

# COAL-TO-LIQUIDS



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## Clean Renewable Biofuels are a Better Choice for Energy Security

Clean, renewable biofuels and increased efficiency are cheaper, cleaner, faster ways to replace oil than proposals to build multi-billion dollar plants to make liquids from coal. Building commercial-scale liquid coal plants would be too expensive, take too long, and require huge public subsidies. It would require massive amounts of water, more mountaintop removal mining in Appalachia, and stripmining hundreds of square miles of farm and ranch land in the West.

Yet liquid coal plants would yield far less fuel and far fewer jobs per dollar than biofuels plants and energy efficiency. Every public and private dollar wasted on liquid coal will slow badly needed investments in energy efficiency and clean, renewable biofuels.

## Cost to Build New Plants, Costs to Taxpayers and Consumers

Making liquids from coal would be incredibly expensive. A plant producing 80,000 barrels of fuel a day – smaller than most U.S. oil refineries – would cost \$8 billion.<sup>1</sup> Liquid coal is much too risky for Wall Street, so liquid coal promoters want taxpayers to shell out billions in loan and price guarantees, long-term contracts, tax credits, and outright grants.

Biodiesel plants are being built today for one-sixth of the estimated cost of liquid coal plants, per installed barrel of capacity.<sup>2</sup> Under current law, biodiesel and ethanol enjoy the same fuel tax credits as liquid coal would have (if any liquid coal were being produced). Biodiesel and ethanol production capacity is expanding rapidly without loan or price guarantees or other federal subsidies. Federal incentives needed to kick-start cellulosic ethanol development are smaller, with a much faster and bigger payoff, than the subsidies being demanded by the coal industry for liquid coal plants.

Biodiesel and ethanol are being produced now at prices competitive with diesel and gasoline from petroleum.<sup>3</sup> The cost of a gallon of liquid coal is unknown, but the cost of capital alone could be \$46 per barrel.<sup>4</sup> The price American motorists pay at the pump varies with the world price of oil, which won't be affected by production of either biofuels or liquid coal. U.S. taxpayers would pay significantly more for liquid coal than for clean, renewable biofuels.

## Jobs and Economic Development

Investment in ethanol and biodiesel plants creates three times as many jobs and twelve times as much economic activity as an equivalent investment in liquid coal plants.<sup>5</sup> Biofuels plants are far less capital-intensive and create economic activity at a scale that can distribute economic benefits to many more communities across the country. Liquid coal plant construction would bring boom-bust growth, benefiting at best a handful of coal-mining areas. Most of the economic benefit would flow to outside investors. Biofuels plants can

be owned and run by farmers and local business people; farmers and ranchers can benefit by producing the feedstock.

## Costs to Natural Resources, the Environment, and the Climate

Liquid coal plants would require huge volumes of water – from five to fifteen gallons of water to make one gallon of liquid. An 80,000 barrel per day coal to liquids facility would use as much water as a city of 100,000 people. Just one such plant would require stripmining 280 acres per year, 18 square miles over the life of the plant; emit thousands of tons of sulfur dioxide and nitrogen oxides, 617 lbs of mercury, and millions of tons of solid and liquid waste.<sup>6</sup> Biofuels plants require much less water and create less air, water and solid waste pollution, especially if they use biomass for process heat. Biodiesel plants use very little water or process heat.

Fuel made from coal would produce twice as much carbon dioxide over its life cycle as fuel made from petroleum. Even if the best possible carbon capture and sequestration technology is used to capture carbon dioxide in a liquid coal plant, fuel made from coal would still cause more global warming per gallon than the oil it would displace.

The growing plants used to make biofuels remove as much carbon dioxide from the atmosphere as is released when the fuel is burned. Biomass-fueled ethanol plants and biodiesel plants produce 1/4th to 1/2 as much carbon dioxide as gasoline. If carbon were captured at cellulosic ethanol plants, each gallon of fuel would actually remove more carbon dioxide from the atmosphere than it would release, over its lifecycle.<sup>7</sup>

## Energy Security

Increased fuel efficiency is the fastest, cheapest, and cleanest option to reduce oil imports. Liquid coal is the slowest, most expensive, and dirtiest way to do it. Construction of even one liquid coal plant would take several years. Ethanol and biodiesel plants are being built all across the country, with lead times of a year or less to come on line once construction begins.

Coal is dirty and non-renewable. Producing enough liquid coal to offset one-fifth of U.S. oil imports while expanding coal use for electric generation and synthetic natural gas, as proposed by liquid coal proponents, could exhaust suitable U.S. supplies in forty years,<sup>8</sup> and the plants would cost \$260 billion to build.

Biofuels are renewable – we'll never run out. Combined with investments in energy efficiency, expanded biofuels production capacity could displace all our oil imports – some say all of our oil consumption – by 2050, for an investment of \$180 billion.<sup>9</sup>

## Footnotes

<sup>1</sup> Cost estimates for liquid coal range from \$70-100,000 per daily barrel of capacity or more. The current estimated cost of a proposed 5,000 bpd liquid coal plant in Pennsylvania is \$800 million, or \$160,000 per daily barrel.

<sup>2</sup> Urbanchuk, John M, "Contribution of the Biodiesel Industry to the Economy," September 30, 2006.

<sup>3</sup> In early April the rack price of biodiesel was \$2.30/gallon; of #2 petroleum diesel, \$2.50/gallon.

<sup>4</sup> Based on a 15% return on equity, \$100,000 per daily barrel cost of capacity, for a plant at 90% availability.

<sup>5</sup> Calculated from presentation by Scott Rickard, MSU-Billings Center for Applied Economic Research, presentation to the Montana Energy Symposium, October, 2005.

<sup>6</sup> See citations in Montana's Energy Future, at [www.worc.org/pdfs/Synfuel\\_Briefing\\_Paper.pdf](http://www.worc.org/pdfs/Synfuel_Briefing_Paper.pdf).

<sup>7</sup> "Well-to-Wheels" CO<sub>2</sub> Emissions from Alternative Fuels, Natural Resources Defense Council.

<sup>8</sup> U.S. has recoverable reserves of 267 billion tons. Estimate assumes 1/3 is economically and legally mineable and U.S. production increases to 2.1 billion tons per year (see [www.nma.org/pdf/fueling\\_our\\_future.pdf](http://www.nma.org/pdf/fueling_our_future.pdf))

<sup>9</sup> Natural Resources Defense Council, Growing Energy, [www.nrdc.org/air/energy/biofuels/biofuels.pdf](http://www.nrdc.org/air/energy/biofuels/biofuels.pdf); Amory Lovins, Winning the Oil Endgame, [www.oilandgame.com](http://www.oilandgame.com).



WORC is a regional network of seven grassroots community organizations, which includes 10,000 members and 44 local chapters. WORC helps its member groups succeed by providing trainings and coordinating regional issue campaigns.

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