

NCC 2015 SPRING MEETING BLOSSOMED

The National Coal Council hosted its 2015 Spring Full Council Meeting during the height of the cherry blossom festival in Washington, DC, April 7-8. We were pleased to hear from DOE Deputy Assistant Secretary for Clean Coal & Carbon Management, David Mohler who graciously joined us just three weeks into his new job. We look forward to working with Mr. Mohler in his new role.

Mike Marsh, President & CEO of SaskPower provided us with a fascinating overview of the company's Boundary Dam carbon capture and storage project. This retrofit CCS project has been in operation since October 2014, demonstrating "the use of affordable coal power that's environmentally friendly."

Dr. Larry Makovich with IHS CERA provided a perspective on grid-scale energy storage for coal power plants, updating us on the status of battery technologies. Patrick Falwell with the Center for Climate and Energy Solutions (C2ES) then discussed opportunities and challenges associated with financing CCS projects, including a perspective on the impact of oil prices on CO₂-EOR projects. Finally, Jonny Sultoon with Wood Mackenzie provided a very comprehensive outlook on international coal markets. Presentations, including videos of our keynote speakers, are up on the NCC website.

All in all, a very full and informative program that was well received by NCC members who attended in near-record numbers. Thanks are due to Jackie Bird (JFBird Enterprises) and Jeff Hopkins (C2ES) for their support in putting together a strong program.

Many thanks are due as well to our generous sponsors:

- Southern Company ~ Jeff Wallace
- Bechtel Energy ~ Desmond Chan
- Arch Coal ~ John Eaves/Deck Slone
- Clean Coal Solutions ~ George McClellan
- PPL Energy ~ Joe Hopf
- University of Wyoming ~ Maohong Fan

Plans are underway for our Fall 2015 meeting. If you are interested in sponsorships opportunities, please let us know (info@NCC1.org).



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MAOHONG FAN WANTS YOU ... to join the NCC COAL CONVERSION COMMITTEE

NCC is pursuing the formation of a new committee dedicated to advancing coal conversion initiatives. Maohong Fan with the University of Wyoming's School of Energy Resources has agreed to chair the committee. If you are interested in helping to launch the NCC Coal Conversion Committee please contact Janet Gellici at jgellici@NCC1.org or 202-756-4524.



NEW NCC WEBSITE TO LAUNCH SOON

A beta version of the new NCC website is being vetted by the NCC Communications Committee. The new look is modern and streamlined, the site is easier to navigate and the content is growing. Stay tuned for our launch announcement in the coming weeks!

ARCTECH AWARDED PATENT



Congratulations to NCC member Daman Walia, President & CEO, ARCTECH Inc. for recently being awarded a patent on the company's coal-derived product HUMASORB® technology. Patent No. 901177 was awarded on April 21, 2015 entitled "Methods of Filtering Multiple Contaminants, Mitigating Contaminant Formations and Recycling Greenhouse Gases Using a Humic and Fulvic Reagent."

The technology is based on a unique coal-derived adsorber that removes SO_x, NO_x, Hg and other toxic metals and CO₂ from coal combustion flue gas in a single step. According to the company, it offers a cost-effective approach to retrofit the scrubbers on existing power plants as well as control leachates from coal ash ponds.

ARCTECH states that HUMASORB's advantages include:

- Retrofit existing scrubbers without requiring high capital investment.
- Comply with existing CSAPR and MATS and CO₂ mandates.
- Comply with USEPA mandates on ash ponds with use of recycled product for cost effective control of release of toxic metals from ash ponds and wastewaters at power plants.

For more information contact Daman Walia at dwalia@arctech.com.

COAL RESOURCES

U.S. Department of Energy
www.doe.gov
[Office of Fossil Energy](#)

National Energy
Technology Laboratory
www.netl.doe.gov
[Coal & Power Systems](#)

EIA Coal Data Browser
www.eia.gov/coal/data/browser

Potential Economic
Impacts in TN of Reduced
TVA Reliance on Coal
[Management Info
Services May 2015](#)

Peabody's CEO Calls for
Five-Point Plan to
Accelerate Transition to
Low-Carbon Economy
[Yahoo Finance April 2015](#)

Quadrennial Energy
Review ~ Transforming U.S.
Energy Infrastructure
[Our Energy Policy April
2015](#)

Legal Challenges to EPA
Regulating CO₂ Begin
[Senate Republican Policy
Committee](#)

Why You Should Love Fossil
Fuels Video
[Alex Epstein Earth Day
Message](#)

Re-release of 2013 Annual
Coal Distribution Report
[EIA April 2015](#)

Energy Drives the
American Economy
[Institute for 21st Century
Energy April 2015](#)

Reports of Utility Death
are Greatly Exaggerated
[ClearView Energy
Partners](#)

Gellici Speaking Engagements

[Hampton Roads Coal
Association](#)

Virginia Beach –May 13
[ASME Power Energy
Conference](#)

San Diego -June 30

National Coal Council
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NCC Member Focus

Welcome Joe Divoky!

Joe is among the newest members of the National Coal Council having been appointed in 2014. He brings a fresh perspective while continuing to carrying on the tradition of NCC representation from the Babcock family of companies dating back to Walter Boomer in 1995 and Jim Wood in 1997. Thanks for carrying on the tradition Joe!

Joe Divoky's responsibilities at B&W PGG are as wide-ranging and varied as his title ~ License Manager, Joint Ventures & Technology Licensing, Global Power Division. Whew! Joe is responsible for managing all technical and commercial aspects of B&W PGG's contractual relationships with worldwide third-party licensees. He serves as the primary point of contact for assigned licensees and ensures that the obligations of each party are being followed.

Joe also supports development of business opportunities to license B&W PGG products to new companies or to amend existing license agreements. He currently serves on both B&W PGG's Patent Review Committee and Salesforce.com Integration Committee.

Joe began his career with Babcock & Wilcox shortly after earning his B.S. in Mechanical Engineering from the University of Akron in 2006. He started as an Applications Engineer, advancing to Senior Engineer of Development & Design/Advanced Technology. He moved on to serve as Senior Thermal Hydraulic Engineer for B&W PGG's Core Thermal Hydraulics Team and also did a stint as Assistant Integration Manager responsible for managing and administering the company's Integration Management Office SharePoint site.

In addition to his B.S. degree, Joe earned a Certificate of Nuclear Engineering and an M.S. in Mechanical Engineering, both from the University of Akron. He represents B&W PGG as a member of the Coal Utilization Research Council (CURC).



JOSEPH S. DIVOKY
LICENSE MANAGER JOINT VENTURES
& TECHNOLOGY LICENSING
GLOBAL POWER DIVISION
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The challenge to generate power more efficiently from fossil fuels, while reducing the environmental impact, requires significant technological advancements. With a solid foundation, Babcock & Wilcox Power Generation Group, Inc. is leading the way to solving this global challenge.

B&W PGG provides the industry's most advanced steam generating equipment, emissions control equipment, and services for the existing fleet of power plants.

Higher efficiency. Lower emissions. High availability and dependability. These are the driving forces for B&W PGG's relentless pursuit of providing the best proven technology for the reliable and clean generation of steam.

B&W PGG designs, manufactures and constructs steam generating systems to accommodate any fuel requirements and to meet the power needs of utilities and industry.

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**CAC MEMBERS ADVANCE NEW
NCC INITIATIVE
SECRETARY'S ADVISORY GROUP TO
OVERSEE RAPID RESPONSE
PROJECTS FOR SECRETARY MONIZ**

During the course of its 30+ year history, the NCC has prepared more than 30 studies for the U.S. Secretary of Energy. These studies have involved the participation of a significant number of NCC members in the drafting stages of the report, taken many months to complete and generally run over 100 pages of substantive text.

Given the number, variety and complexity of the issues confronting the coal industry, Secretary Moniz has requested that in addition to its more expansive studies, the NCC undertake an initiative to produce shorter reports (white papers) in a timely manner (90-120 days). To facilitate this process, NCC's Chair's Advisory Committee has formed a Secretary's Advisory Group (SAG) to oversee the management of a rapid response process that will provide for a more timely response to the Secretary's focused requests.

As is the case with NCC's more expansive studies, all white papers topics will be approved in advance by the Secretary. Members of the SAG will reach out to NCC members to solicit their active participation in a SAG Working Group tasked with drafting a quick, streamlined response to the Secretary. All white papers produced by the SAG Working Group will be approved by the NCC Full Council in a duly held FACA meeting.

A number of white paper topics have been proposed by NCC and are currently under consideration by DOE. These topics were gleaned from recommendations submitted by NCC members and leadership/staff earlier this year.

NCC would like to thank the following members for their participation in the SAG:

- Jeff Wallace, Southern Company
- Mike Durham, Soap Creek Energy
- Fred Palmer, Peabody Energy
- Bill Brownell, Hunton & Williams
- John Eaves, Arch Coal
- Kemal Williamson, Peabody Energy
- Rich Lopriore, PSEG Fossil
- Mike Sorensen, Tri-State Generation & Transmission
- Greg Workman, Dominion Energy
- George Duggan, BNSF Railway
- George McClellan, Clean Coal Solutions
- Mark Schoenfield, Jupiter Oxygen

WHO KNEW?*

National Carbon Capture Center

Launched in 2008, the **National Carbon Capture Center** (NCCC) is responding to the call for the development of cost-effective CO₂ capture technologies for coal-fired power generation. Sponsored by the U.S. Department of Energy (DOE), the NCCC provides first-class facilities to test developers' technologies for extended periods under commercially representative conditions with coal-derived flue gas and syngas, thereby accelerating commercialization of cost-effective CO₂ capture technologies and enabling coal-based power plants to achieve near-zero emissions.

The NCCC tests and evaluates CO₂ control technologies, including CO₂ capture solvents, mass-transfer devices, low cost water-gas shift reactors, scaled-up membrane technologies, and improved means of CO₂ compression. As a result of its ability to operate under a wide range of flow rates and process conditions, research at the NCCC can effectively evaluate technologies at various levels of maturity. The two main areas of research include pre-combustion CO₂ capture and post-combustion CO₂ capture. Fuel flexibility and gasification processes are also evaluated at the site.

Based in Wilsonville, AL, the NCCC's partners include American Electric Power (AEP), Arch Coal, Cloud Peak Energy, Duke Energy, EPRI, Luminant, NRG and Southern Company.

Among the companies that are undergoing or have completed testing at the facility:

Akermin	Clean Carbon Solutions
BASF/Linde	MEA
Chiyoda	MTR
Cansolv	SSTU

In 2014, DOE signed a new 5-year agreement to continue its support of the NCCC.

<http://www.nationalcarboncapturecenter.com/>



***A regularly featured column on industry, university and government initiatives in support of clean coal technology development & commercialization.**

Fossil Forward Study Rollout Underway

In late January 2015, NCC members approved their latest study for Secretary Moniz, chaired by ALSTOM and entitled, *Fossil Forward – Revitalizing CCS; Bringing Scale & Speed to CCS Deployment*. The study included six principal recommendations relating to the need for policy parity for CCS with other low-carbon energy resources, for greater and more focused funding for CCS and advanced coal technologies, for enhanced international partnerships to accelerate the deployment of CCS globally, for a better alignment of DOE CCS program goals with commercial operations, and for continued public education on CCS safety and value.

The quality of the report and the importance of the findings and recommendations it puts forth we hope will contribute to DOE's decision making on the future of its CCS/CCUS program initiatives. As a federally chartered, public organization, we believe it will play a vital role as well in the public discourse on carbon management.

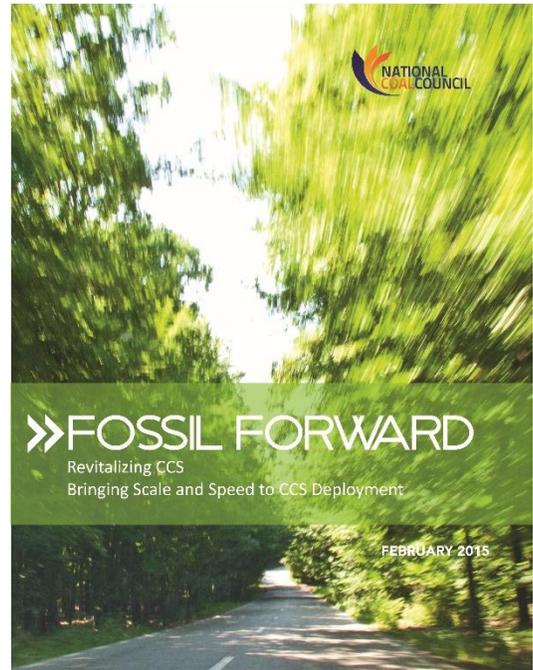
With that in mind, the NCC Communications Committee has stepped up its efforts to enhance the distribution of all NCC study findings and recommendations. For the *Fossil Forward* study, these efforts have included outreach to trade press and national media contacts, coal and energy trade associations, and public policy makers. Among the specific initiatives:

- Development of a series of 2-page fact sheets detailing major findings and recommendations (available on the NCC website).
- Congressional Staff Briefing presented in cooperation with the CCS Alliance.
- NCC staff presentations to various industry groups, including the Global CCS Institute, American Coal Council, Institute for Clean Air Companies, Pittsburgh CCUS Conference, ASME.
- Briefing of DOE staff, including those from Fossil Energy, Office of Electricity Delivery & Energy Reliability, Office of Energy Policy & Systems Analysis and the Secretary's Office.
- Briefing of the House Energy & Commerce Committee's Office of Oversight & Investigation.
- Outreach to various industry trade associations.
- Preparation of articles and blog postings, including those for OurEnergyPolicy.org, American Coal magazine, World Coal and the Global CCS Institute.
- Interviews with media representatives.

These types of rollout efforts were initiated with the NCC's May 2014 Value of the Existing Coal Fleet study and are now planned as part and parcel of all NCC studies to be undertaken in the future. If you have ideas on how to expand the reach and distribution of our fine studies, please contact Janet Gellici at jgellici@NCC1.org.

Thank You Holly Krutka!

Holly Krutka, Executive Editor of *Cornerstone Magazine* has graciously stepped up to serve as Chair of the NCC Communications Committee. Holly brings a wealth of experience in coal technology development, a well-honed editorial prowess and unbound energy to this role. Under Holly's guidance the Communications Committee continues to grow its membership and enhance its role in promoting NCC studies and finalizing the redesign of our new website. Thanks for leaning in, Holly!



Coal Currents

Todd H. Cunningham, Contributing Editor

A brief survey of leading coal industry stories of the past month. Highlighted underlined text links to the cited articles. Right click on highlighted text and select the "Open Hyperlink" option to view the cited article.

CLIMATE CHANGE

U.S. Offering "Reassurance" on Its Ability to Deliver Greenhouse Gas Cuts

Other countries are questioning the Obama administration's ability to deliver on its promise to reduce U.S. greenhouse gas (GHG) emissions by 26-28% below 2005 levels by 2025, *National Journal* reported. It quoted Todd Stern, U.S. special envoy for climate change, as saying that [in the run-up to a major climate summit in Paris at year's end, "countries want to get reassurance."](#) Providing it, Stern pointed out that U.S. efforts to cut GHG emissions "are based fundamentally on existing legal authority." Regulations such as EPA's power plant rule have been challenged repeatedly in the past, he said, and are almost always upheld. However, *National Journal* noted, these challenges "highlight the uncertain fate of Obama's most ambitious action to tackle global warming." It pointed out that Senate Majority Leader Mitch McConnell (R-Ky.) has urged states not to comply with the regulations and cautioned other countries "to be wary of any kind" of U.S. commitment on climate change.

China Overtaking U.S. as Leading Cumulative Source of Man-Made Warming

China is overtaking the United States as the leading cause of man-made global warming since 1990, Reuters reported, terming it "[a historic shift that many raise pressure on Beijing to act](#)" when nations meet in Paris in December to work out a global climate pact. The news service said that the Asian nation's cumulative GHG emissions since 1990, the benchmark year for United Nations-led action, will pass those of the U.S. this year or next. Reuters noted that under a UN principle set out in 1992, rich nations are to take the lead in cutting GHG emissions because their wealth is based on burning coal and other fossil fuels since the beginning of the Industrial Revolution. However, it pointed out, "the rapid economic rise of China, India, Brazil and many other emerging nations is straining the traditional divide between rich and poor." China passed the U.S. as the top annual emitter of carbon dioxide (CO₂) around 2000 and currently emits more each year than the U.S. and the European Union combined.

California Governor Sets Aggressive Greenhouse Gas Reduction Benchmark

California Governor Jerry Brown has issued an executive order establishing a state GHG reduction target of 40% below 1990 levels by 2030, describing it as "the most aggressive benchmark" to reduce CO₂ emissions in North America. According to *The New York Times*, the order was intended as "a jolt to a landmark 2006 environmental law requiring an 80% cut in greenhouse gas emissions by 2050, compared with 1990." Under the order, it noted, "the state would have to get halfway there – a 40% reduction – by 2030." The newspaper quoted the Governor as saying [the interim target "was essential to prod the energy industry to act](#) and to help the state make investment and regulatory decisions that would assure that goal was not missed." *The Times* indicated that Brown's order did not give details of how the state would reach the goals. It noted that a recent study concluded that to cut emissions by 26% to 38% by 2030, California would have to ensure that 50% to 60% of electricity came from renewables.

ENERGY ISSUES

ICF Report Forecasts "Fairly Steady" Path for Coal-Fired Power Through 2025

Despite a range of uncertainties, including a future with CO₂ regulation and projected plant retirements due to EPA's Mercury and Air Toxics Standards (MATS) rule, [ICF International expects coal-fired generation to remain fairly steady through 2025](#). According to the *ICForecast Energy Outlook* for the second quarter of 2015, coal consumption is expected to remain relatively flat, but still down 15% from the last five years. Coal consumption might increase somewhat through 2020 if natural gas prices trend into the \$5.50 per MMBtu range, it forecast, but this consumption would then fall back to current levels as the CO₂ policy comes into play. Meanwhile, low gas prices paired with pending regulatory requirements will continue to drive coal retirements; ICF projects nearly 60 GW to close through the end of 2020. Gas-fired units are expected to increase their share of total generation, reaching 38% share by 2030 as compared with coal's 29% share. The firm expects nearly 150 GW of new gas-fired capacity by 2030, with new renewable capacity accounting for about 70 GW in the same time period.

Coal Currents (continued)

ENVIRONMENTAL REGULATION

Fed Appeals Court Hears Challenges to EPA's Rule on Carbon Emissions Cuts

A major element of the Obama administration's effort to address climate change is facing a challenge in federal court. The U.S. Court of Appeals for the D.C. Circuit heard oral arguments on EPA's proposal to slash carbon emissions from coal-fired power plants, AP reported. According to the news service, two lawsuits – one filed by a group of 15 states and another by the nation's largest privately held coal mining company, Murray Energy – question EPA's legal authority for its plan under the Clean Air Act. [The states argue that the scheme is illegal because the plants are already regulated under a separate section of the Act](#), and the law prohibits "double regulation." AP noted that EPA and environmental groups have argued the cases are premature, as the Agency won't issue a final rule until this summer, while opponents counter that the stakes are so high that the court should stop EPA from acting before the rule becomes final. However, during the arguments, the *Huntington, W.Va. Herald-Dispatch* reported, two judges indicated they felt the challenge was in fact premature.

EPA Chief Offers "Confrontational Speech" on Agency's Emissions Rule

EPA Administrator Gina McCarthy delivered "a markedly more confrontational speech" on the Agency's plan to slash emissions from coal-fired power plants than she did at last year's IHS-CERAWeek conference, Reuters said. At this year's event, the Agency chief asserted that environmental protection is "foundational to strong, lasting economic growth," while excoriating industry economic models that ignored the human health benefits of reduced emissions and their direct link to financial health. She contended that the new regulations will not trigger job cuts, Reuters added, as "innovation has consistently led to newer jobs in the energy industry." With the federal plan calling for a 30% reduction in CO₂ emissions from 2005 levels by 2030, *FuelFix* reported, [McCarthy acknowledged there would be an "inevitable" transition away from coal-fired plants. But the administrator said coal would remain a leading source of U.S. electricity](#), representing about 30% of the country's capacity in 2030. Peabody Energy CEO Greg Boyce was less hopeful, *FuelFix* reported, asserting, "The administration continues forcing a carbon agenda with little regard for consequences to people, the economy or in some cases the rule of law."

DULY NOTED

Musical Tribute to Pennsylvania's Mining Heritage Garners Pulitzer Prize

"Anthracite Fields," a composition that pays tribute to Pennsylvania's mining heritage, has been awarded the Pulitzer Prize for music. Composer Julia Wolfe, who grew up in the region and went on to become a professor of music at New York University, told the Associated Press, ["I wanted to show the life and understand it from different angles."](#) To do so, she visited defunct mines, pored over books on the subject and spoke with former miners and their families. According to AP, the piece recalls "the hard work and sacrifice of generations of anthracite coal miners, whose toil yielded fuel for the industrial revolution and heat for cities and towns up and down the Eastern Seaboard." The composition, which had its world premiere about a year ago at the Philadelphia Episcopal Cathedral, was described by Pulitzer judges as a "powerful oratorio for chorus and sextet evoking Pennsylvania coal-mining life around the turn of the 20th Century."

NERC Warns of "Grave Implications" of EPA's Clean Power Plan, Seeks Delay

EPA's proposed Clean Power Plan (CPP) could lead to changes in how the country's coal-fired generating fleet is employed, from today's baseload use to seasonal peaking, thereby posing "grave implications for plant economics and operating feasibility," the North American Electric Reliability Corp. (NERC) warned. According to *POWER Magazine*, a NERC special reliability assessment found that EPA's prospective regulations could spur a "transformative shift in resources" toward greater use of gas and renewables, along with "a mass retirement of baseload capacity." The result? Changes to operations and expected behaviors of the system, along with reliability challenges. In the case of coal plants, *POWER* reported, [the erosion of operating economics caused by the shift from baseload use could "render their continued operation at risk and subject to potential retirement."](#) Accordingly, NERC asked EPA to delay implementation of the CPP, now set for 2020, to allow system preparations – including the addition of 46 GW of gas-fired power plants – necessary to prevent these changes from disrupting electric service, the publication reported.

Coal Currents (continued)

MINING & TRANSPORTATION

Labor Dept. Unit Seeks More Transparency Under Black Lung Benefits Act

[Coal miners would have greater access to their health records, and coal mine owners would have to pay all benefits on a claim before the award could be challenged through modification](#), under a proposed rule under the Black Lung Benefits Act. The rule, published by the Labor Department's Office of Workers' Compensation, requires parties to disclose all medical information developed in connection with a claim, even when the party does not intend to submit the information into evidence. This requirement would protect coal miners by giving them full access to information about their health; a miner lacking complete information might delay seeking treatment or make an uninformed decision about whether to continue working. DOL cited National Institute for Occupational Safety and Health (NIOSH) data showing that black lung was a cause or contributing factor in the death of more than 76,000 miners since 1968, and has cost more than \$45 billion in federal compensation benefits.

Compliance with Recent Coal Dust Rule "Highly Achievable," MSHA Says

Eight months after implementation of the final rule aimed at preventing black lung disease by lowering miners' exposure to coal dust, sampling by mine operators and Mine Safety and Health Administration (MSHA) inspectors indicates that [compliance with the rule's tougher requirements is highly achievable](#), the Agency announced. The rule lowers the concentrations of coal dust that miners breathe; improves sampling practices to better reflect actual working conditions to protect all miners from overexposures; and makes use of cutting-edge technology developed to provide real-time information about dust levels. According to MSHA, more than 41,000 dust samples have been collected, and sampling results show about 99% are in compliance. Additionally, the Labor Dept. unit indicated, the yearly average of respirable dust levels of designated mining occupations in underground coal mines dropped to a historic level in 2014, and has gone down each year since MSHA launched its "End Black Lung - Act Now" campaign in 2009.

INTERNATIONAL INTEREST

New Study Contends China Can Greatly Reduce Huge Carbon Footprint

China has a huge carbon footprint, consuming nearly as much coal as every other country in the world combined and emitting more GHG than any other country. But according to an article in *Scientific American*, it may be possible for the Asian behemoth to end most of its reliance on fossil fuels. How? By producing more than 60% of its total energy needs and more than 85% of its electricity from renewables by 2050, according to a recent study. Most of the latter figure – 64% - would be from wind and solar power, and only 7% would be derived from coal, after the country develops more than 200 GW of electric power storage. "On the way there," the study says, ["China has the ability to reach the peak of both its fossil fuel consumption and carbon dioxide emissions by 2025."](#) According to *Scientific American*, the Chinese study built upon Department of Energy research showing that it is technically feasible and cost-effective for the U.S. to obtain at least 80% of its electricity from renewables by 2050, and that wind can supply 20% of U.S. electricity by 2030.

Todd H. Cunningham, who writes the "Coal Currents" column for the Council's monthly National Coal Advisory, is available for additional writing projects involving coal and other energy policy issues. For information on Todd's background and experience, see his LinkedIn profile at www.linkedin.com. To discuss your editorial needs, contact Todd via email at tcunningham03@comcast.net.