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National Coal Council Approves Report for U.S. Secretary of Energy COAL POWER Smart Policies in Support of Cleaner, Stronger Energy

WASHINGTON, D.C. – Members of the National Coal Council (NCC) have approved a new report which details a significant number of Federal and state policies and initiatives that could support the deployment of advanced technologies for coal power generation. The report, completed at the request of the U.S. Secretary of Energy, emphasizes the urgency of accelerating deployment of technologies that enhance efficiency and lower CO₂ emissions to help states and utilities meet mid-century carbon reduction goals.

The report – "COAL POWER: Smart Policies in Support of Cleaner, Stronger Energy" – notes that existing energy policies are insufficient to incentivize deployment of advanced coal generation technologies at scale and in a timely manner. There is an urgent need to undertake initiatives that:

- Lower the cost of carbon capture, utilization and storage (CCUS) and high efficiency-low emissions (HELE) coal generation technologies through learning by doing at large-scale demonstration and commercial projects.
- Eliminate deployment bottlenecks created by lack of carbon dioxide (CO₂) pipelines and storage sites.
- Foster commercialization of next generation, near-zero emissions coal power plants that can compete on cost and environmental performance with other low-carbon energy resources.

The report was co-chaired by Kipp Coddington with the University of Wyoming's School of Energy Resources and John Harju with the University of North Dakota's Energy & Environmental Research Center (EERC). Coddington noted that "The nation's coal fleet plays an essential and indispensable role in providing reliable and resilient electric power. This report clearly defines the need for advanced coal generation technologies to help the U.S. achieve its energy, economic and environmental objectives." National Coal Council Page 2

"A growing number of states and utilities have established low-carbon or carbon reduction requirements to be met by mid-century or sooner," said Harju. "Meeting these goals with affordable, reliable energy will require deployment of low-carbon or decarbonized power systems."

To meet these mid-century goals, three critical objectives will need to be met over the next 20 years.

- By 2030, retrofit a critical mass of existing coal power plants with carbon capture and efficiency enhancing technologies, more fully demonstrating the viability and maturity of these technologies and their availability through competitive bid from multiple vendors.
- By 2035, establish a growing network of CO₂ storage sites and pipelines approximately five times larger than what exists today.
- By 2040, a variety of new coal plant technologies will need to be commercially available, cost competitive and have a near-zero emissions profile.

These objectives are achievable if the U.S. is willing to pursue an aggressive agenda that acknowledges the urgency of the need and the economic-environmental implications of not meeting these goals, both in the U.S. and globally. The report identifies initiatives that are most urgently needed to achieve these milestones:

Retrofit Existing Coal Fleet with Advanced Technology by 2030:

- Enhance Utilization of 45Q Tax Credits: 1) extend the "under construction" deadline to at least 2030; 2) extend the credit period from 12 years to 20 years; 3) expedite Class VI permits issued by EPA to states; 4) extend 48A tax credits to existing power plants; 5) pass Master Limited Partnership (MLP) and Private Activity Bond (PAB) legislation to complement 45Q; and 6) secure 100% relief from Base Erosion and Anti-Abuse Tax (BEAT) for CCUS technology through the duration of the 45Q tax credit.
- Government must take an active role in risk-sharing with and incentivizing private sector investors to support the deployment of advanced generation technologies.

Deploy Infrastructure Supporting Advanced Technology by 2035:

- Include CCUS infrastructure storage sites and pipelines in post-pandemic economic revitalization initiatives.
- Support research, development and characterization of geologic storage at the level of \$400 million per year for 10 years as recommended by the National Petroleum Council (NPC).
- Support passage of the USE IT Act (Utilizing Significant Emissions with Innovative Technology Act) to streamline permitting of storage projects and pipelines and the INVEST CO₂ Act (Investing in Energy Systems for the Transport of CO₂), providing low-interest Federal loans to finance extra CO₂ pipeline capacity.

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Deploy Commercially Available, Cost Competitive, Near-zero Emissions Advanced Technology by 2040:

- Enhance Federal funding support for Front End Engineering Design (FEED) studies to reduce technology performance and cost risks.
- Make Federal funding available for demonstration and commercial-scale projects and make it available at enhanced levels (\$300 million per year over 10 years as recommended in the 2018 CURC-EPRI Roadmap).

The recent pandemic has prompted a re-assessment of the reliability and resilience of critical sectors of our nation's economy, including U.S. energy systems. The COVID experience has reinforced the value of diversity of supply chains in these critical sectors and the need to shore up our domestic-based resources.

"The U.S. must maintain a readiness, both in technology and human resources, to utilize the most abundant resources within the nation's control to supply critical energy needs," noted Danny Gray, NCC Chair. "A strong coal future will power not only our electric generation needs, but a renaissance in U.S. advanced manufacturing industries that depend on reliable, affordable energy."

Other nations have made strides in deploying cost-effective low-carbon technologies. To-date, however, there has been very limited deployment of these technologies in the U.S. Considerable technology exists and more is under development that can be retrofitted to the existing fleet of coal power plants to improve efficiency and comply with future environmental regulations. Transformational power generation technologies are also under development that will have high efficiency, low emissions and the ability to ramp up and down quickly to meet evolving electric grid demands.

"The U.S. has the opportunity and the capability to lead in developing technology required to enable use of coal with improved efficiency and lower emissions," noted NCC CEO Janet Gellici. "Investment in CCUS and advanced coal generation technology must increase to keep the U.S. relevant in the race for technology deployment, for the benefit of the U.S. and the world."

The final, NCC-member approved COAL POWER report will be uploaded to: <u>https://www.nationalcoalcouncil.org/studies/2020/COAL-POWER-Cleaner-Stronger-Energy.pdf</u>

The NCC was chartered in 1984 under the Federal Advisory Committee Act (FACA) to advise, inform and make recommendations to the U.S. Secretary of Energy on matters related to coal policy, technology and markets. Council members are appointed by the U.S. Secretary of Energy and serve in a voluntary capacity. A list of Council members and a collection of the more than 40 reports prepared at the request of the U.S. Secretary of Energy since the Council's inception are available on the NCC, Inc. website – www.NationalCoalCouncil.org.

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Summary Matrix of Technologies-Policies

Technology	ccus	HELE	USC/AUSC	Allam Cycle	Oxy-Combustion	Other Transformational	Small Modular	Energy Infrastructure	Other	Coal Conversion & Utilization	Exports Coal & Coal Technology
Policy											
Initiatives to Advance R&D											
Coal FIRST	х	х	х	х	х	х	х				х
EFFECT Act	х	х	х	х	х	х	х			х	х
Fossil Energy R&D	х		х	х	х	х	х				
Technology Transitions Act	х	х	х	х	х	х	х				
Initiatives to Minimize Cost & Risk											
45Q	х										
Master Limited Partnerships	х								х		<u> </u>
Private Activity Bonds	х										1
BEAT Tax Relief	х										
48A	х	х	х								
Technology Neutral Tax											
Credit	х	х	х	х	х	x	х				l
USDA RUS Leg.	х									х	
Contracts for Differences	х	х	х	х	х	х					
LPO Reforms	х	х	х	х	х	х					
Development Finance Corp	х	х	х	х	х	х	х	х	х		х
Initiatives to Bolster Emissions Abatement											
Clean Energy Standard	х	х	х	х	х	х	х				
Affordable Clean Energy	х				х						
Initiatives to Address Regulatory Risk & Burden											
USE IT Act	х							х			
NSR/Gain Act	х	х									
Coal Combustion Residuals								х	х	х	х
Effluent Limitation											
Guidelines									х		
Initiatives to Reform Energy Markets											
PURPA	х	х	х	х	х	х					
Capacity Market Reforms	х	х	х	х	х	х					
Initiatives in Support of Energy Infrastructure											
LIFT America Act								х			
INVEST CO ₂ Act								х			
FAST Act								х			