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Coal Liquids: A Costly Gamble

Discovered by German scientists during World War II, the Fischer-Tropsch process – referred to by the Department of Energy as Coal-to-Liquid – uses intense heat and pressure and large amounts of water to turn coal into a carbon monoxide and hydrogen gas mixture, then transforms the gas into liquid hydrocarbons such as diesel or jet fuel.[1] Some lawmakers want to gamble billions of taxpayer dollars on this liquid coal process that is complex, costly, and dirty. In an attempt to add on to the billions of dollars they have already received from the government, the coal industry is making a new pitch on this old technology. Here's why it's a bad investment:

Staggering Price Tag

- Replacing just 10 percent of America's oil consumption with coal-derived fuels would cost **$70 billion** in construction costs.[2] And these estimates don't include the high costs of the additional mining that would be required to provide the necessary coal.[3]
- According to liquid coal proponents, a plant can cost as much as $6.5 billion with a lead time of up to seven years for construction.[4] For comparison, a similarly-sized crude oil refinery (producing 80,000 barrels per day) costs only $1.2 billion.[5] Plants can have operating costs of up to $350 million a year for a facility producing 100,000 barrels per day.[6]
- Carbon capture and sequestration (CCS), which liquid coal plants need to contain the large amounts of carbon they emit, is an unproven and costly technology. For a large liquid coal plant, CCS could mean an additional $240 million in capital costs, and $123 million more in operation costs per year.[7] Moreover, a recent GAO report revealed that general commercial CCS deployment is and will continue to be barred by technological barriers including "a lack of experience in capturing significant amounts of CO_2 from commercial-scale power plants" and "the significant cost of retrofitting existing plants." The GAO also cited regulatory and liability uncertainties surrounding CO_2 leakage, which could lead to forest destruction, poisoned water supplies, and other costly cleanups.[8]

A Risky Investment

- Many companies haven't entered the industry because of the significant role oil prices play in the industry's success: if oil prices fall below $55 to $65 a barrel, coal-derived synthetic fuels become uncompetitive.[9] The extreme volatility of petroleum prices over the past few years clearly demonstrates the financial risks associated with the development of liquid coal facilities. Volatile oil prices could ruin the industry, turning liquid coal plants into financial black holes and leaving taxpayers footing the bill. In

fact, the Standard & Poor's reports that without constant, long-term taxpayer support, liquid coal projects *"are likely to be untenable."*[10]

- According to a recent RAND study: "If investors would be confident that average long-term crude prices would remain consistently above $100 per barrel, no government policy would be required to support the emergence of a successful commercial CTL industry. But with the possibility that oil prices could fall significantly in the near to medium term, the financial risk surrounding initial CTL investments is appreciable."[11] The report points to the capital costs, operating costs and the technology and cost associated with carbon sequestration as significant sources of uncertainty and risk. Taxpayers should not be forced to invest in projects not deemed investment-grade by the private market, especially during a period of such high market and regulatory uncertainty.

Subsidies for Liquid Coal in a Carbon Constrained Economy

- **Liquid coal undermines carbon reduction goals.** To reduce the volume of domestic greenhouse gas emissions, Congress is expected to put a price on carbon. However, production of liquid coal does not support a low-carbon objective; liquid coal does not reduce greenhouse gas emissions. Even with unproven carbon capture technology, the production of liquid coal *increases* the lifetime volume of carbon dioxide emissions compared to petroleum fuel.[12] And without carbon capture technology, coal liquids emit twice the volume of greenhouse gasses as petroleum.[13] Taxpayers should not be asked to subsidize this carbon intensive technology.
- **Regulating carbon will make CTL even more expensive.** With carbon limitations, coal will only become more expensive, further increasing the price tag for CTL technology. According to a report by the Stanford Group, "any large investment in CTL would need significant subsidies to offset environmental costs."[14]

Past Failures

During the 1980's the U.S. government authorized spending up to $15 billion in a failed attempt to jumpstart the synthetic fuels industry.[15] In one instance, the government spent more than $1.5 billion on a plant in Beulah, North Dakota, but volatile oil prices drove the industry into near-bankruptcy, leaving taxpayers with a $330 million loss.[16] With the expectation that oil prices would be at $100 per barrel, a quasi-independent government corporation, the "Synthetic Fuels Corporation" (SFC), was set up to finance six synthetic fuels projects. When oil prices fell to $20 per barrel, the government was forced to shut down the SFC.[17]

"It seems almost certain that a lot of governmental support will be required to commercialize CTL projects in the U.S."

-Standard & Poor's

Liquid Coal Subsidies

The Department of Energy loan guarantee program currently allows federally backed loan guarantees to be provided to liquid coal projects. The proposed Clean Energy Deployment Administration would also allow for the financing of synthetic fuels, including liquid coal projects. These giveaways to the well-established coal industry must stop. If liquid coal technologies can succeed, then private investors should support them.

Furthermore, several existing tax breaks benefit liquid coal including the Alternative Fuels Tax Credit and the Alternative Fuel Mixture Credit. For these credits, the definition of alternative fuel includes liquid coal. The former provides a 50 cent/gallon tax break for CTL fuel, the latter for CTL when blended with another fuel. These tax breaks expire in December 2009 and should not be extended.

The federal government cannot afford to pour billions of taxpayer dollars into the same old costly gamble. Subsidizing the coal industry to create liquid fuel didn't work in the past, and it won't work now. Lawmakers should take action to repeal existing subsidies for liquid coal and ensure future policies do not call on taxpayers to subsidize this risky technology.

For more information, please visit www.taxpayer.net or contact Autumn Hanna at (202) 546-8500

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[1] The Fischer-Tropsch process also can convert natural gas and biomass into hydrocarbon fuels.
B. Siuru, "5 Things You Need to Know about the Fischer-Tropsch Process," 3 July 2008, http://www.greencar.com/articles/5-things-need-fischer-tropsch-process.php

[2] Massachusetts Institute of Technology, "The Future of Coal," 14 March 2007,
http://web.mit.edu/coal/The_Future_of_Coal_Summary_Report.pdf

[3] The Washington Post, "Coal-to-Liquid Boondoggle: A Risky Solution to America's Energy Woes," 18 June 2007,
http://www.washingtonpost.com/wp-dyn/content/article/2007/06/17/AR2007061700945.html

[4] Coal to Liquid Coalition, "FAQ," http://www.futurecoalfuels.org/faq.asp

[5] See Footnote 2.

[6] NETL, "Economic Impacts of U.S. Liquid Fuel Mitigation Options," July 8, 2006, DOE/NETL-2006-1237,
http://www.netl.doe.gov/energy-analyses/pubs/Economic%20Impacts%20of%20U.S.%20Liquid%20Fuel%20Mitigation%20Options.pdf

[7] See Footnote 2. Calculations for a 80,000 bpd plant based on report by MIT: "The Future of Coal" pg 156. Table A-3.F.1 and Table A-3.F.2

[8] The Staff of the Government Accountability Office, "Climate Change: Federal Actions Will Greatly Affect the Viability of Carbon Capture and Storage As a Key Mitigation Option," 30 September 2008, http://www.gao.gov/products/GAO-08-1080

[9] Standard & Poor, "Turning Coal Into Liquid Gold: Alchemy? No, Polygeneration," 11 May 2007,
http://www2.standardandpoors.com/spf/pdf/events/CoalLiqGold.pdf

[10] Ibid.

[11] RAND Corporation, "Producing Liquid Fuels from Coal: Prospects and Policy Issues." 2008, pg xxii

[12] U.S. Environmental Protection Agency, "Greenhouse Gas Impacts of Expanded Renewable and Alternative Fuels Use." EPA 420-F-07-035, April 2007. http://www.epa.gov/oms/renewablefuels/420f07035.htm

[13] E. Andrews, "Lawmakers Push for Big Subsidies for Coal Process," The New York Times, 29 May 2007,
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[14] M. Clayton, "Coal in Cars: Great Fuel or Climate Foe?" The Christian Science Monitor, 2 March 2007,
http://www.csmonitor.com/2007/0302/p02s01-ussc.htm

[15] G. Wierzynski, "Shattered Hopes for Synfuels," Time Magazine, 18 April 2005,
http://www.time.com/time/magazine/article/0,9171,1050485-2,00.html

[16] Great Plains Synfuels Plant, "Recapture of Original Loan Guarantees," http://www.dakotagas.com/

[17] See Footnote 2.