Halt of Kemper Coal Gasification Project Deals Blow to Carbon Capture and Storage

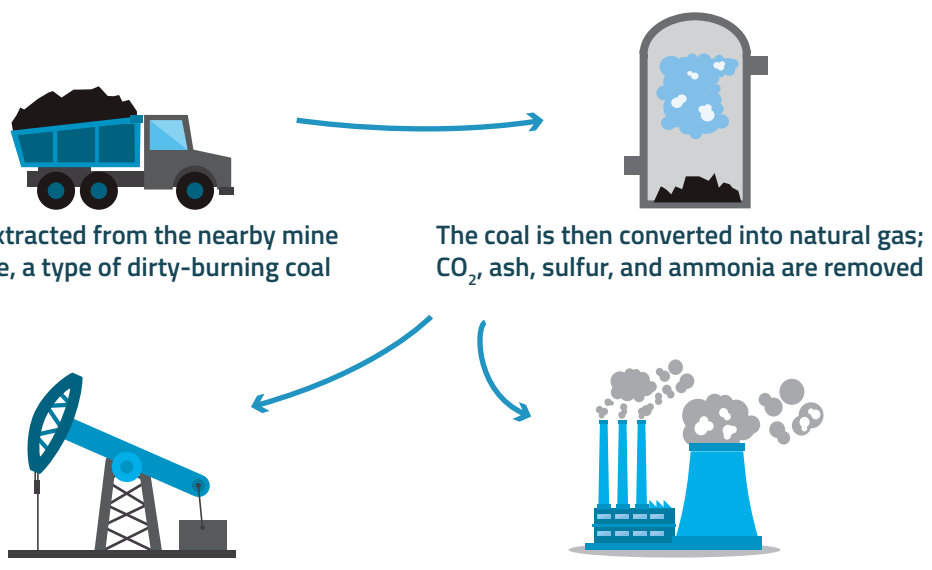
CCS Unlikely to Succeed amid Low Natural Gas Prices and Lax Emission Regulations

July 11, 2017

JULY 6 MS PSC ORDER

On July 6, 2017, the Mississippi Public Service Commission (MS PSC) issued an order (**Docket No. 2017-AD-112**) initiating a settlement process **requiring the Kemper coal plant – hailed as the first large-scale clean coal facility – to run only on natural gas**. Years of **construction delays and substantial cost overruns** led to this decision, which ended the seven-year, 7.5 billion project to prove carbon capture and storage (CCS) as a viable technology for next-generation coal-fired power plants.

1 Kemper Project at a Glance



The MS PSC order seeks to modify the certificate issued in Docket No. 2009-UA-014 in order to allow the Kemper plant to be run only on natural gas. It also notes that the settlement should seek to eliminate the risk of ratepayers bearing any of the costs associated with the gasification portion. If an appropriate settlement is not reached, the MS PSC has warned about a show cause order that could potentially revoke the Kemper certificate. Mississippi Power Company has 45 days to comply with the order, followed by a 45-day comment period and then a final vote by the MS PSC.

>$4 bn in cost overruns

3 years behind schedule

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2 Struggles of clean coal projects

The failure is a major setback for CCS, particularly at a time when the technology gained prominence as a potential way to save the coal industry under the Trump administration. However, the project is not the first failure of CCS and mirrors several high-profile projects supported by the DOE that met a similar fate.

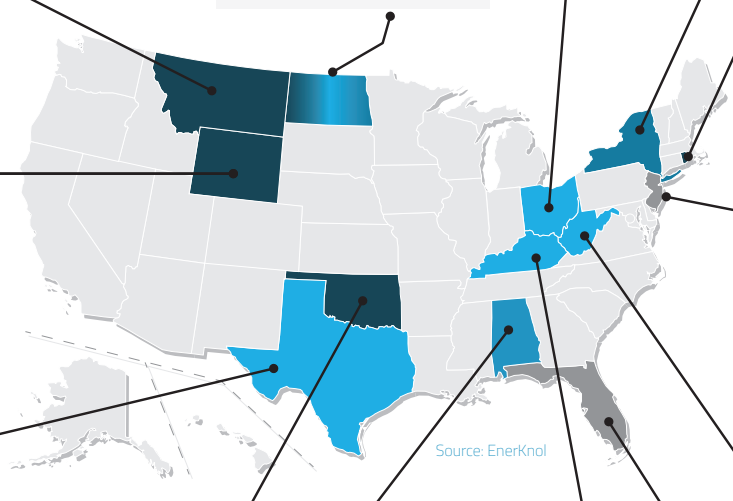
Source: DOE

- FutureGen (IL) – Oxy-combustion generators – Awarded $1 billion – Suspended
- Mountaineer (OH) – Chilled ammonia process – Awarded $334 million – Withdrawn
- Southern Company (AL) – Retrofit of existing plant – Awarded $295 million – Withdrawn
- Basin Electric (ND) – Ammonia-based retrofit – Awarded $100 million – Withdrawn
- Hydrogen Energy (CA) – Advanced IGCC with carbon capture – Awarded $408 billion – Suspended
- Texas Clean Energy – Siemens CCS technology – Awarded $450 million – Funding suspended
- Petra Nova (TX) – Post-combustion capture – Awarded $167 million – On time and budget

3 Bills on carbon capture and storage'

CCS enjoys continued support from the state and federal governments given its application in steel, chemical, and other industrial sectors. States with oil, gas, or coal industries that depend on tax credits to offset the costly carbon capture processes are pushing to extend the federal tax credits for CCS. Select legislation on CCS in 2016 and 2017 includes:

Incentive programs | Resolutions calling for federal tax credits | Others
Permits, equipment, rights and liabilities | Resolutions calling for general support for CCS



MT – SB 132 Enacted 5/30/2017
Would repeal the termination date for the exemption for certain air and water pollution control and carbon capture equipment and for the reduction in value for carbon transportation and sequestration equipment

ND – SCR 4008 Introduced 3/17/2017
Would urge the federal government to refrain from enacting regulations that threaten the reliability and affordability of electric power in North Dakota and to increase its support for research, development, and deployment of advanced carbon-based electricity generation; recognizing advancements in CCS can unlock enormous potential for the state's energy industries and economy, among others

ND – HCR 3037 Introduced 4/26/2017
Would request the Congress and the President to enact legislation to expand and extend the current federal tax credit for CCS; to provide appropriations to the Department of Energy to achieve and sustain a robust CCS research program, among others

ND – SB 2133 Enacted 3/1/5/2017
Establishes a carbon dioxide capture credit and reporting requirements, details reductions in coal conversion tax that a coal conversion facility may receive

OH – HR 115 Introduced 5/16/2017
Would urge the Congress to enact, and the President to sign, legislation to extend and expand the current federal tax credit for CCS, and to urge the Congress to support other policies relating to energy generation and protecting the environment

NY – S 3837 Introduced 1/6/2016
Would offer special incentives and assistance that promote the development of green businesses (including carbon capture and storage mechanisms) within designated green economic development zones on Staten Island

RI – HB 6011 Introduced 4/7/2017
Would establish a system to regulate the intentional manipulation of the global environment geoengineering which includes land- and ocean-based carbon sequestration

WY – SF 28 Enacted 3/7/2016
Specifies criteria for the conversion of an enhanced oil and gas recovery carbon dioxide injection permit to a geologic sequestration permit

WY – HB 249 Introduced 2/3/2017
Would amend provisions related to the rights and liabilities associated with the injection of carbon dioxide for geologic sequestration and provisions related to the purpose of unitizing geologic sequestration sites

NJ – S 684 Introduced 5/2/2016
Would establish Clean Energy Technology Center and Alternative and Clean Energy Investment Trust Fund for the purpose of creating clean energy-related employment opportunities; would include CCS under clean energy research

WV – HR 14/HCR 88 Introduced 3/14/2017
Would urge Congress to pass, and the President to sign into law, legislation to extend and expand the current federal tax credit for carbon capture, utilization and storage

TX – HR 1833/SR 712 Introduced 5/24/2017
Would urge Congress to enact legislation to expand and extend the current federal tax credit for carbon capture, utilization, and storage under Section 45Q of the Internal Revenue Code

OK – HB 3158 Enacted 4/18/2016
Gives the Corporation Commission exclusive jurisdiction over Class II injection wells under the federal Underground Injection Control Program

OK – HB 2651 Passed both chambers 5/19/2016
Would create the Oil and Gas Waste Recycling Program allowing the OK CC to modify, vacate, amend or terminate underground injection well orders or permits in certain circumstances

OK – HB 1485 Enacted 5/22/2017
Vests the Oklahoma Corporation Commission with authority over verification and certification of CCS pursuant to the Oklahoma Carbon Sequestration Enhancement Act, among others

AL – HJR 97 Introduced 3/7/2017
Would urge policymakers to recognize the critical role that CCS will play in the nation's and the world's attempts to reduce carbon emissions; to work expeditiously on developing long-term policies that ensure a positive business case for CCS and policy measures to significantly increase CCS research and development

KY – HR 176/SR 182 Passed one chamber 3/30/2017
Would urge the Congress and the President to extend tax incentives supporting carbon capture research and deployment

FL – HB 687/SB 1328 Introduced 3/11/2017
Would include in the definition of renewable energy electrical energy produced using pipeline-quality synthetic gas produced from waste petroleum coke with CCS, among others

At the federal level, the Carbon Capture Improvement Act of 2017 (H.R. 2011/ S. 843), introduced in April, seeks to help power plants and industrial facilities finance CCS equipment through private activity bonds issued by local or state governments. Bills introduced in 2016 sought to facilitate wider application of CCS technologies, not just for coal, but also for gas, ethanol, steel plants, and other polluting sources. These include Carbon Capture Utilization and Storage Act (S. 3179), Advancing CCUS Technology Act (H.R. 4704), and Carbon Capture Act (H.R. 4622).

BOTTOM LINE

Market Realities
Although a complete coal revival is unlikely, CCS was envisioned as a way to extend the life of existing facilities. However, cheap natural gas has pushed down wholesale electricity prices, and the Kemper plant's switch is part of the wider trend where more expensive technologies, including coal and nuclear, are struggling to compete.

Policy Certainty and Support
Moving forward, CCS could benefit from the extension of the current CCS credit under section 45Q of the Internal Revenue Code of 1986 but even then, deployment of the technology will likely remain limited unless carbon pricing or other rigorous policies for reducing carbon emissions from power plants are introduced at the state or federal level.

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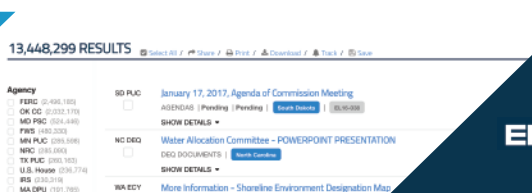

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