



NATIONAL COAL COUNCIL ~ NOVEMBER 2014

Thank You

With the Thanksgiving holiday approaching it's an appropriate time for me to thank the members of the National Coal Council for your service. NCC operates as an organization of volunteers who donate their time, expertise and financial resources in providing advice and guidance to the Secretary of Energy. Thank you for your commitment to the Council in 2014!

It's been a very busy year for the NCC which has included celebrating our 30th Anniversary (1984 | 2014), hosting two Full Council Meetings, completing one study for the Secretary and launching another soon-to-be completed study. We welcomed 38 new members and hosted a special event on Coal Conversion in cooperation with the Catholic University of America's Institute for Policy Research & Catholic Studies.

Administratively, we designed a new logo for the NCC, began work on updating our website, established a database of members/media/stakeholders, updated our Bylaws, welcomed a new Meetings & Members Manager (Hiranthie Stanford) and relocated our office to one within walking distance of DOE and more centrally located to Capitol Hill and NCC members' DC offices.

A more detailed assessment of these accomplishments and our plans for 2015 has been emailed and mailed to all NCC members, along with **member dues invoices**. Members have the option of paying their 2015 dues by year-end 2014 or by the **due date of January 16th, 2015**.

As always, we appreciate your prompt payment. The NCC is a self-sustaining organization; we receive NO financial support from DOE. Without your financial contributions, we cannot continue to serve the valuable role we play in advising Secretary Moniz on coal issues.

We also value and appreciate contributions of your time. Members have each been emailed/mailed a committee sign-up sheet. Please consider supporting the organization through participation in the Coal Policy Committee, Communications Committee, Spring or Fall Full Council Meeting Program Development Committee, Finance Committee or Membership Committee.

Thank you to all who have served on an NCC committee or participated in an NCC study this past year. We couldn't do what we do without you! Finally, I'd like to acknowledge the special contribution of the NCC leadership team ~ all those folks listed to the right → ~ whose generosity and commitment to the NCC are too often unsung. To you a joyous chorus of thanks!

~THANK YOU~



NCC LEADERSHIP

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Southern Company Services

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NCC BRIEFS DOE ON EXISTING COAL FLEET STUDY

At the invitation of Deputy Assistant Secretary for Clean Coal **Julio Friedmann**, the NCC briefed members of the U.S. Department of Energy on the findings and recommendations from the NCC's Existing Coal Fleet study.

NCC's **Janet Gellici** and study lead author **Doug Carter** presented a detailed one-hour briefing to DOE staff members representing various offices, including Fossil Energy (FE), Energy Policy & Systems Analysis (EPSA) and Electricity Delivery & Energy Reliability (OE), along with senior staff from the Office of the Secretary. Attendees were engaged and asked numerous pointed questions. It was obvious from the dialogue among those in attendance that there's a lot of inter-office activity underway at DOE on a number of initiatives NCC addressed in its study.

CCS/CCUS PROGRESS

During the DOE briefing, we also had a chance to discuss the work currently underway for our new study assessing the value of DOE's CCS/CCUS programs. Chapter leads have submitted their drafts to Technical Chair **Carl Bozzuto (ALSTOM Power)** who is in the process of reviewing and editing the report. The edited version of the report will be reviewed by Study Chair **Amy Ericson (ALSTOM Inc.)** and the study preparation team, after which it will be distributed to the Study Review Team for their comments.

If you are interested in serving on the CCS Study Review Team and have not previously indicated your willingness to do so, please email Janet Gellici at jgellici@NCC1.org.

We remain on track to have the study completed by the end of January. NCC members will be asked to participate in a webcast meeting to review and approve the study in late January. Details are forthcoming.

NCC EXISTING COAL FLEET STUDY FEATURED IN ON-LINE DISCUSSION PLATFORM

The National Coal Council was invited to participate in an on-line discussion on OurEnergyPolicy.org's forum. The discussion is based on information in the NCC's "Reliable & Resilient: The Value of Our Existing Coal Fleet" study (May 2014) and focuses on how to enhance the efficiency of the existing coal power plant fleet, which you can see [here](#).

NCC members are invited to join OurEnergyPolicy.org's diverse community of over 1,080 of the nation's leading energy [experts](#) to address this issue. If you would like to weigh in on this ongoing discussion but are not yet a registered OurEnergyPolicy.org expert, you can [register here](#).

More about OurEnergyPolicy.org:

OurEnergyPolicy.org is rapidly becoming the premier online platform for thought leaders around the country to engage one another in a civil debate on energy policy. Senator Lisa Murkowski (R-AK), Rep. Fred Upton (R-MI) and Rep. Chris Van Hollen (D-MD) all recently used the forum to gather expert input on policy questions. OurEnergyPolicy.org works with some of the most widely respected [organizations](#) in the space. OurEnergyPolicy.org also distributes transcripts of discussions on Capitol Hill and 2,500+ energy experts, high level energy practitioners, policymakers and media receive their weekly digest.

OurEnergyPolicy.org does not have or endorse any specific political, programmatic, policy, or technological agendas, but rather seeks to encourage a broad discussion of all points of view.

COAL RESOURCES

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

"The Moral Case for Fossil Fuels"
[Authored by Alex Epstein](#)

Dominion Customers Could See Bills Rise 30% by 2025 to Meet EPA Plan
[Richmond Times-Dispatch 11-19-14](#)

Clean Coal Key to Meeting Global Energy Demand
[Greg Boyce Editorial China Daily 11-10-14](#)

Worth Revisiting ~ How to lose half a trillion euros: Europe's electricity providers face an existential threat
[The Economist 10-12-13](#)

Breathing Cleaner Air to Cost Americans on Utility Bills
[Bloomberg News 10-29-14](#)

Boston, NYC Winter Natural Gas Prices Expected to Remain High
[EIA 11-24-14](#)

European Residential Electricity Prices Increasing Faster than Prices in U.S.
[EIA 11-18-14](#)

The Cost of EPA's Clean Power Plan
[Chamber of Commerce Energy Institute Video](#)

Boundary Dam Video
[SaskPower](#)

Rail Shipments of Oil up 13% Over Last Year
[EIA 11-13-14](#)

[Gellici Speaking Engagements](#)
[American Coal Ash Association](#)

Savannah - February 10
National Coal Council
NationalCoalCouncil.org



NCC STUDY DETAIL

Reliable & Resilient: The Value of Our Existing Coal Fleet

In May 2014, NCC members approved a study the Council conducted for Secretary of Energy Moniz assessing various opportunities for enhancing the capacity, efficiency and emissions profile of the existing U.S. coal fleet. This 7-part series of articles details primary findings and recommendations from key sections of the report.

Enhancing Efficiency of Power Generation from the Existing Coal Fleet

The operating paradigm of coal-fired plants has changed. Today base load units routinely operate in cycle mode; boiler and emissions control systems operate in highly variable modes; maintenance intervals have been extended to three years or longer. These trends and other factors compromise plant generating efficiency.

Improving thermal efficiency can reduce fuel consumption, lower operating costs and reduce emissions, including CO₂.

Numerous Opportunities Exist to Improve Power Plant Efficiency Today

In 2012, the average coal-fired power plant efficiency in the U.S. was 33%. State of the art plants around the world today can exceed efficiencies of 45%. While a number of efficiency measures are commercially available today, the benefits and cost are highly variable and site specific; many measures have already been deployed. Modest efficiency improvements are achievable today using existing technologies to improve heat transfer, reduce heat losses and make better use of low quality heat.

Additional RD&D Can Achieve Even Greater Efficiency Improvements

Numerous opportunities exist to achieve greater levels of efficiency improvements. Many would have a significant cost, would impose major changes to the power plant and/or would require incremental RD&D.

Potential Efficiency Improvements

- Moisture Reduction in Low-Rank Coals Using Waste Heat
- Boiler & Steam Conditions
- Steam Turbine & Condenser Upgrades
- Employment of Advanced Materials
- Process Instrumentation & Controls
- Enhanced Boil Tube Coatings
- Low Temperature Heat Recovery
- Auxiliary Power Consumption
- Cooling System Design Improvements
- Changing Plant Thermodynamics
- Topping & Bottoming Cycles
- Alkali Injection to Reduce Fouling

Achieving the most significant improvements in efficiency may be deterred by concerns that the

required improvements will be characterized as a “major modification” under New Source Review (NSR) regulations, resulting in additional environmental requirements that would increase costs and reduce intended efficiency gains.

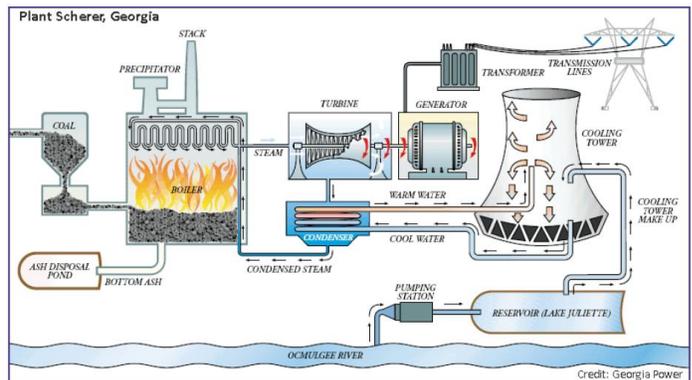
NCC Recommendations –

The private sector should undertake efforts to develop and demonstrate the effectiveness and reliability of efficiency-enhancing technologies for commercial plants.

DOE should lead collaborative efforts with industry to design next-generation efficiency-enhancing technologies.

DOE should work with EPA to find a way to deploy changes at existing coal-fired power plants that would result in higher fleet efficiency without imposing new emission reduction requirements.

A series of 7 fact sheets and a PowerPoint graphics deck (complete with explanatory notes) from the NCC study is available on the NCC website at www.NationalCoalCouncil.org under the “Information/Reports” tab.



NCC MEMBER FOCUS

Lisa Bradley is a shining star among our newest constellation of NCC members, having been appointed to the Council in Spring 2014. Lisa immediately committed to serving on the NCC Communications Committee and was instrumental in editing our May 2014 Existing Coal Fleet study. Lisa is talented, experienced and energetic, with a "can do" attitude that will greatly benefit our volunteer organization. We'll do our best to keep you busy, Lisa!

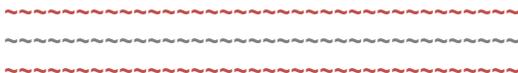
Dr. Lisa JN Bradley is a Senior Toxicologist/Risk Assessor and Vice President with Haley & Aldrich. She has a Ph.D. in toxicology from the Massachusetts Institute of Technology (MIT). Lisa has over 20 years of experience in risk assessment and toxicology, and is certified by the American Board of Toxicology.

Lisa has managed risk assessments for hazardous waste sites in many Environmental Protection Agency (EPA) Regions and under many state programs. She is experienced in agency negotiations, as well as public speaking and environmental communications, and she has published articles in peer reviewed scientific journals based on both her laboratory and risk assessment work.

Lisa is the project manager for the Pines Area of Investigation in Indiana, a coal ash site being managed under the Superfund Alternative program in USEPA Region 5. She has also conducted risk assessments for coal ash landfills, environmental communications for proposed landfills, and has worked with clients to evaluate and comment on state groundwater standards for coal ash related constituents.

Lisa has been active with utilities and industry trade groups in responding to EPA's proposed rulemaking. She has published and given many talks on various aspects of coal ash risk assessment issues and the proposed rules. She has been active with the American Coal Ash Association (ACAA), serving an elected 2-year term on the ACAA Executive Committee; she began a 2-year term as Secretary/Treasurer of ACAA in June 2014.

Lisa is excited to have recently joined Haley & Aldrich, and their team focusing on coal ash issues faced by utilities and the beneficial use industry. Her experience in coal ash risk assessment has given her an informed perspective on the potential impacts of coal ash on human health and the environment. She has strived to educate those in industry, regulators, the press, and the general public on the facts surrounding the inaccurate labeling of coal ash as toxic by small but vocal groups.



DR. LISA JN BRADLEY
SENIOR TOXICOLOGIST/RISK ASSESSOR
& VICE PRESIDENT
HALEY & ALDRICH

For more than 55 years, Haley & Aldrich has been advising developers, major institutions and Fortune 100 clients on geotechnical and environmental challenges.

Established in 1957 with a focus on underground engineering and problem solving, today Haley & Aldrich has a resume of more than 50,000 engineering and environmental consulting projects and 27 offices nationwide.

Haley & Aldrich serves clients in the aerospace, automotive, education, energy, healthcare, property development, manufacturing, mining, utility, and heavy infrastructure markets in the United States and abroad.

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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.

LEADING NEWS

U.S., China Announce Agreement to Limit Greenhouse Gas Emissions

The United States and China, which account for some 40% of global greenhouse gas emissions, have agreed to significantly limit such releases in a deal that Administration officials contend "[could galvanize efforts to negotiate a new global climate agreement by 2015.](#)"

The accord, announced by President Obama and Chinese President Xi Jinping at a meeting in Beijing, was described by *The New York Times* as "the signature achievement of an unexpectedly productive two days of meetings between the leaders." The U.S. is aiming for emissions cuts of 26-28% below 2005 levels by 2025, substantially more than its existing goal of a 17% reduction by 2020. China, meanwhile, pledged to cap its greenhouse emissions – the world's largest – by 2030 or earlier if possible, while increasing the share of non-fossil fuels in its energy mix to 20% by 2030.

The Washington Post reported that [the two nations' ambitious goals will be difficult to achieve.](#) It noted that China completes a new coal-fired power plant every 8 to 10 days, and would have to add 800 to 1,000 gigawatts of zero-emission generating capacity, such as wind, solar and nuclear power – more than the capacity of all its current coal-fired plants – by 2030. The U.S., for its part, would have to double its greenhouse gas (GHG) reductions, from an average of 1.2% per year from 2005-2020 to 2.3-2.8% annually from 2020-2025, the newspaper specified.

Additionally, Obama will face a Congress controlled by Republicans intent on targeting the Environmental Protection Agency's (EPA) push to limit carbon emissions from power plants under the president's Climate Action Plan. "Whether Obama's target can be set now and achieved technologically – or enforced years after he leaves office – remains unknown," the *Post* pointed out.

In an Election Day briefing, White House Press Secretary Josh Earnest indicated that Obama "will use his executive action to take some additional steps, but ... continue to talk about this issue in a way that lays the groundwork for action by future presidents and future Congresses," *Politico* reported.

CLIMATE CHANGE

UN Panel Says Global Plan Key to Addressing Climate Change

Preventing large-scale, irreversible changes to the planet's climate will require zeroing out net greenhouse gas (GHG) emissions by century's end, the United Nations' Intergovernmental Panel on Climate Change (IPCC) stressed in a new report. The group's chair also cited an interim target, global emissions reductions of 40-70% between 2010 and 2050.

The IPCC document synthesized several recent reports by the UN body, establishing "with 95% certainty that nearly all warming seen since the 1950s is man-made," *Time* reported. It emphasized a coordinated international plan rather than country-by-country approaches, and did not recommend a specific course of action, *National Journal's Energy Edge* noted.

[The IPCC identified possible strategies, including a carbon tax, "or even extreme measures like trapping and storing emitted carbon dioxide."](#) But the substantial challenges required to keep global temperature at no more than 2 degrees Celsius above pre-industrial levels, which would trigger permanent changes, will intensify with delay, the UN unit cautioned.

According to John Holdren, Director of the White House Office of Science and Technology Policy, the report represents "another wake-up call," and underscores the need to implement the President's Climate Action Plan.

Coal Currents *(continued)***ENVIRONMENTAL REGULATION****EPA Asks for Additional Comment on Clean Power Proposal**

EPA, identifying issues that have arisen during an "unprecedented outreach to a broad range of stakeholders," has provided additional information on its Clean Power Plan.

[The Plan, a draft rule to regulate carbon emissions from existing coal-fired power plants](#), calls for steep cuts, compared with 2005 levels, by 2030. The proposal has been denounced by coal companies and many other stakeholders as unrealistic and a threat to grid reliability.

According to *Utility Dive*, EPA's Notice of Data Availability seeks comment in several areas, and [may "open the door to more flexibility" for those subject to the regulations](#). Areas of interest include the 2020-2029 trajectory, or "glide path," for emissions reductions, which drew stakeholder concerns over how quickly states must switch from high-emissions generation such as coal to lower-emissions fuels like natural gas. EPA's notice also cites the Plan's building blocks, focusing on commenters' complaints over the treatment of natural gas and renewables. The third concerns the calculation of state-specific carbon emissions goals.

EPA also said it would review additional comments on changing the baseline year for these goals from 2012, the publication added.

MSHA Reports 99% Compliance in Coal Dust Samples Under New Rule

About 99% of the 7,000-plus valid respirable coal dust samples collected during the first two months of the Mine Safety and Health Administration's (MSHA) final rule to lower miners' exposure to the material met compliance levels, the Labor Department unit reported.

Specifically, MSHA said, [only .5% of the 4,255 dust samples collected by the agency, and 1.3% of the 3,201 samples submitted by mine operators, exceeded compliance levels](#). "The results clearly show that mine operators are able to comply with the rule. That's good news for the health of all coal miners and our efforts to end black lung disease," said Joseph A. Main, Assistant Labor Secretary for mine safety and health.

The rule, which became effective Aug. 1, substantially increases operator sampling for respirable coal mine dust and requires mine operators to take immediate corrective action when a sample shows excessive concentrations. The final rule authorizes MSHA to cite an operator based on a single agency sample showing excessive dust, rather than on an average of samples.

ENERGY ISSUES**Coal Likely to Continue Domination of World Markets, Report Says**

While coal is "the energy villain of the moment," global demand continues to grow, and it will likely maintain its dominant role for decades, according to a paper published by the Manhattan Institute, a conservative think tank.

The document, "Not Beyond Coal," reported that between 1990 and 2010, about 830 million people, mostly in developing countries, gained access to electricity due to coal-fired generation – 13 times as many as those who gained access due to non-hydro renewable energy and twice as many who gained access due to natural gas.

[The paper offered three key findings](#). First, it indicated, no viable substitute can match the low cost and massive scale of electricity now provided by coal-fired generators. Second, coal remains an essential fuel to address the lack of access to electricity and other modern energy services. Finally, it asserted, "Given the continuing growth of coal, policymakers should promote deployment of advanced combustion technologies in new electricity generation plants."

"Until another energy source is able to compete directly with coal – in terms of cost, scale and reliability – the black fuel will continue dominating the global electricity-generation business," the paper concluded.

Coal Currents (continued)

MINING & TRANSPORTATION

Interior Dept. Targets Loophole in Coal Leasing Royalties Rules

An Interior Department unit is drafting rules intended [to close an accounting loophole that "has helped coal companies boost export profits"](#) while lowering taxes due from coal production on leased federal lands, Reuters reported.

The news service said that while federal law requires a 12.5% royalty on such production, it found the companies were using affiliated brokers to settle royalty payments on exports to Asia at much lower domestic prices. It reported that the companies garnered an additional \$40 million on these transactions during 2011.

According to Reuters, following Interior Department review, the Office of Natural Resources Revenue has drafted a fix "that could make companies pay royalties on sales to the first unaffiliated customer, so-called arm's length sales, in the supply chain." The draft is under study at the White House Office of Management and Budget (OMB), with no deadline for completion.

Meanwhile, an Office of Natural Resources Revenue official told Reuters, it is checking into whether coal companies should have paid more on past sales, and will seek a return of royalty underpayments if improprieties are found.

Coal Shippers Ask STB's Help in Fixing Rail Transport Woes

Despite predictions that this winter will be warmer than the last one, power plant operators remain wary that another unpredicted storm, like the polar vortex, could cause major reliability problems, *Utility Dive* reported.

Some operators are still dealing with [the consequences of last year's severe weather, including reduced rail deliveries of coal](#), the publication said. Bloomberg reported that coal stocks fell by 28% in July from year-earlier levels, reducing fuel supply from 57 days to 39, according to Energy Information Administration (EIA) data. Some power plant operators were forced to take coal deliveries by truck and reduce or idle output as they competed for rail space with petroleum products and a record grain harvest, it added.

A group of coal shippers recently filed a petition with the Surface Transportation Board (STB) requesting an order requiring BNSF Railway to submit a coal service recovery plan due to ongoing delays. The railroad acknowledged that its service has fallen short, and said it is working to reduce backlogs, the publication said. But BNSF told the regulators that the problem has not reached emergency proportions and there is no need for STB intervention.

IN THE INDUSTRY

Canadian CCS Unit Becomes Operational; U.S. Plant Further Delayed

[The first utility-scale power plant equipped with carbon capture and storage \(CCS\) technology has become operational in Canada](#), the Institute for Energy Research (IER) reported. SaskPower's Boundary Dam Unit 3 in Saskatchewan, a 43-year-old coal-fired unit, was retrofitted at a cost of \$1.35 billion (\$1.2 billion U.S.), three times the cost of building a similar-sized new facility.

According to the Institute, the CCS-retrofitted unit is rated at 110 MW, compared to its original capacity of 139 MW; about 20% of the energy produced is used by the CCS technology itself.

Boundary Dam is expected to reduce carbon dioxide emissions by 90%, with the gas separated in the exhaust stream, compressed, transported by pipeline and injected deep underground. Some will be sold for priming nearby oil fields using enhanced oil recovery technology, IER reported. The remaining gas will be stored in a sandstone formation.

In the U.S., meanwhile, Southern Company has announced it will cost at least another \$496 million to finish the Kemper County CCS plant in Mississippi, pushing the total to more than \$6.1 billion, according to an AP item published by PennEnergy. [The company also delayed Kemper's operational date](#) from June 2015 to at least March 2016.

Coal Currents *(continued)***INTERNATIONAL INTEREST****European Union Members Agree on Carbon Emissions Cuts**

The European Union's 28 member nations have agreed on a pledge to cut carbon emissions by at least 40%, compared with 1990 levels, by 2030, The New York Times reported. The 40% pledge would eventually include legally binding targets for each of the EU's member countries, it added. The action makes the EU the first major global emitter to adopt a position in advance of a key UN climate meeting in Paris late next year.

Members also agreed on a target of generating at least 27% of their energy from renewable sources, a goal binding at the EU level but not at the national level, and on a non-binding target of improving energy efficiency by 27%, *The Times* indicated. "Both of those targets raised questions about their enforceability," the newspaper noted.

Hopes are rising in Europe that a December 2015 meeting in Paris will lead to a global agreement obliging other nations, such as the U.S. and China, to commit to climate targets, the publication said. "But there is not the same enthusiasm in Europe to embrace the green agenda as there was five years ago," before a previous conference ended in failure, it added.

BY THE NUMBERS**Changing Fuel Costs Hike Coal's Generation Market Share**

DOE's EIA has reported that U.S. energy-related carbon dioxide emissions increased by 2.5% in 2013 from 2012 levels – to 5,396 million metric tons (MMmt), up from 5,267 MMmt – due largely to colder weather, which led to an increase in energy intensity.

According to the statistical unit's *U.S. Energy-Related Carbon Dioxide Emissions, 2013*, emissions have increased more in only three years since 1990: 1996, 2000 and 2010. However, it reported, despite the year-to-year increase, emissions in 2013 were still 10% below their 2005 level.

Turning to price, EIA reported that average delivered coal prices declined from \$2.38 per million Btu (MMBtu) in 2012 to \$2.35 per MMBtu in 2013; meanwhile, the average delivered price of natural gas to electric generators rose from \$3.54 per MMBtu in 2012 to \$4.49 MMBtu in 2013. These price changes shifted some plant dispatch decisions, increasing the share of generation from coal-fired plants, the DOE unit noted. Specifically, EIA reported, coal-fired generation increased by 4.8% in 2013, while gas-fueled generation decreased by 10%.

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.