



NATURAL RESOURCES DEFENSE COUNCIL

Statement of
Daniel A. Lashof, Ph.D.
Climate Center Science Director
Natural Resources Defense Council

Before the
Committee on Energy and Commerce
United States House of Representatives

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Summary

- Any energy legislation enacted by the 110th Congress must, at a minimum, make a significant down payment on reducing global warming pollution. As Chairman John Dingell told the Detroit Economic Club last week, our nation must find an “effective way to reduce both petroleum consumption and greenhouse gas emissions.”
- NRDC strongly supports the energy efficiency provisions of the May 17th discussion draft. Increasing energy efficiency is the biggest, fastest, cheapest, and cleanest way to reduce global warming pollution. The forcing function to ensure that DOE meets statutory deadlines to promulgate energy efficiency standards is particularly important given the Department’s shameful past record of missed deadlines.
- NRDC supports the smart grid provisions of the May 17th discussion draft. Modernizing our electricity transmission system is an important enabler for cost-effective energy efficiency measures as well as expanded use of renewable energy and tracking electricity use in plug-in hybrid electric vehicles. The provisions to encourage states to align utility incentives with the public interest by decoupling revenues from electricity sales volumes recognize the critical need for this state policy to enable a substantial increase in utility sector energy efficiency programs. These programs are essential for energy efficiency achieving its potential for reducing global warming pollution.
- NRDC opposes the coal-to-liquid provisions of the May 17th discussion draft. Making liquid fuels from coal increases, rather than decreases, global warming pollution and is fundamentally incompatible with achieving the deep emission reductions that are needed to prevent dangerous global warming.
- A ton of coal used in a power plant employing carbon capture and storage (CCS) to generate electricity for a plug in hybrid vehicle will displace more than twice as much oil as using the same coal to make liquid fuels in a plant that uses CCS.
- A hybrid vehicle running on liquid coal will emit 10 times as much CO₂ per mile as a plug-in hybrid vehicle running on electricity made from coal, assuming that both the power plant and coal-to-liquids plant fully employ CCS.
- Congress should cap total greenhouse gas emissions from transportation fuels and require improvements in vehicle performance as well as progressive reductions in the average greenhouse gas emissions per gallon of transportation fuels sold, as California is planning to do.
- Congress should focus on setting performance standards for reducing both oil dependence and global warming pollution, rather than promoting any particular feedstock or technology.

Introduction

Thank you for the opportunity to share NRDC's views on the elements of energy legislation circulated by Chairman Boucher for discussion on May 17th. My name is Daniel A. Lashof, and I am the science director of the Climate Center at the Natural Resources Defense Council (NRDC). NRDC is a national, nonprofit organization of scientists, lawyers and environmental specialists dedicated to protecting public health and the environment. Founded in 1970, NRDC has more than 1.2 million members and online activists nationwide, served from offices in New York, Washington, Los Angeles and San Francisco.

Speaker Pelosi has committed to passing "groundbreaking legislation that addresses global warming and energy independence" in this Congress. While I recognize that the legislation we are considering today represents only a first step toward meeting this commitment, it is nonetheless essential to evaluate these proposals in light of this objective. In particular, the U.S. Climate Action Partnership, representing a diverse group of leading companies and non-profit organizations, has called on Congress to pass legislation as quickly as possible aimed at reducing emissions of greenhouse gases by 60% to 80% from current levels by 2050. Any energy legislation enacted in this Congress should, at a minimum, be consistent with, and make a down payment on, achieving this goal, even if its primary purpose is to reduce dependence on petroleum. The energy efficiency and smart grid discussion drafts pass this test, but as I will explain, I believe that the coal-to-liquids discussion draft fails this test.

Energy Efficiency and Smart Grid Provisions

Increasing energy efficiency is the biggest, fastest, cheapest, and cleanest way to reduce global warming pollution. In general, NRDC strongly supports the energy efficiency provisions of the May 17th discussion draft. The forcing function to ensure that DOE meets statutory deadlines to promulgate energy efficiency standards is particularly important given the Department's shameful past record of missed deadlines.

Modernizing our electricity transmission system is an important enabler for cost-effective energy efficiency measures as well as expanded use of renewable energy and tracking electricity use in plug-in hybrid electric vehicles. In general, NRDC supports the smart grid provisions of the May 17th discussion draft. The provisions to encourage states to align utility incentives with the public interest by decoupling revenues from electricity sales volumes recognize the critical need for this state policy to enable a substantial increase in utility sector energy efficiency programs. These programs are essential for energy efficiency achieving its potential for reducing global warming pollution.

Global Warming Pollution from Liquid Coal

Two authoritative recent studies conclude that even if liquid coal synfuels plants fully employ carbon capture and storage, full lifecycle greenhouse gas emissions from using these fuels will be worse than conventional diesel fuel. There is a straightforward reason for this. Vehicle tailpipe CO₂ emissions from using liquid coal would be nearly identical to those from using conventional diesel fuel. Any CO₂ emissions released from the synfuels production facility have to be added to the tailpipe emissions. The residual

emissions from a liquid coal plant employing CCS are still somewhat higher than emissions from a petroleum refinery, hence lifecycle emissions are higher.

Last month, EPA released an analysis of lifecycle greenhouse gas emissions in conjunction with publishing its final rule to implement the Renewable Fuels Standard enacted in the Energy Policy Act of 2005. EPA's analysis finds that without carbon capture lifecycle greenhouse gas emissions from coal-to-liquid fuels would be more than twice as high as from conventional diesel fuel (118% higher). Assuming carbon capture and storage EPA finds that lifecycle greenhouse gas emissions from coal-to-liquid fuels would be 3.7% higher than from conventional diesel fuel.¹

Last week Michael Wang of Argonne National Laboratory, the developer of the most widely used transportation fuels lifecycle emissions model, presented the results of his more detailed analysis of coal-to-liquid fuels to the Society of Automotive Engineers conference. The Argonne analysis shows that coal-to-liquid fuels could have lifecycle greenhouse gas emissions as much as 2.5 times those from conventional diesel. Even assuming a high-efficiency coal-to-liquids conversion process and carbon capture and storage, Argonne finds that lifecycle greenhouse gas emissions from coal-to-liquids would still be 19% higher than from conventional diesel (Figure 1)².

¹ <http://www.epa.gov/otaq/renewablefuels/420f07035.htm>

² M. Wang, M. Wu, H. Huo, "Life-cycle energy and greenhouse gas results of Fischer-Tropsch diesel produced from natural gas, coal, and biomass," Center for Transportation Research, Argonne National laboratory, presented at 2007 SAE Government/Industry meeting, Washington, DC, May 2007.

Given these results, it is not surprising that a recent Battelle study found that a significant coal-to-liquids industry is not compatible with stabilizing atmospheric CO₂ concentrations below twice the pre-industrial value. Battelle found that if there is no constraint on CO₂ emissions conventional petroleum would be increasingly replaced with liquid coal, but that in scenarios in which CO₂ concentrations are limited to 550 ppm or below, petroleum fuels are replaced with biofuels rather than liquid coal (Figure 2)³.

Plug In Hybrid Electric Vehicles

While I believe that there are better alternatives, if coal is to be used to replace gasoline, generating electricity for use in plug-in hybrid vehicles (PHEVs) can be far more efficient and cleaner than making liquid fuels. In fact, a ton of coal used to generate electricity used in a PHEV will displace more than twice as much oil as using the same coal to make liquid fuels, even using optimistic assumptions about the conversion efficiency of liquid coal plants.⁴ The difference in CO₂ emissions is even more dramatic. Liquid coal produced with CCS and used in a hybrid vehicle would still result in lifecycle greenhouse gas emissions of approximately 330 grams/mile, or **ten times** as much as the 33 grams/mile that could be achieved by a PHEV operating on electricity generated in a coal-fired power plant equipped with CCS.⁵

³ J. Dooley, R. Dahowski, M. Wise, and C. Davidson, "Coal-to-Liquids and Advanced Low-Emissions Coal-fired Electricity Generation: Two Very Large and Potentially Competing Demands for US Geologic CO₂ Storage Capacity before the Middle of the Century." Battelle PNWD-SA-7804. Presented to the NETL Conference, May 9, 2007.

⁴ Assumes production of 84 gallons of liquid fuel per ton of coal, based on the National Coal Council report. Vehicle efficiency is assumed to be 37.1 miles/gallon on liquid fuel and 3.14 miles/kWh on electricity.

⁵ Assumes lifecycle greenhouse gas emission from liquid coal of 27.3 lbs/gallon and lifecycle greenhouse gas emissions from an IGCC power plant with CCS of 106 grams/kWh, based on R. Williams et al., paper presented to GHGT-8 Conference, June 2006.

Specific Comments on the Coal-to-Liquids Discussion Draft

As you know, Mr. Chairman, NRDC joined nine other environmental organizations representing millions of members and activists in a May 16th letter expressing our opposition to H.R.2208, which is the basis for the discussion draft provision. This letter is attached to my testimony for the record.

Our organizations urged Congress to promote efficiency and cleaner fuels that reduce emissions without adverse impacts on the health of our lands, air and water. We noted that in addition to reducing oil use, renewable fuels on the market today generate on average 20 percent less greenhouse gas emissions per unit of energy delivered and urged that other fuel alternatives should be held to at least as good a standard, with improvements in performance required over time.

I would add that the greenhouse gas emission reductions that the administration claims would result from implementing its “10-in-10” plan would require the fuels used to meet its proposed alternative fuels standard in 2017 to achieve an average 30% reduction in lifecycle greenhouse gas emissions compared to gasoline. Last week the president directed EPA to begin implementing this plan using its existing authority under the Clean Air Act. Congress should set its sights at least as high.

Given this context, NRDC opposes government price supports for coal-to-liquid projects with emissions just as bad as gasoline. Furthermore, we are concerned that the current draft might allow even worse performance. The bill allows for the sequestration or

disposal or use of CO₂, opening up a wide range of options that would not lead to real emission reductions. Using CO₂ in the food industry to carbonate beverages or freeze chickens, for example, in no way guarantees that it will not reach the atmosphere, where it contributes to global warming. While use of CO₂ from a coal-to-liquids might replace CO₂ from another source, that source would most likely simply vent all of its CO₂ directly into the atmosphere. We have no objection to putting CO₂ to use prior to disposal (in enhanced oil recovery, for example), but an emission reduction benefit should only be assigned if permanent geologic storage has been demonstrated through appropriate monitoring and verification.

We are also concerned that a coal-to-liquids facility would qualify for the program on the basis of a plan, to be certified by EPA. While a viable plan is certainly necessary, this is no guarantee that the emission control technologies would actually be deployed or that ongoing compliance would be monitored during the lifetime of the plant.

Conclusion

Any proposal to promote coal-to-liquids or any other transportation fuel should be considered in light of the need for deep reductions in greenhouse gas emissions from the transportation sector to prevent dangerous global warming. As Chairman John Dingell told the Detroit Economic Club last week, our nation must find an “effective way to reduce both petroleum consumption and greenhouse gas emissions.” To accomplish this Congress should cap total greenhouse gas emissions from transportation fuels and require improvements in vehicle performance as well as progressive reductions in the average

greenhouse gas emissions per gallon of transportation fuels sold, as California is planning to do. Rather than promoting any particular feedstock or technology, Congress should focus on setting performance standards for reducing both oil dependence and global warming pollution.

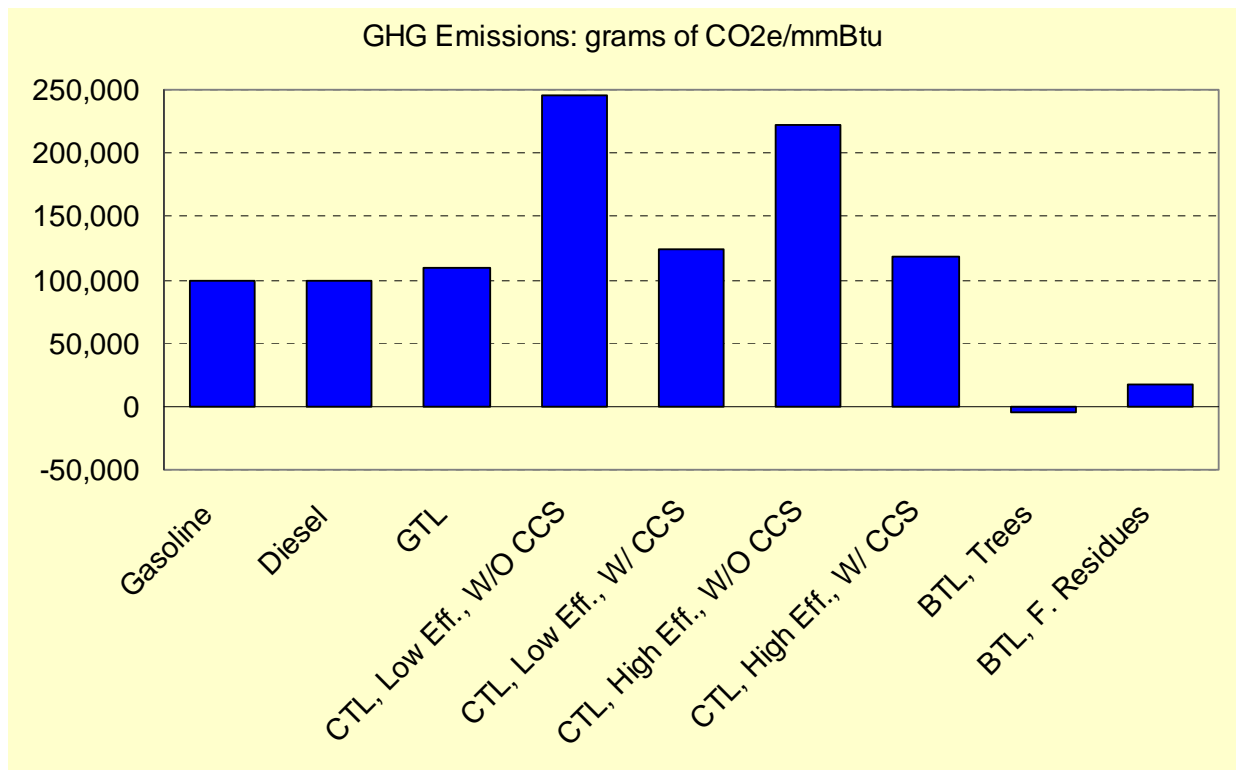


Figure 1. Life-cycle greenhouse gas results of Fischer-Tropsch diesel produced from natural gas, coal and biomass (GTL=gas-to-liquids, CTL=coal-to-liquids, CCS=carbon capture and sequestration, BTL=biomass-to-liquids, F=forest; emissions include CO₂, methane and N₂O). Wang et al., 2007.

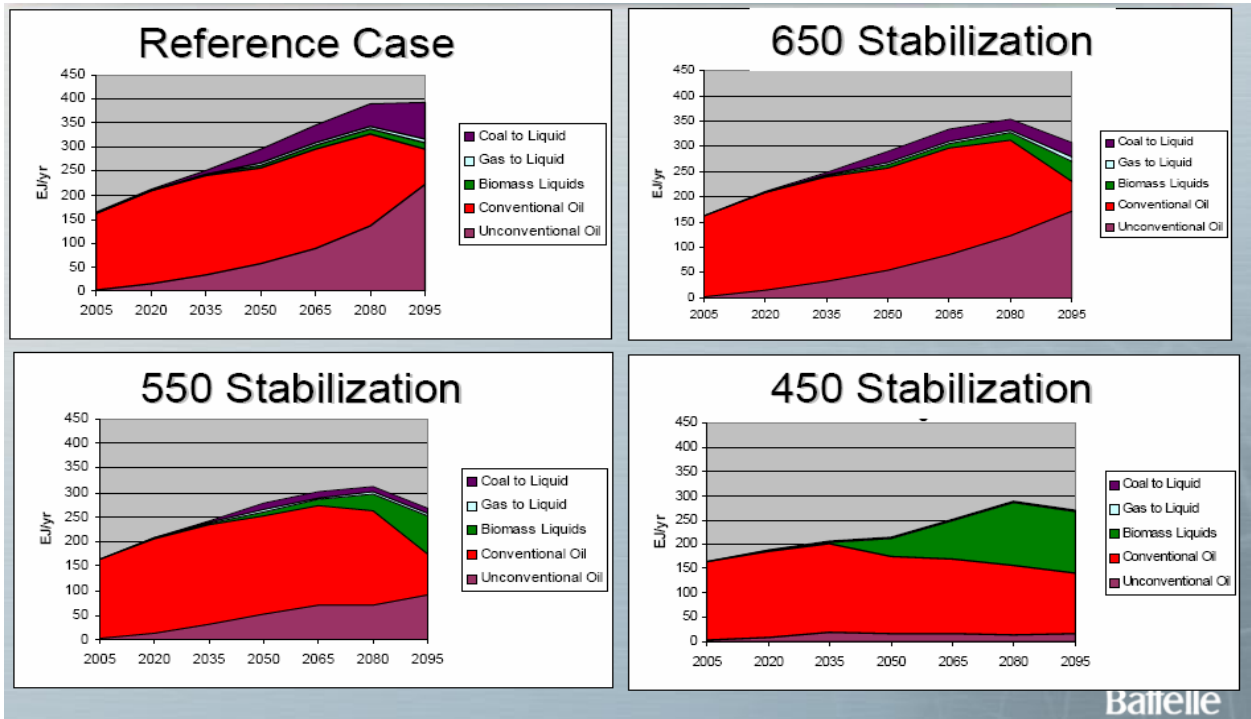


Figure 2. Conventional oil and alternative fuel supplies under four global warming emission limitation scenarios. Dooley et al., 2007.