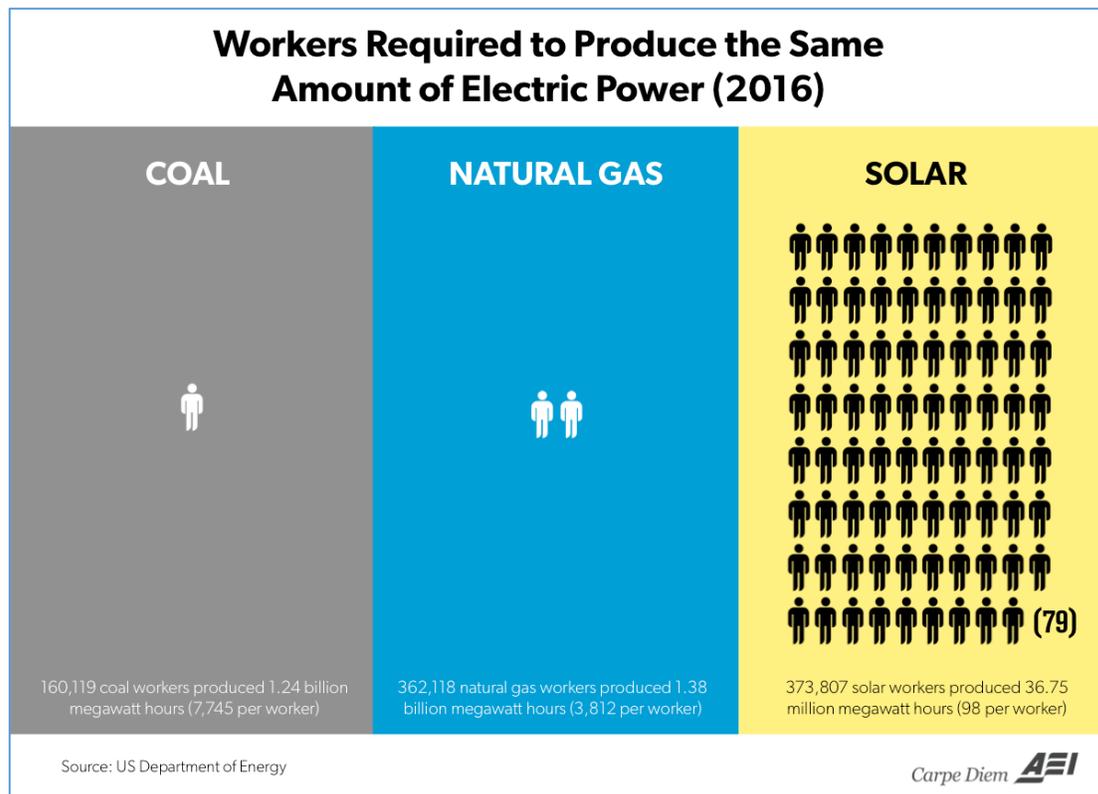


THE ENERGY-ECONOMICS-JOBS NEXUS

Earlier this year, the American Enterprise Institute (AEI) published an article entitled “Inconvenient energy fact: It takes 79 solar workers to produce same amount of electric power as one coal worker.” [American Enterprise Institute May 3, 2017](#)

The article, written in response to a New York Times article headlined “Today’s Energy Jobs Are in Solar, Not Coal,” was accompanied by an impressive infographic which highlights AEI’s point that solar energy requires a workforce 79 times greater per unit of energy produced than coal and nearly 40 times greater than natural gas. [New York Time April 25, 2017](#)



More importantly, AEI notes that the goal of America’s energy sector “... isn’t to create as many jobs as possible ... rather the economic goal is to produce as much electric power as possible at the lowest possible cost ... [with] the fewest number of energy workers!” I was reminded of this energy-economics link most recently after reviewing a report by the Fraser Institute released in October on “Rising Electricity Costs and Declining Employment in Ontario’s Manufacturing Sector.” <https://www.fraserinstitute.org/studies/rising-electricity-costs-and-declining-employment-in-ontarios-manufacturing-sector>

Article continues on page 5.

SECRETARY PERRY TESTIFIES BEFORE CONGRESS

On October 12th, **Energy Secretary Rick Perry** appeared before the **U.S. House Committee on Energy and Commerce's** Subcommittee on Energy, presenting his vision for managing and executing the Department of Energy's (DOE) mission.

<https://energycommerce.house.gov/news/press-release/doe-secretary-perry-testifies-subenergy/>

The Secretary identified the following as DOE's core missions:

- Promoting America's energy security
- Spurring innovation
- Reducing regulatory burden
- Restoring the nuclear security enterprise and enhancing national security through the military application of nuclear science
- Addressing the obligation of legacy management and nuclear waste



Secretary Perry noted that “America is at the beginning of an energy Renaissance” in which the U.S. objective is “to achieve not just energy independence, but energy dominance.” As evidence of that Renaissance, he noted that coal production has risen 14% in 2017 and coal exports are up 55% compared to 2016 levels year-over-year.

Focusing on energy security, the Secretary noted that that security

begins at home and depends on a reliable, resilient electric grid powered by a diverse mix of generation resources. He cited the value of traditional baseload generation with on-site fuel storage that can withstand fuel supply disruptions caused by natural and man-made disasters. The Secretary cautioned that “the resiliency of the electric grid is threatened by the retirements of these fuel-secure traditional baseload resources, including coal and nuclear.”

On the topic of innovation, Secretary Perry complimented the research and development efforts of DOE's various national labs. He noted his support for “better coordination, communication, and collaboration between the Labs, and DOE program offices” to continue to push the envelope in energy R&D.

The Secretary concluded noting that it is possible to protect our environment and prosper economically.

NCC LEADERSHIP

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Sr. VP Strategy & Public Policy
Arch Coal

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NCC Community News

NCC members are invited to submit news items regarding their companies and organizations to Janet Gellici at info@NCC1.org.

Glenn Kellow, Peabody Energy
Benjamin Sporton, World Coal Association
World Coal Association Editorial
[World Coal Association Blog](#)

Glenn Kellow, President & CEO of Peabody and Vice Chair of WCA authored an article for WCA on "Technology: The common ground solution toward low-carbon energy" in which he cited recommendations from NCC's Policy Parity report which he chaired in 2015.

Richard Bajura
West Virginia University

U.S.-China Clean Coal Industry Forum
November 30-December 1 – Morgantown, WV

<https://www.usea.org/event/us-china-clean-coal-industry-forum-2017>

Registration is now open for the U.S.-China Clean Coal Industry Forum organized jointly by the U.S. Department of Energy and The National Energy Administration of the People's Republic of China with support from USEA, NETL and West Virginia University.

The Forum is designed to convene U.S. and Chinese industry and government executives to address key issues in the clean coal sector while fostering cooperation and expanding business opportunities between the two countries.

NCC ASSOCIATES NEWS

Global Energy Institute/U.S. Chamber of Commerce
"Fuel for Thought" Blog Launched

<https://www.globalenergyinstitute.org/energy-blog>

The U.S. Chamber's Global Energy Institute has launched a new blog, "Fuel for Thought." The blog features deeper dives into energy policies and regulations from Congress and the Administration, and provides details on the Institute's latest reports, energy explainers and insights on the future of energy demand and production.



NCC POLL

For the past three years, the National Coal Council has been hosting its Annual Fall Meetings in various locations throughout the

U.S. – including Pittsburgh, Milwaukee and Birmingham. These "outside the DC beltway" locations provide an opportunity for NCC members to tour energy facilities, such as the National Energy Technology Lab, We Energies' Oak Creek Supercritical Coal Plant, and the National Carbon Capture Center.

QUESTION: Where would you like to see NCC host its 2018 Fall Annual Meeting? What energy facility would you like to tour?

Email us with your thoughts: info@NCC1.org

COAL RESOURCES & NEWS

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

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

War on the EPA – Frontline
 Episode - [PBS October 11, 2017](#)

U.S. becoming too dependent
 on natural gas for energy
[Las Cruces Sun-News](#)

Secretary Perry's Socially
 Responsible Investing
[Count on Coal](#)

Perry: 'There is no free market
 energy industry' - [The Hill](#)

Chatterjee sets pipelines, grid
 resilience as priorities for FERC
 chairmanship - [Utility Dive](#)

Scientists say cost of capturing
 CO2 declining
[Associated Press](#)

Wyoming looks to widen
 carbon capture research
[Associated Press](#)

Joe Manchin back Rick Perry's
 plan to subsidize coal, nuclear
[Washington Examiner](#)

Tax debate opens door for
 renewables to get same break
 as fossil fuels
[Washington Post Energy 202 Blog](#)

New Retirements Could Spur
 Record ERCOT Scarcity
 Conditions - [ICF Blog](#)

Don't Overlook Coal's Continued
 Importance - [Real Clear Energy](#)

National Coal Council
NationalCoalCouncil.org

NCC Member Focus

Len Marsico is a brand new member of the NCC, appointed by Secretary Perry in August 2017. He brings to the NCC years of experience and expertise in legal aspects of coal production, transportation and consumption. Welcome aboard, Len!

McGuireWoods partner Leonard Marsico is head of the firm's coal industry team and former chair of its Complex Commercial Litigation Department.

Leonard advises coal and other energy producers, coal transporters, utilities and service providers to the coal industry, as well as publicly traded manufacturers, financial institutions, communications providers and corporate holding companies, and large family and trust-owned entities. He represents clients in commercial litigation involving energy, transactional, securities, corporate control and general corporate matters, and has litigated actions and arbitrations on behalf of clients in more than 30 states and before several foreign arbitration tribunals.

Leonard is among a small cadre of lawyers nationally who regularly arbitrate high-stakes fuel price redetermination matters. His practice also includes cases involving the enforcement of long-term supply agreements, acquisition and divestiture agreements, the interpretation of insurance contracts providing coverage for business and industrial hazards, class action securities claims and general commercial litigation.

Leonard is a vice president of the American Coal Council, a role in which he advises the organization on testimony before congressional hearings and regulatory agencies and on litigation that could affect the industry. *The National Law Journal* named him to its 2016 list of Energy and Environmental Trailblazers, honoring lawyers who influence change in the energy industry through innovative legal strategies.

Leonard has served on the advisory board of the Little Sisters of the Poor for over 15 years and acts as a hearing officer for attorney discipline cases in Pennsylvania. He earned his Juris Doctor degree from the University of Pittsburgh School of Law and his Bachelor of Science degree from the University of Virginia.



LEONARD MARSICO
PARTNER
McGUIREWOODS

McGuireWoods provides legal services to the firm's large and growing group of coal industry clients around the globe. For decades, the firm has represented some of the largest coal consumers, producers and transporters in the U.S., as well as in Europe, Africa, Asia and South America.

The firm's lawyers are adept at addressing the unique issues faced by the coal industry — long-term supply contracting; transportation arrangements; contract compliance; force majeure declarations; price redeterminations; environmental compliance; labor relations; governmental regulation; surety and bonding; reclamation; royalties; permitting; reserve acquisition and sale; and merchant trading.

McGUIREWOODS

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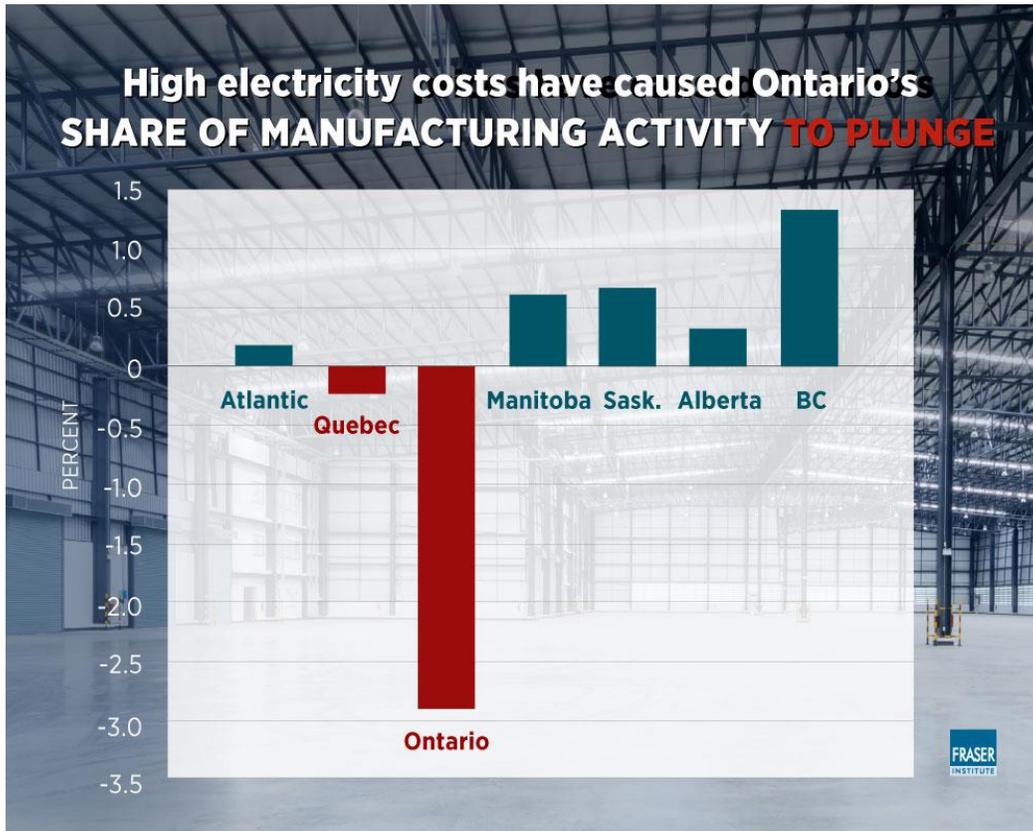
ENERGY-ECONOMICS-JOBS

(continued from page 1)

The Fraser Institute report notes that “Ontario used to be a jurisdiction with low electricity costs. This was a competitive advantage, helping to attract and keep business and foster economic growth. Recently, however, largely as a result of the Green Energy Act and its induced inefficiencies, Ontario electricity prices have soared, threatening industrial competitiveness, in particular that of the manufacturing sector for which electricity is a major input cost.”

The numbers reported are pretty staggering.

“Between 2005 and 2015, Ontario’s manufacturing output declined by 18% and employment by 28%. Notably, the paper manufacturing and iron and steel sectors, the two most electricity-intensive sectors in Ontario prior to the big price increases, shrank the most: the manufacturing sector by 32% and the iron and steel sector by 25%.”



The report authors estimate that about 64% of the lost manufacturing jobs between 2008 and 2015 can be attributed to rising electricity prices. Ross McKittrick and Elmira Aliakbari “... estimate that Ontario may have lost at least 1.8 permanent manufacturing jobs for every new job created under the green-energy initiative since 2008.” The authors conclude that “The problem of rising electricity costs is a problem made in Ontario, directly tied to the provincial government’s policy choices, which include aggressively promoting renewable sources, structuring long-term contracts poorly, and phasing out coal.”



NCC ACTIVITIES & NEWS

2018 Spring Annual Meeting Confirmed April 11-12, Washington, DC

Members of the National Coal Council will host their 2018 Annual Spring Meeting at the Marriott Dupont Circle in Washington, DC on April 11-12. Meeting registration and hotel reservation information will be emailed to NCC members and associates in December. We'll be announcing some interesting changes to our upcoming program, including a pre-meeting dinner event and a transition to an environmentally friendly paperless meeting.

If you are interested in working on the Spring Program Development Committee, please email Janet Gellici at jgellici@NCCI.org.



NCC Upcoming Speaking Engagements

NCC's CEO Janet Gellici will be speaking at the following upcoming events.

U.S.-China Clean Coal Industry Forum – Nov. 30-Dec. 1 – Morgantown, WV

<https://www.usea.org/event/us-china-clean-coal-industry-forum-2017>

CO₂-ROZ Conference – Carbon Management Workshop – Dec. 4-7 – Midland, TX

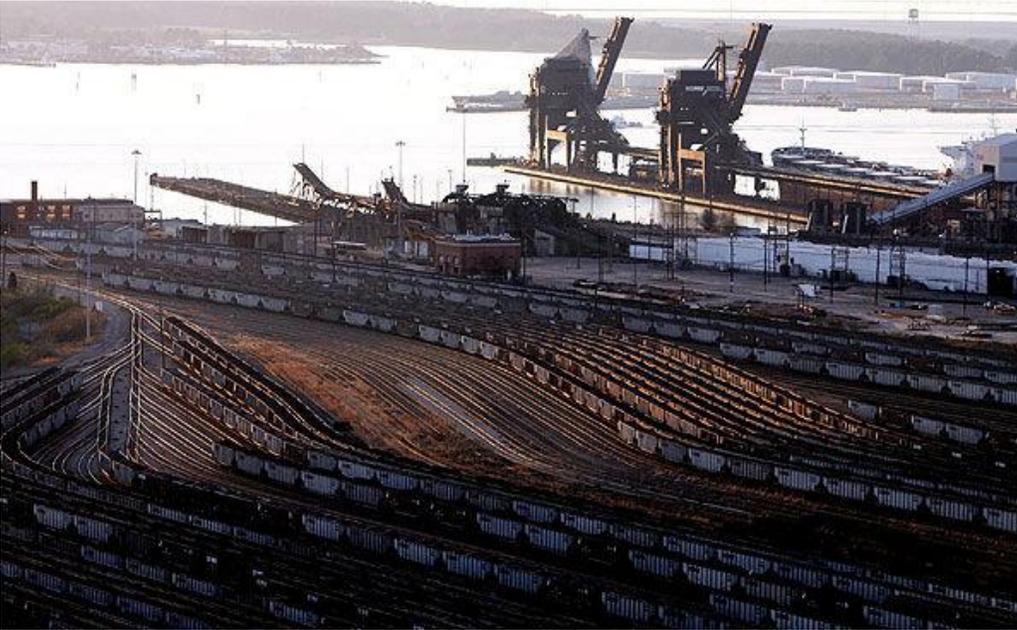
www.co2conference.net

**THANK YOU NCC CHAIR'S
LEADERSHIP COUNCIL MEMBERS**



COAL EXPORTS IN THE NEWS

In June 2017, President Trump participated in an event at the U.S. Department of Energy on Unleashing American Energy in which he outlined his Administration's energy dominance agenda. The initiative included efforts to expand export markets for U.S. energy, including coal. In his remarks at the event, the President said "We will export American energy all over the world, all around the globe. These energy exports will create countless jobs for our people, and provide true energy security to our friends, partners, and allies all across the globe."



As part of this effort, President Trump directed the U.S. Department of the Treasury to address barriers to the financing of highly efficient, overseas coal energy plants, noting that Ukraine had already indicated an interest in importing U.S. coal. In September, Ukraine did, in fact, receive its first shipment of coal from the U.S. [Daily Caller 9-13-17](#)

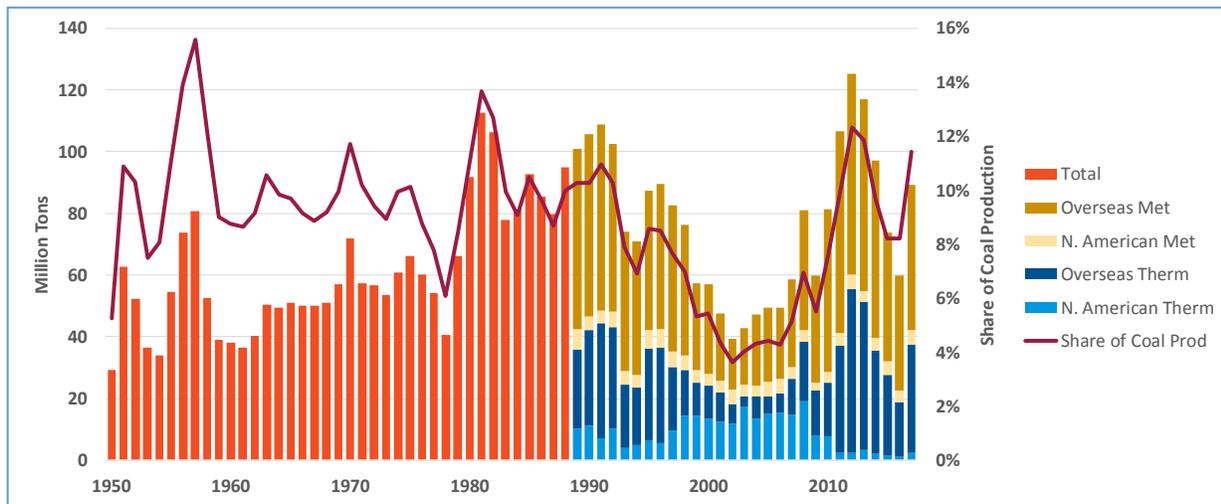
In advance of the release of its *World Energy Outlook 2017*, the International Energy Agency (IEA) reaffirmed that the demand for inexpensive electricity in Southeast Asia would continue to drive demand for coal for power generation through 2040. About 100 GW of new coal generation capacity is expected to come online in Southeast Asia by 2040, 40% of which will be built in Indonesia, which has traditionally been a coal exporter serving Southeast Asian markets. Vietnam is expected to become the region's largest importer of coal by 2040.

<http://www.iea.org/weo/> & [Power Magazine October 2017](#)

It's also been reported that Australia plans to abandon its clean energy target aimed at curbing greenhouse gas emissions in favor of coal power generation. A proposal announced in October would require Australian energy companies to deliver a certain level of dispatchable power from ready-to-use sources such as coal, gas, hydro or batteries. The Australian government also proposes to phase out subsidies for renewable energy from 2020. The policy shift is said to have been undertaken in response to a 63% increase in household power bills since 2007 and a severe 2016 blackout in green power-dependent South Australia. Australia is also a major coal exporter in the Southeast Asian marketplace. [Financial Times 10-17-17](#)

Continued strong demand in Asia and declining exports from key producers may provide opportunities for U.S. coal exporters. In his presentation at NCC's 2017 Annual Fall Meeting, Hans Daniels, CEO, Doyle Trading Consultants noted that exports have played an important role for the U.S. coal industry.

COAL EXPORTS (continued)



<http://www.nationalcoalcoal.org/NCC-Events/2017/NCC-Fall-2017-Hans-Daniels.pdf>

Daniels noted that based on geography and quality, Europe remains a natural consumer for U.S. coal. Exports to Asia are important for western thermal and met, but limited by port access. Efforts to develop U.S. West Coast port capacity for coal exports have been in the news lately as well. The Associated Press reported that Millennium Bulk Terminals sued the State of Washington claiming the State's Department of Ecology violated federal and state laws when it denied the project a water quality certification in September. [Seattle Times 10-25-17](#)

In January 2017, the State also denied Millennium an aquatic lands sublease. Last month, a Superior Court judge ruled that Washington's Department of Natural Resources improperly denied a tidelands sublease to operate docks at the facility along the Columbia River. The judge's ruling requires DNR to reconsider the lease. [Seattle Times 10-28-17](#)

The debate on the Millennium port project continues. The Alliance for Northwest Jobs & Exports notes that the review process for the facility was initiated February 22, 2012. The group's website includes information on West Coast port economic and job opportunities, environmental responsibility and community benefits. <http://createnwjobs.com/>



News Worthy from the Department of Energy

DOE Invests \$12 Million in Coal Combustion Projects

<https://www.energy.gov/fe/articles/energy-department-invests-12-million-coal-combustion-projects>



On October 20th, the Department of Energy (DOE) announced the selection of nine projects to receive approximately \$12 million in federal funding for cost-shared research and development projects. These projects aim to address critical technology gaps and develop transformational advanced combustion system technologies that will improve the efficiency and reliability of existing power plants. The projects were selected as part of the Advanced Combustion Systems Program focused on existing plant improvements and transformational technologies.

Congratulations to NCC members West Virginia University (Research Corporation) - \$1.33 million for R&D on High Temperature Electrochemical Sensors for In-Situ Corrosion Monitoring in Coal-Based Power Generation Boilers; the Electric Power Research Institute (EPRI) - \$1.18 million for Evaluation of Steam Cycle Upgrades to Improve the Competitiveness of U.S. Coal Power Plants; and the University of North Dakota - \$1.5 million for R&D on Low-Cost and Recyclable Oxygen Carrier and Novel Process for Chemical Looping Combustion.

Contract to Sample & Characterize REE

<https://www.energy.gov/fe/articles/doe-awards-university-north-dakota-contract-sample-and-characterize-coal-based-resources>

On October 26th, DOE's Office of Fossil Energy (FE) and National Energy Technology Lab (NETL) announced that the University of North Dakota had been awarded a 2-year, \$1.5 million contract to sample and characterize U.S. coal-based resources containing high concentrations of rare earth elements (REE). The University will also perform a round-robin inter-laboratory study on the analytical methods used to measure the concentration of REEs in U.S. coal. The contract will support FE's REE Program.

\$26 Million Funding Opportunity for Transformational Carbon Capture Technologies

<https://www.energy.gov/articles/department-energy-announces-26-million-funding-opportunity-transformational-carbon-capture>

On October 17th, DOE announced up to \$26 million in federally funded financial assistance for cost-shared R&D projects under the Office of Fossil Energy's (FE) Novel and Enabling Carbon Capture Transformational Technologies initiative. Selected projects will demonstrate the potential to provide step-change reductions in both cost and energy penalties associated with implementing carbon capture and enabling technologies for the coal and natural gas power generation sectors. Projects will be managed by NETL.

The funding opportunity focuses on two areas:

- Development of Novel Transformational Materials and Processes
For example, novel water-lean solvents, advanced membranes or hybrid materials.
- Enabling Technologies to Improve Carbon Capture Systems
For example, bench-scale research on issues associated with advanced carbon capture technologies.

DOE anticipates selecting up to 14 projects for funding.

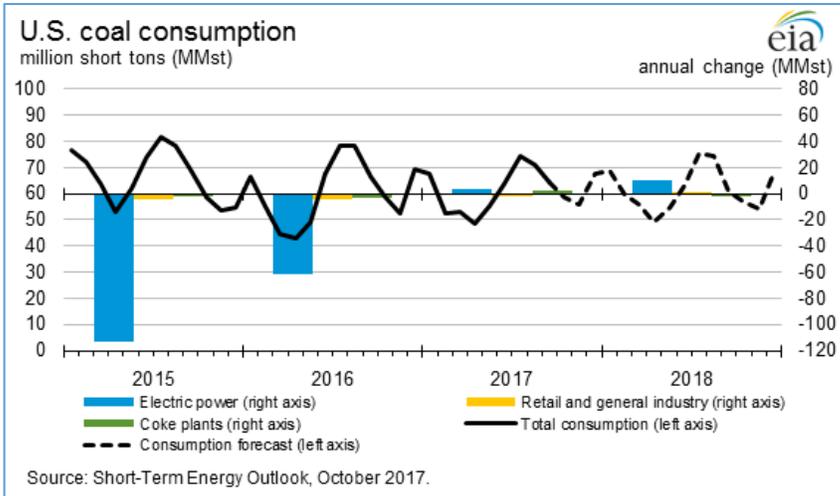
More News Worthy from the Department of Energy

EIA Releases Short Term Energy Outlook 2017

<https://www.eia.gov/outlooks/steo/>



On October 11th, the U.S. Energy Information Administration (EIA) released its Short Term Energy Outlook (STEO). EIA expects the share of U.S. total utility-scale electricity generation from natural gas to fall from 34% in 2016 to about 31% in 2017 as a result of higher natural gas prices and increased electricity generation from renewables and coal.



Coal's forecast generation share rises from 30% in 2016 to 31% in 2017 and is expected to stay at that level in 2018. U.S. coal production for the first nine months of 2017 was 591 million short tons (MMst), 62 MMst (12%) higher than the same period in 2016. Coal production is expected to increase by 8% in 2017 and by less than 1% in 2018.

Coal exports for the first seven months of 2017 totaled 51 MMst, 62% higher than in the same period 2016. EIA expects growth in coal exports to slow, with exports for all of 2017 forecast at 75 MMst, 15 MMst (24%) higher than 2016.



USGS Coal Research in the 21st Century

<https://www.usgs.gov/news/assessments-evolved-usgs-coal-research-21st-century>



In October, the U.S. Geological Service (USGS) published an article on the group's 100+ years' efforts assessing the nation's coal resources. The article provides an overview of how U.S. coal resources and reserves are determined and how the USGS works to define the location, extent, thickness and quality of our nation's coal reserves.

WHO KNEW?*



CMC

Carbon Capture &
Conversion Institute

<http://ccci.cmcghg.com/>

The Carbon Capture and Conversion Institute (CCCI) is a collaborative venture between CMC Research Institutes and BC Research Inc. This alliance creates a unique ecosystem of experts and equipment that is unparalleled in Canada. CCCI's mission is to accelerate the development, piloting, scale-up and validation of new carbon capture and conversion technologies.

CCCI offer clients access to a comprehensive set of facilities for pilot plant design, fabrication, testing and refinement. At the University of British Columbia (UBC) technology developers can work with faculty on early-stage, bench-scale technologies. The pilot plant facility, in the Technology Commercialization and Innovation Centre, has infrastructure and utilities which allow for long-term pilot plant trials.

Multiple Technologies Accommodated

CCCI can accommodate a broad range of technologies from solvent systems, membranes and sorbents on the capture side, to chemical, electrochemical and even biological systems in the conversion stream. The facility also has capabilities and expertise in pre-combustion capture and the decarbonization of fossil fuels.

In its quest to accelerate the development of capture and conversion technologies, CCCI brings together researchers, engineers and business development professionals from the Institute's three founding organizations to work with clients. If CCCI does not have the in-house expertise, it will reach out to its global network of experts.

BC Research Inc. Team

BC Research Inc. operates the Technology Commercialization and Innovation Centre where clients can develop novel capture and conversion process innovations from concept to commercialization. BC Research has over 25 years of experience in successfully implementing novel industrial processes to an international market. BC Research brings unique technical expertise to carbon capture and conversion solutions that expedite their readiness for industrial execution.

CMC Research Institutes

CMC is the mission-driven operator of the CCCI and draws on a global network of experts to foster collaboration and build consortia to deliver solutions. CMC is a not-for-profit focused on eliminating industrial carbon emissions through the development of a series of R&D institutes focused on tackling carbon management challenges. As well as the CCCI, CMC is operating the Containment and Monitoring Institute to refine, test and deliver measurement and monitoring solutions to carbon capture and storage operations.

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