

# CLIMATE FACTS



## Why Liquid Coal Is Not a Viable Option to Move America Beyond Oil

The coal industry is touting a plan to transform millions of tons of coal into diesel and other liquid fuels—an expensive, polluting process that also releases large quantities of heat-trapping carbon pollution into the air. The considerable economic, social, and environmental drawbacks of coal-derived liquid fuel preclude it from being a sound option to move America beyond oil and mitigate the effects of climate change. Relying on liquid coal as an alternative fuel could nearly double carbon pollution per gallon of transportation fuels, and increase the devastating effects of coal mining felt by communities and ecosystems stretching from Appalachia to the Rocky Mountains. To move America beyond oil, we need to start with measures that will produce the quickest and cleanest reductions in oil use and dangerous global warming pollution—measures that will also put us on track to achieve the reductions in carbon pollution we need to protect our climate. NRDC urges the adoption of better, cleaner options that exist to reduce America’s dependence on oil: vehicle efficiency, infrastructure improvement, and sustainably produced renewable fuels.

### HAZARDS OF COAL MINING WOULD INCREASE WITH LIQUID COAL

Producing one barrel of liquid coal requires roughly one half ton of coal.<sup>1</sup> Thus, any large-scale deployment of liquid coal plants would significantly increase coal mining and its devastating effects. Coal mining creates hazardous and acidic waste, which can contaminate groundwater. Strip mining, a technique in which land and vegetation are stripped away by giant machines, not only damages surfaces and permanently reshapes landscapes, but it also can destroy

habitats and affect water tables. The destructive practice of mountaintop removal to extract coal involves clear-cutting native hardwood forests, using dynamite to blast away 800 to 1,000 feet of mountaintop, and then dumping the debris into nearby valleys. Post-mining reclamation is problematic at best. If liquid coal became widespread using today’s practices it would increase harm to the environment and adversely affect the communities that live and work near coal mines. Liquid coal would greatly expand the coal industry, which would hasten the decimation of our nation’s rich outdoor heritage that is already underway.

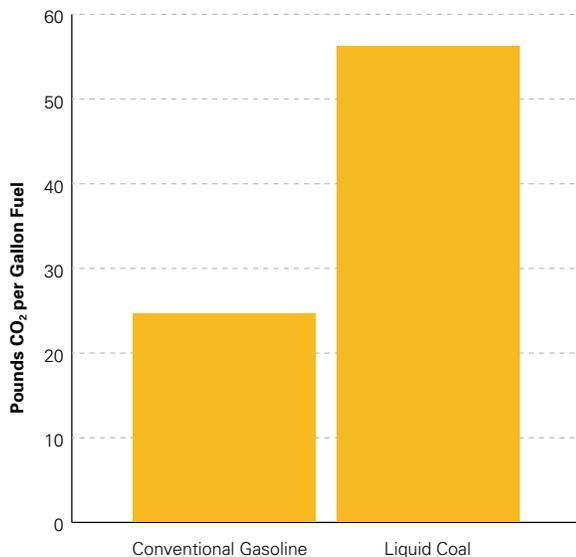


For more  
information,  
please  
contact:

**Brian Siu**  
Bsiu@nrdc.org  
(202) 289-2417  
 [switchboard.nrdc.org/  
blogs/bsiu](http://switchboard.nrdc.org/blogs/bsiu)

[www.nrdc.org/policy](http://www.nrdc.org/policy)  
[www.facebook.com/nrdc.org](https://www.facebook.com/nrdc.org)  
[www.twitter.com/nrdc](https://www.twitter.com/nrdc)

## Total CO<sub>2</sub> Emission Rates



## GLOBAL WARMING CO<sub>2</sub> EMISSIONS COULD NEARLY DOUBLE WITH LIQUID COAL

Experts say we need to cut carbon pollution by 80 percent by mid-century to minimize irreversible and harmful effects of global warming. The United States and other nations should use energy resources that produce less carbon dioxide pollution than those produced by oil, gas, and coal. The technologies we invest in now to meet our future energy needs must have the potential to perform at much reduced emission levels. So how do liquid coal processes perform?

To assess the climate change implications of a large liquid coal program, we need to examine the total life cycle, or “well-to-wheels,” emissions of these new fuels. When coal is converted to transportation fuel, two streams of carbon dioxide (CO<sub>2</sub>) are produced: one at liquid coal production plants and one from exhaust pipes of the vehicles that burn the fuel. Emissions from liquid coal production plants are much higher than those from producing and refining crude oil into gasoline, diesel, and other transportation fuels; emissions from vehicle exhaust pipes are about the same.

The total well-to-wheels emission rate for conventional petroleum-derived fuel is about 25 pounds of CO<sub>2</sub> per gallon of fuel. If the CO<sub>2</sub> from the liquid coal plant is released into the atmosphere, the total well-to-wheels CO<sub>2</sub> emissions from coal-derived fuel would be over 50 pounds of CO<sub>2</sub> per gallon—twice as high. Introducing a new fuel system that doubles the current CO<sub>2</sub> emissions of our crude oil system is clearly at odds with our need to reduce carbon pollution.

## EVEN IF THE CO<sub>2</sub> IS CAPTURED, LIQUID COAL COULD STILL POLLUTE MORE THAN OUR CURRENT SYSTEM

If the vast majority of the CO<sub>2</sub> from liquid coal plants is captured instead of released into the atmosphere, then well-to-wheels emissions would be reduced some, but certainly not eliminated. Theoretically, capturing a very high percentage of the emissions from liquid coal plants together with high plant efficiencies could bring emissions from coal-derived liquid fuels to levels comparable with conventional petroleum. However, even with carbon capture and sequestration (CCS), emissions may be higher. The bottom line is that putting billions of public dollars at risk for a fundamentally flawed technology that at best gets us back to parity with conventional petroleum, and at worst, more than doubles emissions, is fiscally unsound and takes us backwards environmentally. We can always devise more expensive, less efficient ways of producing oil and gas, or turning the dirty lumps of coal into dirty barrels of coal. Or we can create a new era of jobs and prosperity and a new manufacturing base, by building the most competitive cars, fuels, and trains in the world. America has always been made up of leaders. It's time we lead again.

## EFFICIENCY AND RENEWABLE FUELS—THE RIGHT WAY TO MOVE AMERICA BEYOND OIL

This country can have a robust, effective program to reduce oil dependence without liquid coal technologies. By investing in a combination of efficiency, sustainable renewable fuels, and alternatives to driving such as public transportation, we can reduce our oil consumption more quickly, more cleanly, and in larger amounts than we could with coal-derived liquids. In fact, NRDC analysis finds that a combination of cleaner vehicles, fuels, and transportation options could save over 5.5 million barrels of oil per day by 2030 compared to relying on existing policies alone. With thoughtful action, America can pursue an energy path that enhances our security, our economy, and our environment.

<sup>1</sup> James Bartis, et al. *Producing Liquid Fuels from Coal*. RAND Corporation. 2008.