decades. Entire towns were founded because hard-working people believed that providing this resource to the nation mattered.

In many ways, the modern coal industry is being asked to do more with less. Mines must operate more efficiently. Producers must navigate tighter margins and greater uncertainty. Operators face increasing scrutiny while still being expected to deliver affordable, reliable energy and essential raw materials to domestic and global markets.

That balancing act is difficult, but it is nothing new to this industry.

Coal has survived because the people in this business are adaptable, resourceful and determined. When conditions change, they adapt. When problems emerge, they solve them. And when others count them out, they keep showing up every day with professionalism and grit.

Show me an operation dealing with terrible mining conditions and I will show you a workforce working

harder than on their best production days. I think that spirit deserves recognition.

Too often, discussions about energy happen at a distance from the people who actually produce it. Behind every ton of coal is human effort. Behind every shipment is a team of individuals who understand responsibility, teamwork and accountability.

These are people who work in challenging environments, who solve problems in real time, who take pride in doing tough jobs well and who understand that others depend on them.

Recognizing the difficulty of mining coal does not mean accepting unnecessary burdens. In fact, one of the most important responsibilities we have as an

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industry is to continually ask how we can lighten the load for the next generation.

This means continuing to improve mine safety through better training, better technology and better communication. It means investing in equipment and systems that reduce physical strain and increase operational efficiency.

It means advocating for practical policies that allow American coal producers to compete fairly and plan with greater certainty. It means developing the workforce pipeline and ensuring young people entering the industry have opportunities to build meaningful careers.

It also means telling our story more effectively, which is a key focus for the ACC in the coming months and years. The reality is that few industries have contributed more to building modern America. Coal has powered manufacturing, transportation, steelmaking, electricity generation and economic development for well over a century. Even today, coal remains essential to energy reliability and industrial production around the world.

But beyond the economic contribution, there is also a human story that deserves to be heard. It is the story of people who work before sunrise and long after dark, and people who know that reliability is not just a feature of the grid; it is a personal value. It is the story

of communities that support one another during difficult times and celebrate together during good ones. Coal's story is a story of perseverance.

At the ACC, we believe the future of the industry depends not only on strong operations and sound policy, but also on strong people. That is why fostering connection, education and collaboration across the coal value chain remains one of our core priorities.

The industry is stronger when people share knowledge, build relationships and invest in the next generation of leadership. Bringing together producers, suppliers, railroads, utilities and service providers strengthens the entire industry.

No single company or individual carries this burden alone. In many ways, that is one of the enduring lessons of coal mining itself. Difficult work creates strong bonds. It builds communities rooted in trust, humility and resilience. People who have worked in and around mines understand the value of teamwork because they live it every day.

As we look ahead, challenges will remain. Markets will continue to shift. Regulations will evolve. Public debate around energy will persist. Mining coal will likely never become easy.

But easy work has never defined this industry. While it may always be hard to mine coal, the people who do it have always been tougher.



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ACC Membership Has Benefits



JOIN THE AMERICAN COAL COUNCIL (ACC)

In the dynamic world of business, the American Coal Council (ACC) holds significant importance by acting as the influential advocate of the coal supply chain. The ACC gives members access to industry-specific knowledge, market insights, research data and networking opportunities. The ACC serves as a cohesive force for the coal supply chain, uniting businesses, professionals and stakeholders to effectively advocate boldly for the collective benefits of coal.

COLLABORATION AND NETWORKING OPPORTUNITIES

The ACC brings together coal supply chain professionals and

businesses to exchange knowledge and collaborate toward shared objectives. This collective effort enables members to leverage their expertise and resources, fostering growth and success within their industries. The ACC hosts the Miami Coal Forum, Coal Innovations & Market Strategies Conference and a Washington D.C. Fly-in annually. These events enable members to expand their professional networks, forge valuable partnerships and gain access to new business prospects.

ADVOCATING FOR COAL

The ACC boldly advocates for the coal supply chain. The ACC leverages the collective expertise of its members and resources to engage at local, national and

international levels to advocate for the growth and sustainability of the coal supply chain.

FOSTERING BEST PRACTICES AND INNOVATION

Through its conferences, publications, networking opportunities, social presence and the Coal Nation podcast, the ACC facilitates knowledge sharing among members. This collective wisdom helps identify best practices that can elevate the entire industry's performance.

These resources empower individuals and businesses within the industry to stay informed about emerging trends, technological advancements, regulatory changes and other factors that impact their operations.

INTERESTED IN MEMBERSHIP?

For more information on becoming a member of the American Coal Council, please reach out to us today! Website: www.americancoalcouncil.org Email: earthun@americancoalcouncil.org Call: 202-941-8900

ACC WELCOMES ITS NEW MEMBERS!

The board and staff would like to welcome these new members, as it is only through the support of our membership and industry that ACC can continue to provide educational programs, market intelligence,

advocacy support and peer-to-peer networking forums whereby we advance members' commercial and professional development interests.

With the many changes occurring in our industry, it is

essential that we continue to work together to represent the collective interests of the American coal industry and advocate for coal as an economic, abundant and environmentally sound fuel source.

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COAL NATION

PODCAST

THE VOICE OF AMERICAN COAL.

Coal Nation is the official podcast of the American Coal Council, bringing together the people, ideas and innovations shaping the future of America's coal industry. Each episode features timely conversations with leaders from across the coal supply chain—covering production, transportation, power generation, technology, policy and the many essential uses of coal. Watch on YouTube or Listen on Apple Podcasts, Spotify, and Amazon Music.

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Going From Utility to Utilized How Changes in Data Capabilities Will Affect Mine Safety and Efficiency

Zachary Savit, Sales North America, MST Global

The U.S. coal mining industry is at a pivotal moment, where longstanding communication and tracking systems, once implemented primarily to meet regulatory requirements, are poised to evolve into powerful drivers of safety, efficiency and operational insight. Historically treated as basic utilities, underground networks have

delivered essential functions but remained under-used in unlocking the full value of data. However, with emerging advancements in bandwidth, reliability and connectivity, mines now have an opportunity to transition from simply maintaining infrastructure to actively leveraging it. This shift, from utility to utilization, signals a new era in which data becomes a core asset,

enabling proactive decision-making, improved equipment performance and enhanced worker safety across operations.

The Status Quo

In most coal mines, the primary Wi-Fi network strictly functions as a utility. It offers voice communications, personnel tracking and only limited tools that drive operational applications. Constraints in

speed and bandwidth combined with staggeringly slow innovation due to permissibility requirements and market factors have left underground U.S. coal mines with few opportunities to fully leverage their networks.

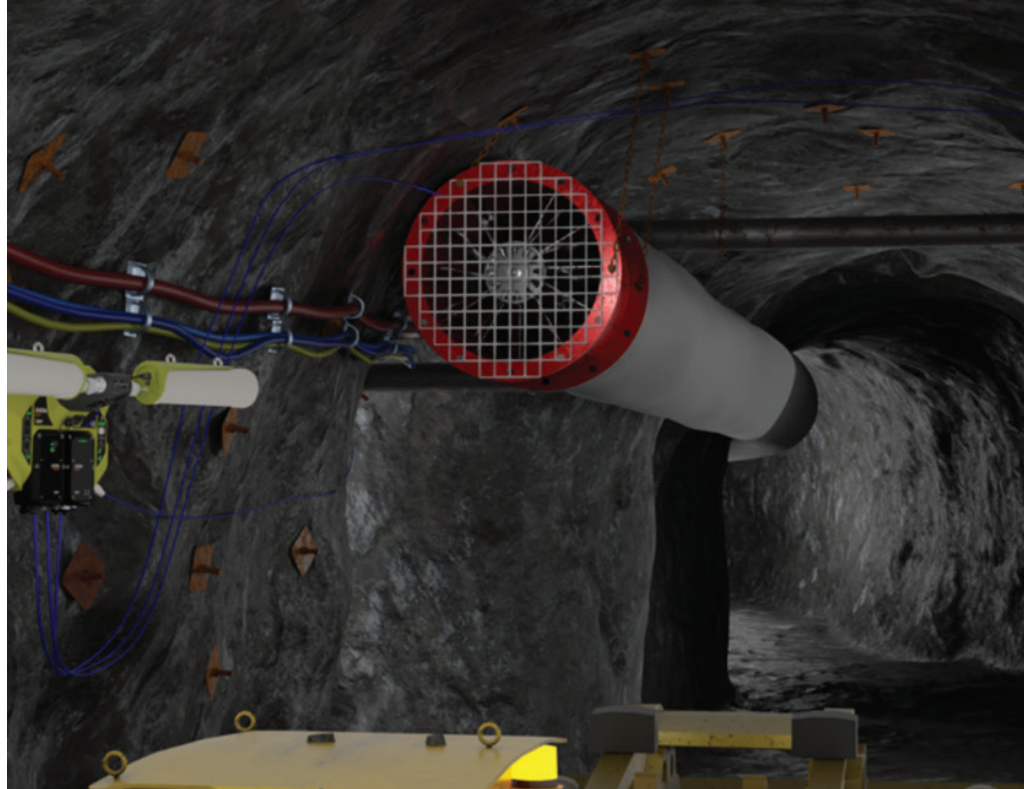
Hardware advancements are on the horizon, but what does that mean for the mines? What more can be done to enhance safety and production in an industry with a legacy of technological reticence?

Take Your Fiber: It's Good For You

There are thousands of miles of fiber optic cable in underground coal mines. For those who have embraced it, this infrastructure serves as a powerful pipeline for critical operational data, yet many sites still aren't fully taking advantage of it.

Collecting operational data from equipment that keeps a mine running should no longer be up for debate. Refusing to collect this data is a bit like a petulant child not eating their veggies. Sure, you can exist on Cheezies, donuts and candy for a bit, but you are going to find holes in your teeth, blood sugar issues and trouble sleeping.

Your mine needs the valuable nutrients of data that current fiber solutions can provide. It will keep your production moving by helping you identify failures before they happen. There are new options for potential remote operations centers, but you do not have to eat this elephant all at once. Start by finding an issue that could benefit from having more data, get the data and see if



Ventilation on Demand

it helps. If it doesn't deliver immediate value, don't be discouraged. There are plenty of other opportunities where more insight can make a meaningful impact.

Why Do We Move So Slowly?

Following the 2006 *MINER Act*, safety, communications and network providers moved to develop and deploy tracking and communication systems. However, tracking solutions were still not fully ready by the original 2009 deadline. Technological limitations, MSHA permissibility requirements and ongoing product development saw the deadline pushed to 2011.

It took around five years, government grants and continued product development for vendors to come close to delivering workable solutions. Even after the 2011 extension, most systems met basic tracking requirements, but

refinements and improvements continued for another couple of years.

Seven years to check the box. Seven years to deliver systems that complied with the *MINER Act*. For many mines, that's exactly how these systems were viewed: as a requirement to satisfy. More than a decade later, that mindset largely persists. Tracking fulfills a compliance need, and while communications are seen as more critical, most operations still treat both the tracking systems and the networks supporting them as utilities.

The Wi-Fi and other tools built to meet these needs are products of that cycle. Although incremental improvements have been made, their capabilities are still largely dedicated to supporting tracking and communications, rather than being fully leveraged for the value they deliver in other mining sectors.





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◀◀ What's Next and What Do We Do With It?

What comes next is more bandwidth, higher accuracy, greater reliability and more options. The next generation of MSHA-permissible Wi-Fi networks is on the way: larger bandwidths, newer technology and the ability to connect a wider range of underground equipment and devices.

The “What do we do with it?” question is hard for those on my side of the vendor/client relationship. We know that higher speed connectivity enables the ability to pull gigabytes of data off bolters, conveyors and longwalls every day. It also supports the integration of intrinsically safe cameras, ventilation systems, pumps and many other assets.

Most crucially, these advancements deliver improved reliability and transparency, reliable voice communications and a steady stream of data from the face to your control rooms. Dependable reporting provides great visibility into production, machine health and safety data with the potential to fundamentally change how operations are run. That's before we get to the higher potential for remote operations control.

Remember: how you build your house is up to you. Your vendors (who should be partners) build and design your hammers, plumbing and electrical. If you want to build your house to achieve certain goals, make sure you are partnering with the right ones.

It is important to understand real-world examples of what



HELIX visibility

Refusing to collect this data is a bit like a petulant child not eating their veggies.

mines can do with these expanded network capabilities. Wi-Fi in hard-rock mines already supports tele-remote equipment operation from remote command centers across the globe. Most require at least 10Mbps/machine and operate multiple pieces of equipment. On top of that operational enhancement, hard-rock mines are using networks for much more.

A copper mine in Chile has used greater bandwidth for detailed cycle time analysis, productivity tracking, maintenance allocation and streamlined reporting through connected devices, data

collection and integrated fleet management solutions. A gold/copper mine in Asia is tracking over 800 people, vehicle telemetry and production data on a network much like what coal mines will achieve in the next generation of equipment. A North American silver mine is implementing traffic control and condition monitoring using the same infrastructure. These examples are the real path to recognizing short interval control in mining environments with real or near real-time data feeds from productivity and production tracking to equipment health and much more.





Minephone

◀◀ Share Your Hopes and Dreams

You are amazing coal miners. You're the best in the world. Even though the number of mines that have employed technology experts is rising, it is still a small percentage of sites in the U.S. Network technicians, electricians and maintenance personnel have been holding these utilities together for a decade. But the next generation of your network cannot be viewed as just another utility. It is a solution.



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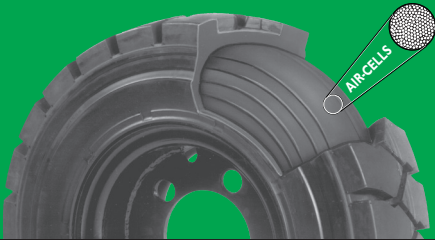
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Solutions do not exist in the ether. To develop something meaningful and effective, vendors need a clearly defined problem to solve. Without that clarity, there's little reason for change. Your vendors won't fully understand your problems without your insight. Share it with them!

Enhance your RFP process, invite vendors in, discover different ways to approach issues. If you don't, you are only setting your mine up to purchase another utility instead of something you will use to solve these problems.

The Fine Print

Imagine a vendor of some of these products with two clients. The first client has read this piece and approaches the vendor with a set of problems to solve. They work together to build a solution that fits. The phasing is appropriate for operations and the solution fits together nicely. They spend \$900,000 overall but get all they want out of the solution and even find more benefits as they explore it.

The second client puts out an RFP for a network that builds on what they want but doesn't seek outside partnerships. They also spend \$900,000 but they only needed \$750,000 to meet their needs. They don't have good relationships with their vendor and struggle to get the right value out of the project as it is not supported well. Most vendors should want you to spend the right amount, not the most. Find the ones that do.

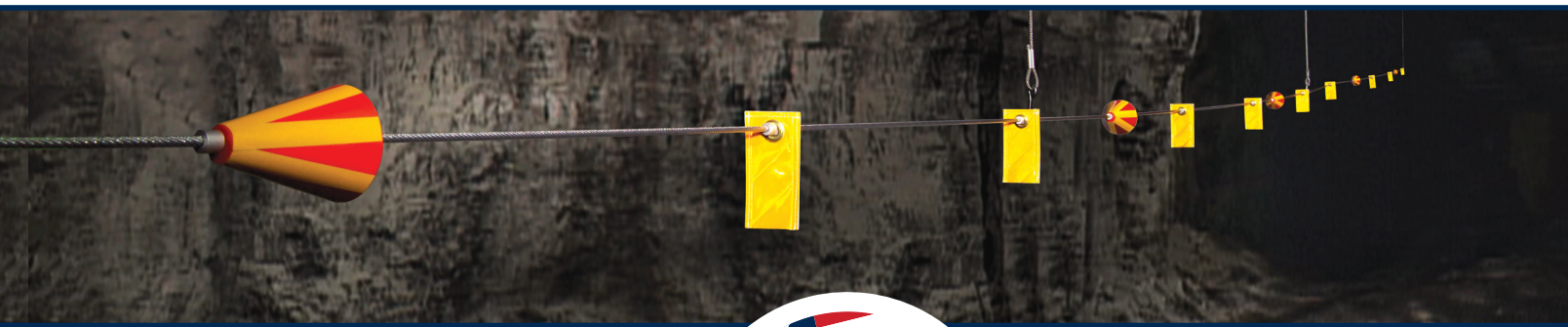
Realize Those Dreams

The next phase of coal mine digitization isn't being driven by regulatory response to a tragedy with government regulation and it will not take seven years to realize. Data, safety and production optimization will drive this evolutionary stage.

Let these factors drive your improvements, shape the future of your operations and build resilient operations that can adapt to the changes the coal industry continues to face. Seek out vendor partners who listen first and aim to understand before they pitch solutions. Truly find ways to use enhanced data capabilities and more reliable communications. Move beyond viewing data networks as a basic utility.

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Courtesy of BNSF

Assembled ODINs ready to be installed.

ODIN and THOR

How the Norse Gods Helped BNSF Achieve its Safest Year Ever

Stephen Manning, Staff Writer, BNSF

Safety is embedded in every aspect of BNSF operations, from the largest infrastructure projects to the technology quietly working behind the scenes. Our employees' consistent focus on safety got us to our safest year ever in 2025. Maintaining our track is a critical element of our safety program. That's why we spent \$2.84 billion in 2025 to replace and upgrade rail and track infrastructure. Among our safety achievements for the year was our record-low rate of track-caused rail equipment incidents (REIs), a 33% reduction from the previous year.

Two cutting-edge systems, ODIN and THOR, helped our employees by transforming how we

inspect and maintain the track on our 32,500-mile rail network. Together, these systems are a leap forward in monitoring and detecting track conditions, enabling BNSF to enhance safety, improve efficiency and embrace predictive maintenance as never before.

THOR and ODIN take continuous observations of the track components and roadbed to evaluate the overall condition of track and inform maintenance planning. In addition to identifying present defects that may require repair or a speed reduction to preserve safety, these systems identify conditions that suggest future defects may develop. In fact, the majority of track conditions identified by THOR and ODIN are not defects and

are used to plan preventative maintenance, which prevents future defects.

The THOR and ODIN systems complement each other, using different technologies to monitor different aspects of track health, and we're pushing forward on deployment of both to supplement visual track inspections performed by BNSF field personnel.

ODIN Measures Track Geometry With Precision

ODIN, short for Onboard Defect Identification & Notification, is a track geometry measurement system installed on the underside of locomotives. Housed in an aluminum box about the size of a large microwave oven, ODIN uses an array of sensors, including angled lasers, to measure critical aspects of the track's geometry. These include track gauge (the distance between rails), cross-level (the difference in height between the tops of the rails), alignment and the track surface profile.

The system captures measurements every foot as the locomotive moves, providing continuous, real-time data on the condition of the track beneath. BNSF has performed this type of track geometry testing for many years using specialized geometry cars. ODIN enhances and consolidates this technology underneath a locomotive, enabling this testing to be performed during normal operation of revenue-service trains instead of operating separate inspection trains.

Introduced in 2025 after two years of rigorous pilot testing, ODIN delivers higher precision compared to traditional track geometry cars. In 2025, ODIN measured more than 150,000 miles of track.

We have more than 30 ODIN units monitoring most of our network, and we'll expand to over 60 locomotives by 2027. Starting in 2026, ODIN will inspect more than one million miles of track each year, up from 500,000 miles previously covered annually with geometry cars.

ODIN's real-time data processing means that when a serious defect is detected, immediate action is taken to protect the track and prevent derailments. The goal is to reduce derailments caused by track geometry defects through more frequent and accurate inspections, while

also providing valuable insights for long-term maintenance planning.

THOR Captures Rail Images From Multiple Angles

THOR, or Track Health Optical Recognition, which focuses on visual track conditions, complements ODIN's track geometry measurements.

Mounted under BNSF's track geometry cars, THOR uses high-speed optical cameras to capture thousands of detailed images of the rails at various angles. This enables detection of conditions not related to track geometry, at speeds up to 70 mph.

In 2025 alone, our three THOR units imaged 165,000 miles of track and found 1,900 defects, all of which were addressed before developing into serious problems. A notable success involved detecting a broken rail near the Bonneville hydroelectric dam, a critical safety finding due to the rail's proximity to a major highway and sensitive infrastructure.

The THOR system analyzes images onboard using advanced graphics processing and



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Courtesy of BNSF

THOR system in action beneath a geometry car.

◀◀ machine-vision algorithms, then transmits data within minutes to BNSF's Track Geometry desk in Fort Worth. In addition to identifying defects, THOR generates a vast amount of imagery data used to monitor track conditions, which is a challenge to process and transfer across our 32,500-mile network. THOR is still relatively new, and continued advancement in both technology and data-transfer will enhance THOR's capabilities in years to come.

We plan to add two new THOR units in 2026. We're also adding AI analysis to further boost our detection capabilities. Together, these systems provide a comprehensive picture of track health.

Track Conditions, Defects and Predictive Maintenance

Monitoring track conditions and identifying defects are only half the battle. We have a robust process to act on the data these systems generate. When ODIN or THOR flags a possible issue, the information is immediately reviewed by expert teams who validate and prioritize the issue. If the observation is a defect, field crews are then dispatched to assess and repair the defect before it can affect safety or service reliability.

Monitoring and identifying track conditions beyond simply defects is a proactive approach and part of BNSF's broader commitment to predictive maintenance, using data and analytics to identify potential failures before they occur. Predictive maintenance enables us to schedule repairs during planned maintenance windows, reducing unscheduled service interruptions and improving our network's reliability.

We apply predictive maintenance across a broad front, and the increase in data from ODIN and THOR helps drive opportunities for improved materials or processes that either reduce or extend maintenance cycles. One example of this is our ongoing initiative to upgrade turnouts with movable point frogs, which reduce wear and tear on the track and require less maintenance than standard frogs. We're even using AI to optimize when and where we send crews to trim vegetation along our track before it hinders visibility.

Looking Ahead

BNSF is proud to be an industry leader in track inspection innovation. The integration of ODIN and THOR exemplifies our culture of continuous improvement — using technology and data to enhance safety, reduce risk and streamline maintenance. As we expand these systems and incorporate AI-driven analytics, we'll further enhance our ability to predict and prevent defects, delivering safer, more reliable service.

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Global conflict and rising energy demand are exposing a hard truth: nations that rely on imported energy are vulnerable. As disruptions to oil and natural gas ripple across global markets, electricity prices spike, and supply becomes uncertain. Fortunately, the United States doesn't have to rely on imported energy because we have more coal than any other country and enough to last for decades.

Coal power plants

- Provide fuel security with on-site coal stockpiles—often lasting months—that protect against supply chain disruptions.
- Reduce exposure to price volatility because coal prices are relatively stable compared to fuels tied to global markets.
- Support national defense by providing dependable and resilient power for military installations.

America's coal fleet means energy security by providing reliable power despite global energy disruptions.

For more information about the nation's fleet of coal power plants, please visit www.AmericasPower.org



The Reliability Factor Solar Will Never Surpass Coal

Sam McKown, President, Kentucky Coal Association and Member, National Coal Council

As millions of ratepayers prepare for costly air conditioning bills this summer and think back to their electric bills last winter, it's worth taking a closer look at what's really driving heightened energy costs. In my home state of Kentucky, I often read articles that attribute higher energy costs to a lack of renewable investment and a continued reliance on fossil fuels. I'd like to clarify those claims and provide additional context on electricity rates and

energy mix. In Kentucky, we know that as coal's share of the energy mix has declined, electricity prices have gone up.

When Coal Powered Kentucky, Electricity Was Among the Cheapest in the U.S.

When coal provided more than 90% of Kentucky's electricity, the Commonwealth consistently ranked among the lowest cost power producers in the nation. Today, coal still supplies roughly 68% of the Commonwealth's power, but as coal's share of Kentucky's energy mix has

decreased, electricity rates have substantially increased, and we no longer rank as one of the most affordable energy states in the country.

In short, the more coal removed from Kentucky's grid, the more prices have risen, not the other way around. History, data and experience do not support the notion that scaling back reliable coal generation somehow lowers electricity costs. Moving away from coal to renewables not only increases costs, but it also threatens reliability.



◀◀ Solar Reliability

Solar power only operates while sunlight is available. According to the U.S. Energy Information Administration (EIA), nationally in 2025, solar panels operated at roughly 24% capacity,¹ due to nightfall, weather and seasonal limitations. Coal plants, by contrast, deliver baseload power that can run uninterrupted 24/7 for many days at a time when needed and ramp up as demand rises, something intermittent sources simply cannot do.

Solar's supporters often point to battery storage as a reliability fix for solar, but even when aided by batteries, solar cannot compete with coal from a reliability standpoint. Research updated in 2025 from the National Renewable Energy Laboratory indicates that battery durations of only about four hours are "typical in the utility-scale market."² Four hours may help smooth brief fluctuations, but it cannot carry the grid through overnight demand or multiple days of weak sunlight.

Environmental Oversight and Regulatory Balance

Coal mining and coal-fired generation have long operated under extensive federal and state oversight. They are subject to detailed and stringent permitting processes requiring them to

make major investments in environmental protection. They are also regularly and frequently inspected for compliance with laws that protect our air, water and land resources.

By contrast, the construction, operation and decommissioning of large-scale solar facilities are not subject to requirements nearly as stringent. The coal fleet operates within a well-defined and enforceable environmental framework, while oversight for large-scale solar development remains far less established and continues to take shape.

The Land Footprint is Staggering

In Virginia, a 2024 evaluation by the Virginia Department of Energy showed that their utility-scale solar requires roughly seven acres per megawatt of capacity.³ Using these regional data, replacing a single 500-megawatt (MW) coal plant in Kentucky with the roughly 2,000 MW of solar with battery storage needed to match its output would require more than 14,000 acres of panels, which would cover every public park in the Louisville, Kentucky metro area.

Earlier this year, the EIA reported that Kentucky's coal-fired generation capacity is 8,631 megawatts.⁴ To replace that generation with solar, adjusted for real-world output,



Sam McKown
President,
Kentucky Coal Association

would require that upwards of 241,000 acres of land be covered with solar panels. The land requirements would be roughly equal to the combined footprint of the Kentucky cities of Madisonville, Pikeville, Owensboro, Henderson, Covington, Somerset, Bowling Green, Paducah, Campbellsville, Corbin, Morehead, Central City, Hazard, Elizabethtown, Morganfield, Prestonsburg, Hopkinsville, Greenville, Barbourville, Providence, Hartford, Richmond, Cumberland, Ashland, Whitesburg, Danville, Harlan, Berea, Earlington, Glasgow, Lynch and Benham.

That's the amount of Kentucky land it would take to replace the state's coal-fired generation capacity with intermittent solar fields which would still not be as reliable as our existing coal-fired generation.

¹ EIA, Electric Power Monthly, Table 6.07.B, "Capacity Factors for Utility Scale Generators Primarily Using Non-Fossil Fuels," 2026. https://www.eia.gov/electricity/monthly/epm_table_grapher.php?t=epmt_6_07_b&utm.

² National Laboratory of the Rockies, U.S. Department of Energy, Office of Critical Minerals and Energy Innovation, "Annual Technology Baseline," 2025. <https://atb.nrel.gov/>.

³ Damian Pitt, Aaron Berryhill and Jennifer Ciminelli, "Re-Evaluating the Land Use Impacts of Utility-Scale Solar Energy Development in Virginia," Virginia Department of Energy, December 2024. <https://energy.virginia.gov/renewable-energy/documents/Re-Evaluating%20Land%20Use%20Impacts%20of%20Utility-Scale%20Solar%20-%20FINAL.pdf>.

⁴ EIA, Electric Power Monthly, Table 6.2.C. "Net Summer Capacity of Utility Scale Units Using Primarily Fossil Fuels and by State, February 2026 and 2025 (Megawatts)." https://www.eia.gov/electricity/monthly/epm_table_grapher.php?t=table_6_02_c.

Rural Communities Would Pay the Price With Land

There simply isn't enough urban land to host solar projects at this magnitude and cities in Kentucky are already opposing the construction of solar in their borders, as they should.⁵ That means the solar build-out would occur in rural communities, presumably on the farmland and open countryside that defines Kentucky as a state.

Powering our businesses and homes with solar instead of coal would force us to blanket rural hills and pastures with industrial solar fields: hundreds of thousands of acres of metal panels, fencing and access roads. These installations would transform the look and feel of the countryside, replacing productive farmland and scenic vistas with reflective infrastructure. For communities built on agriculture, heritage and tourism, that trade-off is real and lasting. Perhaps this is why solar and wind projects are nearly always the subject of strong local opposition everywhere they are proposed in Kentucky.⁶

Even when aided by batteries, solar cannot compete with coal from a reliability standpoint.

Reliability and Common Sense Must Prevail

Even if the land can be acquired, and we're willing to power Kentucky and our country at the expense of rural communities, solar remains intermittent and requires constant backup and overbuild. Batteries, peaking plants and new transmission all add significant costs, which ultimately fall on ratepayers. Preserving, modernizing and investing in our existing power plants remains the only realistic path to keep power affordable and reliable.

Coal built Kentucky's energy advantage, providing some of the lowest-cost and most reliable electricity in the country. As coal generation has been forced offline, costs have risen and reliability has weakened. Replacing coal-fired power plants with intermittent solar spread across hundreds of thousands of acres of farmland is not progress; it's a step backward.

Fortunately, the conversation has shifted nationally; we've worked hard to move the needle. We're shaping policies that prioritize reliability, affordability and energy security. Through efforts like the National Coal Council, our industry is actively engaged at the highest levels of government.

Let's keep telling the story, keep educating and keep moving forward together.

⁵ Beth Musgrave, "Lexington Council Moves Forward Solar Ban on County Farmland," *Lexington Herald Leader*, Aug. 20, 2025. <https://www.kentucky.com/news/local/counties/fayette-county/article311759748.html>.

⁶ Melina Walling, "The Promise of Solar Farm Income and Why It's Not Winning Everyone's Heart," *Cincinnati Enquirer* via *USA Today*, Sept. 17, 2021. <https://www.cincinnati.com/in-depth/news/2021/09/16/invitation-solar-farm-not-sitting-well-rural-neighbors-kentucky/5649016001/>; Sam Knef, "Henderson County Wind Turbine Project Paused Amid Heated Debate," *spectrumnews1.com*, July 24, 2025; <https://spectrumnews1.com/ky/louisville/news/2025/07/24/henderson-energy-project>; Gina Clear, "Annexation for Solar Project Denied By Elizabeth Town Council," *The News-Enterprise*, Nov. 20, 2024. https://www.thenewsenterprise.com/news/local/annexation-for-solar-project-denied-by-elizabeth-town-council/article_28d7e8d5-54e4-57d0-8051-1904f4196665.html.

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The Zoom Room's Best Friend Finn's the Canine Connection In My Meetings

Steve Read, President, Signal Peak Global Markets, LLC

Finn, my Wheaten Terrier, has become far more than just a companion in my home. In many ways, he is a colleague, a morale booster and an unexpected ambassador in my professional life (and my chief marketing officer). In an era when remote work has reshaped how we connect, Finn has seamlessly integrated himself into my daily routine, particularly during Zoom and Microsoft Teams calls. What began as a casual curiosity on his part has evolved into a defining feature of how I work and how others experience those interactions.

From the moment I sit down at my desk and open my laptop, Finn senses that something important is about to happen. Wheaten Terriers are known for their intelligence and sociability, and Finn embodies both traits fully. He watches closely as I prepare for meetings, often positioning himself nearby as if he understands that he, too, has a role to play. When the familiar chime of a meeting starting sounds, his ears perk up and his tail begins to wag in anticipation. He recognizes that this is his cue.



Steve Read and Finn

During calls, Finn often makes his presence known in the most charming ways. He will stand quietly beside me, leaning against the arm of my chair, offering a calm and comforting presence. Other times, he'll pop his head into the frame unexpectedly, wanting to say hello to everyone on the call. His soft, wheat-colored coat and expressive eyes tend to capture immediate attention. Conversations that might otherwise begin formally are always softened by his appearances, as colleagues and clients alike pause to greet him.

A large portion of my work involves engaging

with customers across Asia, spanning multiple countries, cultures and time zones. Despite the geographical distance, Finn has become a familiar and welcome presence in all of these interactions. Whether I'm on an early-morning or late-night call to align with business hours in Singapore, Tokyo or Hong Kong, Finn is often right there with me, ready to "participate." Finn's presence transcends cultural and linguistic differences, creating a shared moment of connection that doesn't require translation. Smiles, laughter and warm greetings for Finn are universal and they help establish





Finn

rapport in a way that feels natural and genuine.

What's remarkable is how Finn has become a unifying element across these international meetings. Customers who may have initially met him in passing now remember him and ask about him by name. "How is Finn today?" has become a common question and his

appearances are often met with visible enthusiasm. In professional environments that can sometimes feel formal or transactional, Finn introduces a sense of authenticity and ease that carries through the rest of the discussion.

Finn's reach isn't limited to customer interactions. He has also become well known among my colleagues, including those I work with on the ACC Board of Directors. In these more strategic and leadership-focused meetings, Finn provides an unexpected but welcome touch of levity. In conversations focused on planning and organizational priorities, his frequent cameos remind everyone of the human side of collaboration. Board

members, all of whom are based in different regions and bring diverse perspectives, have come to appreciate Finn as part of the experience of working together.

Ultimately, Finn is more than just a dog who appears on video calls. He is a companion who has become part of my professional identity, a bridge between cultures and continents and a source of joy for people from halfway around the world whom I see in person only very infrequently. Whether connecting with customers across Asia or collaborating with colleagues on the ACC Board of Directors, Finn has made each interaction a little warmer, a little more personal and a lot more memorable.

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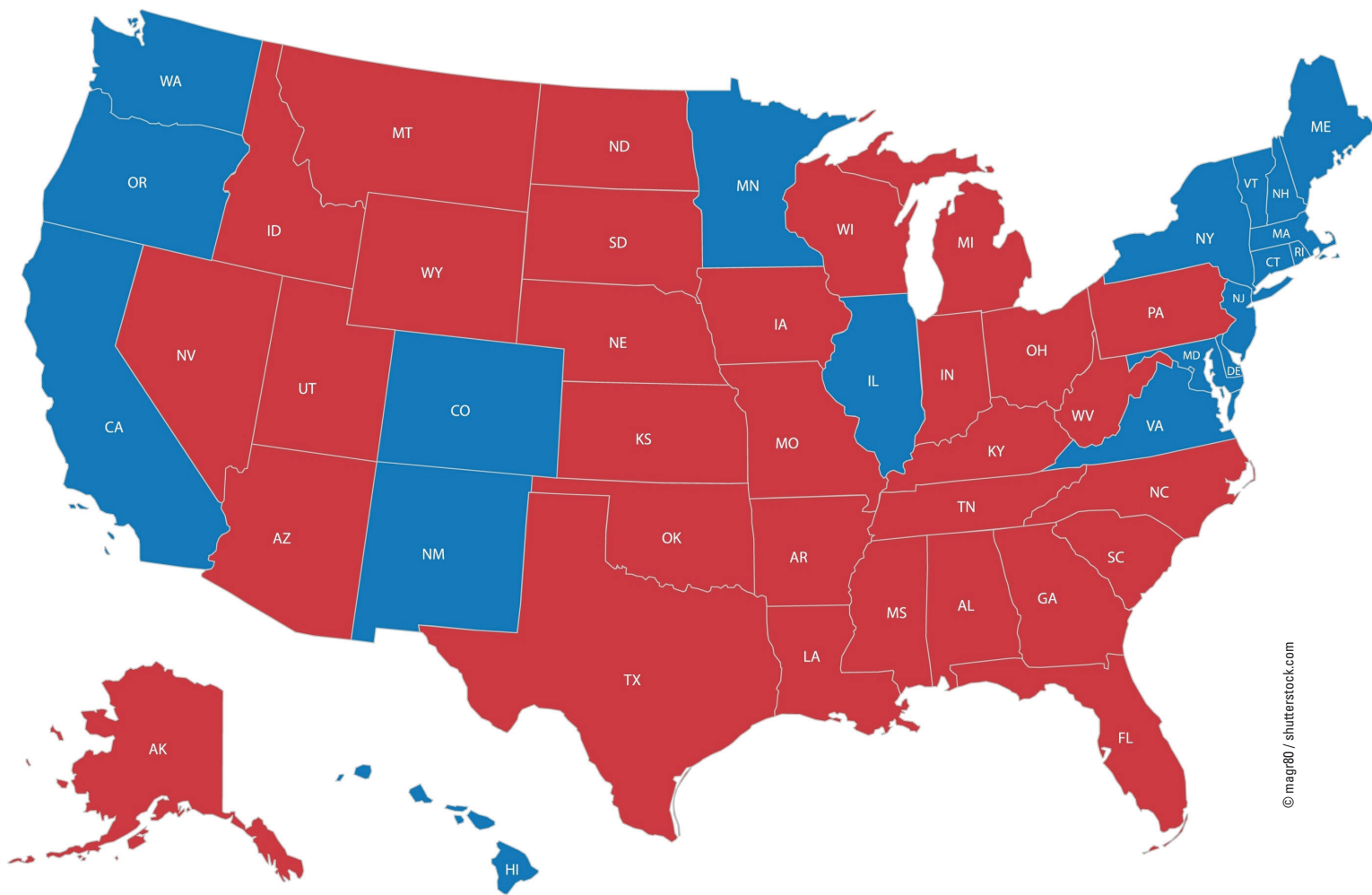


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Red State – Blue State

The Energy Policy Wars

Randy Eminger, Proprietor, Eminger LLC

When it comes to energy, a vast majority of the attention is focused on Washington D.C., and rightly so. Between the White House and the federal energy agencies (DOE, EPA, DOI), major changes are rapidly happening. These federal changes are desperately needed to restore our nation's energy security.

However, the ongoing state and local battles affecting electric energy policy often go unnoticed. Unlike at the federal level where conservatives hold a majority in all three branches of government, the 50 states consist of a checkerboard of red and blue. For the better part of three decades,

I've observed a bipartisan approach to major electricity issues at the state level. However, over the past few years this approach has become more partisan. Unfortunately, much like the major swings from the first Trump administration to the Biden administration to the second Trump administration, blue states are becoming darker blue and red states deeper red. The partisanship runs deep and unless you have a trifecta (House, Senate and governor of one party) it's increasingly difficult to pass bills. Red states are working to reverse 12 years of Obama and Biden federal policies and blue states, blinded by their hatred for Trump, refuse to pass common-sense bills that would lower electric costs for their consumers.





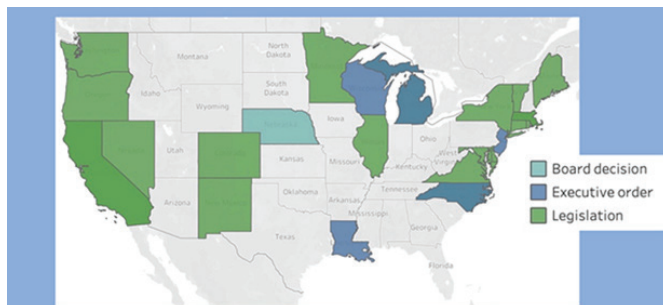
Reducing carbon became the single-minded approach to “save the world” under the Obama and Biden administrations. Blue states and electric utilities garnered favor with these administrations, environmental groups and mainstream media by implementing strict carbon reduction rules. This approach also affected some purple states (i.e., states that frequently switch from red to blue) such as Louisiana and North Carolina.

The states that have implemented carbon rules are shown on the map below.

Seventeen states have enacted net-zero carbon laws, five governors have issued executive orders and Nebraska’s three largest public utilities have passed net-zero carbon reduction goals.

Weathering the Perfect Storm

Several recent events have created a perfect storm that these 23 states now must face. Winter storms Uri, Elliott and Fern were a huge wakeup call for states living on the edge of sufficient capacity reserves. This past January, Winter Storm Fern left a million people without power. The North American Reliability Corporation (NERC) reported



that it wasn’t just from downed power lines, but insufficient capacity. NERC’s CEO Jim Robb stated: “If the U.S. DOE hadn’t stepped in with emergency operating orders which allowed fossil-fuel plants to operate above emission limits, we could have seen a much broader outage.”

It’s not just the extreme weather events that are driving the electric reliability concern. Increased electrification and rapid growth in our economy are placing pressure on the anti-fossil fuel states. The U.S. EIA projects electricity usage to increase by 4.3% from 2025-2027. In addition to the general economic growth, data centers are adding to the need for reliable electricity. The EIA also reported the addition of 32,000 Megawatts of additional demand by 2030 for data centers in the PJM region alone. “Risk of widespread blackouts is growing more acute,” Robb says. “Nearly two-thirds of the country is at elevated or high risk of energy shortfalls over the next five years.”

We in the coal industry know the only way most blue states have been able to keep the lights on while closing coal plants is with the help of the pro-coal states. The states of West Virginia and Wyoming exported 32% and 57% of their electric generation, respectively, in 2025. If it had not been for the pro-coal states, blue states such as Maryland, New Jersey and Colorado would be experiencing many more outages.

Split Personality

Like Anthony Perkins in a scene out of the 1960s film *Psycho*, we’re seeing split personalities in many of the state legislatures. In blue states, bills are introduced which promote increasing the state’s renewable portfolio and accelerating the zero-carbon timeline on one line, followed by language in the next line calling for increased electric reliability, resilience and lower electric cost.



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The two are diametric opposites but that fact hasn't stopped states from passing such bills. We witness much the same from blue state governors. When asked by a Politico reporter, "Should Democrats be talking about climate or about affordability?" Colorado Gov. Jared Polis said, "Yes, they're really one and the same." California Gov. Gavin Newsom proudly signed climate change bills into law while stating: "This legislation also aims to make energy more affordable by accelerating critical clean energy projects and improving grid reliability."

It is noteworthy that several blue states have introduced bipartisan bills that allow for an emergency off-ramp to maintain reliable and affordable power. Illinois and Wisconsin have bills that allow for the delay of zero-carbon mandates if meeting these carbon reductions would cause a significant increase in residential rates or pose a reliability risk. This is a common-sense idea that has a chance of passing this year, although even that approach risks closing needed plants before the effects of such closures become obvious.

Red states are witnessing their own split personalities with the advent of the Freedom

Caucus. Red states have introduced numerous bills that would have improved electric reliability and lowered electric cost but died because of intra-Republican squabbles. Unfortunately, some very good policies never see the light of day due to philosophical differences between mainstream conservatives and far-right Republicans. A prime example is Oklahoma's SB 1766, which prohibits the closure of a baseload power plant until an equal or greater amount of baseload generation is online and operating. The bill's author is part of the Freedom Caucus and because the chairman of the Energy Committee is a traditional Republican, the bill will not be heard. Unfortunately, this political divide is interfering with good government.

Pay it Backward

States that have zero-carbon laws are starting to realize the cost of implementing such laws. So they are looking to litigation as a way to pay for these massive costs. The so-called Climate Change Superfund laws passed in Maryland, New York and Vermont allege that oil, gas and coal companies have caused billions of dollars in climate-change





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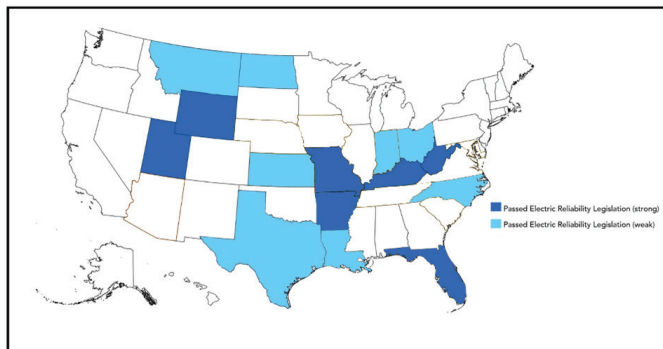


damage to their states. They are seeking payment for reparation. Eight more states have introduced Climate Superfund legislation this year.

Stepping up to challenge these laws are red state attorneys-general as well as organizations such as the National Mining Association. A coalition of 22 state AGs, led by West Virginia AG J. B. McCuskey, filed a lawsuit against the State of New York's recently enacted *Climate Change Superfund Act*. The complaint asserts that the act's retroactive imposition of multi-billion-dollar fines on fossil fuel companies is both preempted by federal law and violates several bedrock constitutional principles. This is one issue that the courts will decide.

Pro-Coal Policy Progress

It's been fascinating to watch the rapid transition of red states to meet electric reliability and economic growth. Some bills that would not pass out of committee three years ago are now moving through the House and Senate like a hot knife through butter. No one would have thought a state would place a major restriction on solar farms, yet Alabama and Missouri have passed them.



Redefining clean energy as any electric generation that meets the federal *Clean Air Act* requirements is in numerous bills being considered this session.

New state laws promoting coal-fueled generation include:

- Disallowing any state agency from implementing greenhouse gas rules (passed in Florida);
- Allowing a utility to retire a plant but not tear it down. It can instead be kept in spinning reserve for extreme weather events (passed in Kansas and Missouri);
- Requiring a utility to seek the sale of a baseload plant prior to retiring it (passed in Utah and Wyoming);
- Prohibiting a utility from engaging in a negotiated settlement for closure of a baseload facility with a third party such as the Sierra Club (so-called sue and settle) (passed in Arkansas, Missouri and Utah); and

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As part of the Wyoming Energy Summit and Tour, state legislators from Arkansas, Kansas, Missouri, Nebraska and Texas tour Basin Electric's Dry Fork Power Station.

- Prohibiting the closure of an existing baseload facility until the electric utility has placed an equal or greater amount of baseload generation into service (Arkansas, Kentucky, Missouri, Utah, West Virginia and Wyoming).

The map on page 40 shows the states that have passed pro-coal generation laws.

Knowledge is the Key

When it comes to educating state policymakers, the adage that “seeing is believing” rings true. Thanks to state agencies like the Wyoming Energy Authority and the West Virginia Office of Coalfield Development, I’ve had the opportunity to host legislators and agency directors through coal mines and power plants.

Although the three-day events take a lot of preparation and many volunteers, it has proven very beneficial. Arkansas Sen. Matt McKee remarked: “I learned of the tremendous job the mining industry does to provide a reliable fuel source to our state and to protect the land. The process is truly remarkable and seeing it in person made a big impact on my thinking.” McKee worked with his colleagues to pass two comprehensive bills promoting reliable power and opposing the early closure of coal plants.

Behind all the education is specific research highlighting the importance of coal generation to their state. Whether speaking to legislative



State legislators from Iowa, Kansas, Missouri, Nebraska and Texas tour the NTEC Rojo Cordero coal mine in Wyoming.

committees, briefing governors or testifying at public service commissions, the facts do matter.

Immeasurable Benefits

It’s unfortunate that states are becoming increasingly politically partisan, but when it comes to bringing more jobs, tax dollars and reliable electricity to the state, most politicians stand together. This is evident in the economic benefit from the delays in closures of coal plants. Figure 1 provides a glimpse of the direct benefits to the coal industry derived from extending the life of these coal plants.

Figure 1 doesn’t include local, state and federal taxes collected or the indirect impacts to the economy, but even without these included, the benefits to our economy are impressive. From governors to legislators, and from public service commissioners to attorneys-general, states are playing a crucial role in stopping the early closure of coal plants.

The most promising change I’ve witnessed in the states is the positive image of coal-fueled power. It used to be viewed as a necessary evil, something you had to have but didn’t talk about. Now, when I visit state legislators in non-mining states, I see the lump of coal they received on the mine tour displayed proudly on their desks.

Delayed Retirements of Coal Plants – Coal Industry Impact

• Coal-fueled plant retirements delayed (2022-2025)	53
• Total number of Megawatts of electric generating capacity	50,868
• Total number of years (cumulative) of coal-fueled plant retirement delays	247
• Average number of years of additional life extension	4.86
• Tons of coal consumed by the 53 coal-fueled plants (annual)	98.8/MMT
• Total tons of coal consumed by these plants during the retirement delays	447.5/MM
• Total direct jobs saved by continuing the operation of these plants	19,483
• Total mining jobs saved	6,374
• Jobs saved in the transportation of this coal	6,496
• Coal-fueled power plant employees saved	6,613

Figure 1



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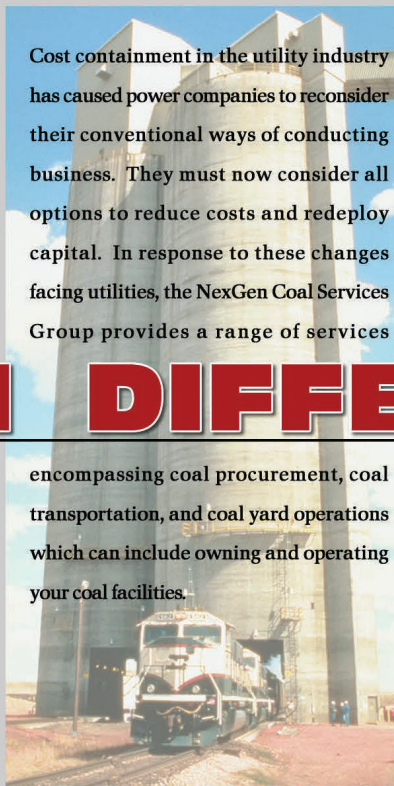
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Transportation





Fiber with Coal and Coal Ash

From Coal Ash to Coal Asset New Process Turns Waste Into Mineral Fibers

Ato Andoh, CEO, GCS Fibers LLC

The U.S. coal industry has contended with an overwhelmingly heavy-handed political and environmental situation the past 20 years or so. That's why it is refreshing that an American company would burst onto the scene during the most opportune time for those who still believe in America's coal industry, sustainable energy independence, the revitalization of its manufacturing sector and

its global geopolitical standing. Our nation has the world's largest proven coal reserves and enough coal to power the country for nearly 200 years, all on its own. So, to abandon such a real and strategic asset shows unsound reasoning.

Background

Into the fold comes GCS Fibers LLC, an American manufacturing entity that is innovating to turn high volumes of any kind of

coal or coal ash into high-quality non-toxic mineral fibers. GCS has also innovated to capture coal power plant greenhouse gas emissions such as carbon dioxide (CO₂) at a 96% efficiency rate. The emissions capture system can be retrofitted to previously closed, existing and new coal power plants alike. Through a closed-loop process that creates no toxic discharges, GCS's mineral fiber products can be made in a



◀◀◀ fire/heat resistant form, enabling them to withstand temperatures beyond 4,000°F. The company's operations require a small footprint and existing industrial buildings can be easily renovated for its manufacturing operations.

Having proven itself in a foreign market, GCS is ready to relocate its operations to the U.S. market. Never have such proven innovations been made available to the coal and electric power-generating industries. At last, our nation's abundant coal reserves can be fully tapped without the usual concerns for the perceived ills of coal ash and coal power plant emissions.

GCS stands to create as many as 500 direct and up to 2,500 indirect jobs per factory while repurposing coal and coal ash into six base high heat-resistant mineral fibers or pulp that can be used as the major raw material for the manufacturing of downstream products such as:

- Various paper and household products;
- High-temperature resistant automobile and aerospace components;
- Textiles;
- Regular and military weapons systems;
- Heat-resistant safety and first-responder apparel and equipment;
- Carbon fiber precursors;
- Plastic and rubber products;
- Paper and paper products; and
- Construction/building materials (insulation, acoustic materials, piping, etc.).

Biodegradable

Fire/Heat Resistant
up to 4000° F



Non-Toxic

Non-Cancerous

Fiber Characteristics

The U.S. Coal Ash Landscape

In the U.S. alone, landfills and ash ponds contain more than two billion tons of coal ash while the coal power industry generates another 80 million tons of coal ash afresh each year. Many power plant owners face state mandates to remove the coal ash from their landfills and from the state. Such requirements have the likes of Georgia Power and Duke Energy facing as much as \$9 billion in estimated costs to clean up and relocate their respective coal ash inventories from Georgia and North Carolina to other states. GCS can repurpose the coal ash in these and similar cost-prohibitive landfills into first-grade, non-toxic and economically priced mineral fibers.

To give an idea of GCS's impact, it would take 80 of the company's maximum-production factories just to handle the 80 million tons of coal ash generated each year by the coal power sector. This translates into as many as 40,000 direct and 200,000 indirect jobs. If GCS can create

such large numbers of jobs with just 80 million tons of coal ash, how much more of an impact would be generated from the two billion-plus tons of coal ash in coal ash landfills and ash ponds?

The U.S. Market Outlook

Over the next three to five years, GCS is positioned to establish at least 25 of its high-capacity coal ash-to-mineral manufacturing plants across several U.S. states. Along with these factories would come an estimated 12,500 direct and 62,500 indirect jobs, \$11.8 billion in capital investments and an annual consumption of 62.5 million tons of coal.

A single GCS factory can consume as much as 2.5 million tons of coal where necessary. The company's labor skill mix has 70% of its workforce requiring only a high school diploma or equivalent. Inherent in these projections is the increased tax revenue that GCS's manufacturing operations would bring to local, county, state and federal governments.

The Benefits

The benefits resonate well beyond the usual job creation metrics. GCS's innovations would literally launch America onto a path of sustainable energy independence by facilitating the increased domestic consumption of American coal for electric power generation while comprehensively addressing the environmental challenges of coal ash and coal power plant emissions.

Equally beneficial is the low-cost reclamation of millions of acres of land currently being used as coal ash landfills and ash ponds. Also, GCS's operations would introduce new kinds of mineral fibers that are safe, stronger and more economically priced to America's manufacturing base and downstream industries for the manufacturing of existing and future end-products.

Industry Validation

GCS's innovations and operations are beyond R&D and prototyping as the company has actually undertaken commercial operations. The response to GCS has been overwhelmingly positive across multiple industries. Duke Energy, Georgia Power, Dominion Virginia Power, Tesla, Intertek Assuris, Home Innovations Research Labs (the leading research lab for the North American Homebuilders Association) and federal, state and local governments have found GCS's innovations to be safe and technically and functionally sound. Throughout the company's journey, GCS has



realized it might never be able to meet the sheer demand for its technology and its high-quality, safe and economically priced mineral fibers that are better substitutes for any mineral fibers, mineral wools, fiberglass wools or pulp currently available.

GCS Project Financing

As GCS pursues private, federal and state government funding opportunities to scale its initial round of operations in the U.S., the company has been funded by its members/owners and a cryptocurrency ecosystem called the ASH DAO | Ash Token. This ecosystem uses its transaction fees to provide grants to companies with proven breakthrough innovations that have high impact, create jobs, help the environment and generate considerable profit margins. It typically takes as little as six months for a GCS manufacturing facility to be operational.

Conclusion

GCS's decision to relocate its operations to the U.S market is based on the company's desire to play a major role in the restoration of America's

economic, energy and industrial prowess. The company believes that with its innovations and operations, America will enjoy the full benefits of increased energy generation through increased domestic coal consumption, sustainable energy independence, increased jobs across multiple industries, the revitalization of its manufacturing sector and a cleaner environment with more prosperous communities across the country.

GCS is well positioned to substantially facilitate America's manufacturing resurgence while providing formidable solutions for emissions capture and coal ash management challenges.

America needs GCS's innovations and the company is committed to partnering with the private sector, federal, state and local governments, industry associations and other stakeholders to ensure abundant and affordable energy for Americans while creating meaningful jobs and cleaning up the environment.





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Hormuz, Ras Laffan and Coal's Revival

The Middle East War Has Made Coal Indispensable

Firat Ergene, Lead Insight Analyst - Coal, Petcoke & Cement, Kpler

It has been a turbulent few months for global energy markets. The Middle East conflict sent shockwaves through oil and gas markets as the effective halt of LNG vessel transit through the Strait of Hormuz, compounded by Iranian attacks on Qatar's 77 mtpa Ras Laffan facility, pushed LNG prices higher, forcing authorities across Asia-Pacific and Europe to reassess their energy security strategies.

European market participants, though less directly exposed to the loss of Middle East Gulf LNG supply than Asian importers, saw their benchmark prices spike sharply

as cross-basin competition for uncommitted Atlantic LNG supply intensified.

After the coal industry had spent much of the past two years navigating oversupply and soft pricing, the reversal in sentiment has been remarkable. Coal is an indispensable part of the resolution to ongoing global energy security concerns, even if its contribution is not always visible. As gas-fired generation became more expensive and supply concerns emerged in LNG markets, governments and utilities turned to coal to ensure energy supply security.

Without the coal mining and generation infrastructure

that countries have maintained across the world, the conflict's impact on markets would have been considerably more severe.

The call for coal across Asia-Pacific is increasing and the market is responding. Among the countries most exposed to Qatar's LNG disruption, China retained significant coal-fired capacity to offset the shortfall, while India had limited fuel-switching potential given its import mix is already heavily weighted towards coal. South Korea and Taiwan needed to increase their seaborne coal intake to compensate for any sustained reduction in LNG supply.

Taiwan moved quickly. Two coal-fired units at the Mailiao Power Plant were brought back online for a minimum of three months following Taipower's April 6 announcement. Coal load factors are set to rise further into summer when coal-fired generation typically reaches its annual peak.

South Korea tells a similar story as coal generation stands out as a partial offset. Delayed retirements at Hadong, Boryeong and Taean coal plants kept additional capacity available and South Korea had room to increase coal burn further.

Japan's coal demand outlook holds firm despite higher nuclear availability. Rising nuclear availability will increase following the early restart of Kashiwazaki-Kariwa Unit 6, but that incremental nuclear output should displace gas rather than coal. Coal retains its position in the power mix and import volumes will be supported by higher load factors at coal units this year.

The Philippine government asked coal-fired power plant operators to increase generation capacity to cushion consumers from rising electricity costs, with implementation targeted from April onwards. The government also indicated a readiness to increase coal imports if required, with no current restrictions on shipments from Indonesia.

Chinese Demand Set to Rebound

China, the world's largest coal import market, started the year on a weak note, though several factors point to a firmer import picture in the coming months. The Daqin railway entered its scheduled spring maintenance in April, a window that constrained domestic rail coal volumes by more than 10% m/m. The line handles around 15% to 20% of China's total rail coal transport and its one-month absence historically generates stronger interest in seaborne coal.

The approaching summer season adds further upside to the demand outlook. Forecasts of a potential El Niño event emerging from the 2026 summer point to higher temperatures, which are likely to lift power demand, particularly if hydropower output stays weak.

China typically experiences drier conditions and reduced heavy rainfall in years when La Niña is decaying. The weather impacts following a La Niña cycle tend to be less predictable than those of an El Niño year, producing a mix of anomalies that can generate sharp demand spikes from either hydro shortfall or heat-driven power consumption.

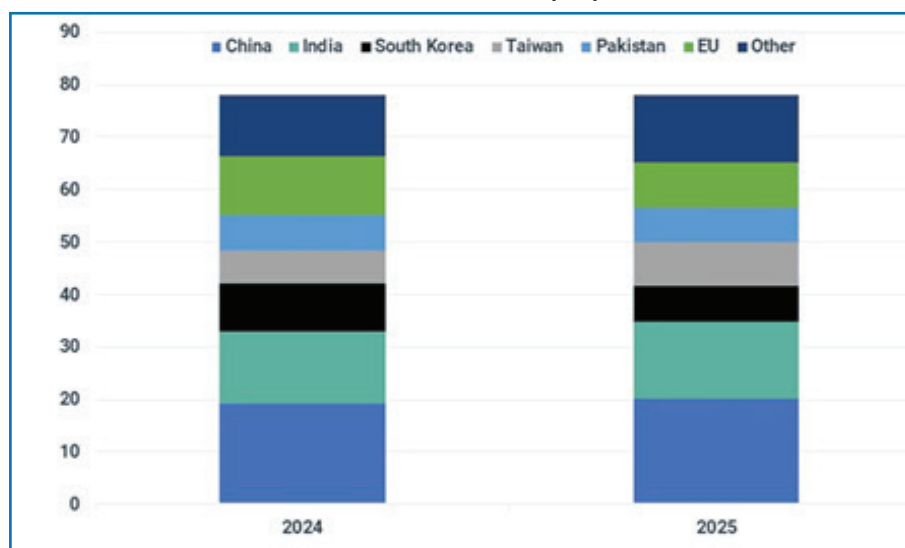
U.S. Thermal Coal Shipments Recovered in March

The conflict's effects extended into the U.S. coal trade. India-delivered petcoke prices reached near parity with Northern Appalachian coal by late March, as uncertainty over Hormuz supply pushed petcoke prices sharply higher.

India carries the greatest exposure from a petcoke perspective as the largest single destination for Gulf petcoke. Petcoke loadings from Jubail, Saudi Arabia to India carried no guarantee under war conditions, increasing U.S. coal's appeal for Indian buyers.

India's purchases of U.S. coal recovered sharply in March, with Moroccan buyers also stepping up receipts to build stocks. Thermal coal deliveries to both markets remained on track to exceed 1.75Mt by the end of April, marking the highest monthly total since May 2025.

Annual LNG Imports by Destination Country through Strait of Hormuz (Mt)



Source: Kpler

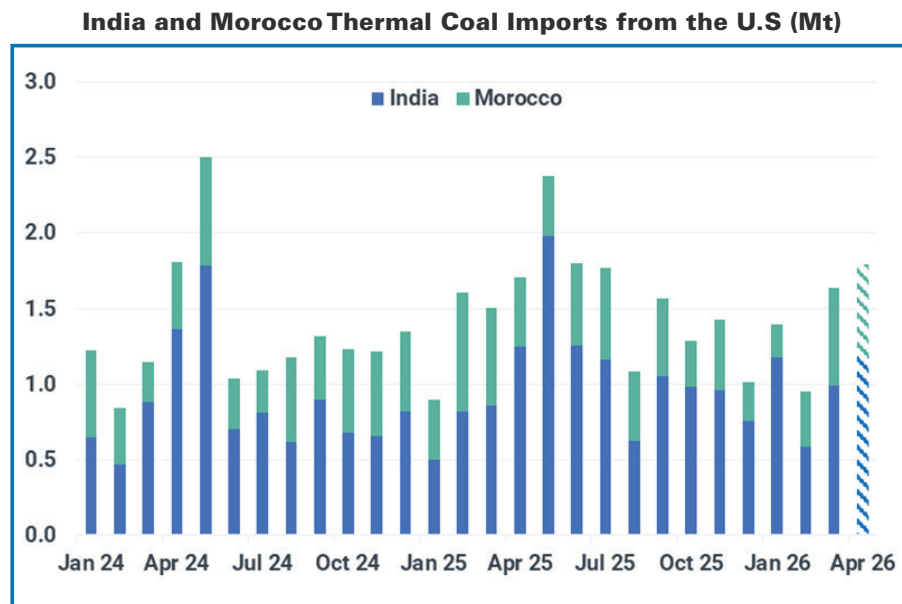




A resurgence of EU demand could generate additional appetite for U.S. coal from the bloc, which closed the winter season with unseasonably low gas inventories. Germany and the Netherlands will need to boost load factors of their coal-fired fleets to prioritize gas stock rebuilding during the summer season.

Italy also considered reactivating idled coal capacity if the Middle East conflict deepened into a broader energy crisis. The country's energy minister indicated that the Torvaldaliga Nord and Brindisi plants could have returned to service if natural gas prices breached the €70/MWh threshold set as the reactivation trigger.

Egypt, the other key market for U.S. thermal coal, offered limited upside for American producers. The country's coal intake is split roughly equally between U.S. and Russian supply and with aggregate demand potential capped at



Source: Kpler

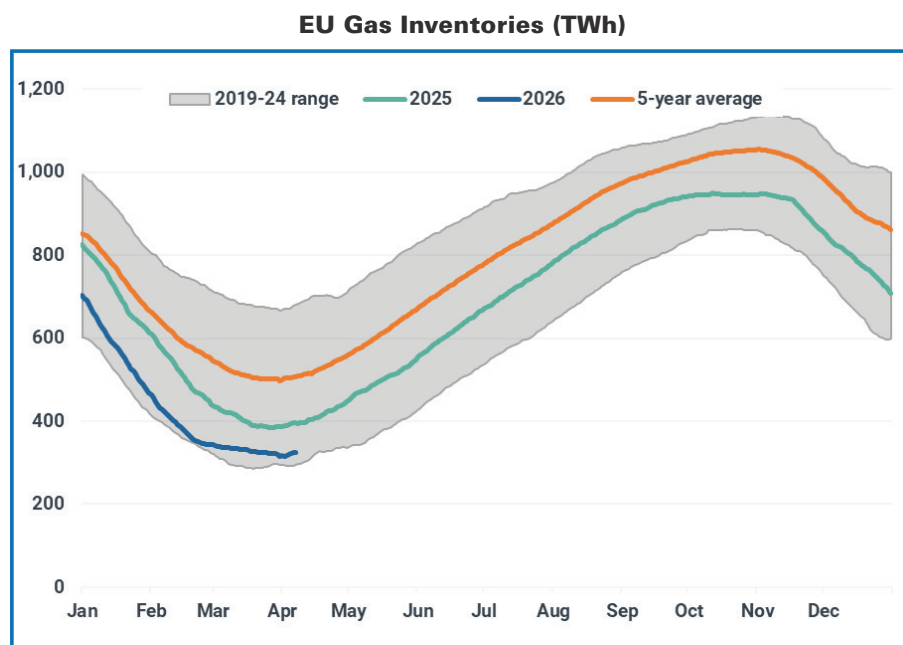
around 5Mt, the scope for higher demand for U.S.-origin coal remained limited.

Turkey, which recently become the largest coal demand hub in the Atlantic basin, carries a subdued coal outlook into the year. High gas prices offer little scope for a coal demand boost, with unseasonably strong rainfall ahead of the peak hydro season

limiting the call for thermal generation. The planned commissioning of the first 1.2 GW reactor at the 4.8 GW Akkuyu nuclear plant in the coming months adds a further layer of displacement pressure on thermal generation.

On the supply side, Indonesia is pivoting away from output cuts towards levying windfall taxes on its mining industry. Indonesia's Energy and Mineral Resources Ministry had approved approximately 580Mt of annual output in March, with further quota revisions possible in the second half of 2026 that could push total authorized production above 700Mt, effectively reversing earlier plans to restrict output to below 600Mt.

Demand from the Asia-Pacific basin should keep coal prices elevated through the summer, driven by rising import requirements. A prolonged conflict scenario with sustained LNG disruptions would have likely extended price pressure into the Atlantic basin.



Source: AGSI



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As America marks its 250th Anniversary, BNSF is proud to partner with America's leading coal producers and utilities. Together, we help deliver the coal that supports reliable, affordable electricity for the nation now and for years to come.

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