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Full Committee Hearing on S. 937

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Chairman Bingaman, Ranking Member Murkowski and members of the committee, thank you for today's opportunity to testify on the subject of Senate bill 937. My name is Brian Siu. I am a policy analyst for of 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, Chicago, Washington, Los Angeles and San Francisco.

S. 937 would amend several existing laws in an effort to promote alternative transportation fuels. While the bill may be well intentioned, NRDC maintains that many of its provisions will have unintended consequences that outweigh any expected benefits. Today, I will focus my comments on three key provisions. The first of these provisions is the proposed repeal of Section 526 of the Energy Independence and Security Act of 2007 (EISA). The second allows the Defense Department (DoD) to enter 20 year procurement contracts for alternative fuels. Finally, the third provision requires state and federal agencies that issue construction permits for major new or modified power plants under the Clean Air Act to consider on-road pollution reductions due to electric vehicle deployment when determining best available control technology.

Section 526 of the Energy Independence and Security Act of 2007 Should Remain in Place.

There is no doubt that our sources of conventional liquid fuel have become increasingly problematic. We are reminded of this every time geopolitical unrest, natural events or developments beyond our control drive price volatility. Thus, it is with good reason that the

nation is in search of energy efficiency and alternative fuels. But it is vitally important not to let urgency distort sound long term judgment, leading to investments that cause more harm than good. Section 3 of the American Alternative Fuels Act increases the likelihood of such mistakes by repealing Section 526 of EISA. NRDC strongly opposes efforts to weaken or remove this reasonable, common sense protection.

Put simply, Section 526 disallows federal agencies from procuring alternative fuels that have higher lifecycle greenhouse gas emissions than conventional petroleum products. It is noteworthy that Section 526 does not categorically prohibit any type of fuel nor does it require emissions to actually decline. It simply ensures that federal government does not exacerbate climate change by expanding or commercializing high carbon technologies before measures are taken to capture and dispose the carbon pollution. While Section 526 applies to all federal agencies, the Department of Defense is the largest federal purchaser of fuel. In the past, the United States Air Force was eager to develop liquid coal fuels. Section 526 prevented DoD from leveraging its significant procurement power to commercialize those fuels unless the emissions were managed responsibly.

There are strong environmental reasons to avoid expanding or commercializing high carbon fuels. The increased carbon loadings associated with these fuels would accelerate global warming and its catastrophic consequences. There is broad scientific concern that rising temperatures will induce higher sea levels, shifting disease vectors, migration of invasive species, and severe weather incidents.

To help avoid these consequences, the United States and other nations will need to deploy energy resources that release lower amounts of carbon pollution than today's use of oil and gas. To keep global temperatures increases from causing widespread environmental and

economic harm, we need to get on a pathway now to allow us to cut global warming emissions significantly from today's levels over the decades ahead. The technologies we choose to meet our energy needs in the transportation sector and in other areas must have the potential to perform at greatly improved emission levels. Unfortunately, high carbon fuels such as liquid coal, tar sands, and oil shale do not have a role in that scenario. Liquid coal without carbon capture and storage, for instance, produces approximately double the carbon pollution as conventional petroleum fuel over the full product lifecycle.

The good news is that others in the transportation sector plan to reduce their emissions of greenhouse gases. Pursuant to the Administration's vehicle efficiency and carbon pollution standards, for instance, auto companies will achieve an equivalent of 35.5 miles per gallon by 2016. According to the Environmental Protection Agency, the 2012-2016 standards will avoid 960 million metric tons of greenhouse gas emissions that would have otherwise been emitted into the atmosphere.[i] As the auto and other economic sectors endeavor to reduce carbon emissions, unchecked high carbon fuel facilities could offset their achievements. In the interests of consistency and fairness, federal government should not assist these fuels to mass market, especially when no measures are taken to bring emissions into alignment with even conventional fuels.

There are other substantial environmental reasons to avoid these technologies. Fuels such as liquid coal and tar sands tend to impose significant upstream impacts as a result of feedstock extraction. These are difficult to avoid, especially as the industry scales up. For instance, it requires nearly half a ton of coal to produce one barrel of liquid coal. Thus, establishing a mature liquid coal industry, perhaps at 3 million barrels per day, would greatly increase coal mining. Meeting those levels would require roughly 550 million additional tons of annual coal

production.[ii] By comparison, the Energy Information Administration estimates that the United States mined just over one billion tons of coal in 2009.[iii] Thus, a significant liquid coal industry might increase mining activity by roughly 50% over today's levels.

The environmental consequences would be tremendous. Today, coal mining is already responsible for a range of environmental harms including biodiversity loss, mountaintop removal, groundwater contamination and loss of natural heritage. To be certain, coal plays a major role in America's power production and will for some time. But few believe this energy source is benign. As we evaluate our liquid fuel options, we must remember that the decisions we make today will have growing implications for decades to come. We must therefore prioritize resources that achieve balance between energy supply and environmental sustainability while avoiding fundamentally flawed technologies that are not already in use today.

The recognized link between climate change and national security is yet another reason to preserve Section 526. In recent years, many military and security experts have noted that increased temperatures, droughts, and extreme weather events could exacerbate political tension and resource competition in some of the world's volatile regions. Moreover, military experts have expressed concern that elevated seal levels threaten coastal installations as well as the supporting industries. Here are direct quotations from national security voices with impeccable credentials:

- In 2008, the National Intelligence Council noted that "As climate changes spur more humanitarian emergencies, the international community's capacity to respond will be increasingly strained. The United States, in particular will be called upon to respond. The demands of these potential humanitarian responses may significantly tax US

military transportation and support force structures, resulting in a strained readiness posture and decreased strategic depth for combat operations."[iv]

- In 2008, the National Intelligence Council also found that "A number of active coastal military installations in the continental United States are at a significant and increasing risk of damage, as a function of flooding from worsened storm surges in the near-term. In addition, two dozen nuclear facilities and numerous refineries along US coastlines are at risk and may be severely impacted by storms."[v]
- In 2009, the Center on Naval Analysis found that "Destabilization driven by ongoing climate change has the potential to add significantly to the mission burden of the U.S. military in fragile regions of the world" and that "the U.S. should not pursue energy options inconsistent with the national response to climate change."[vi]
- In 2010, the Pentagon Quadrennial Defense Review stated that although "climate change alone does not cause conflict, it may act as an accelerant of instability or conflict, placing a burden to respond on civilian institutions and militaries around the world. In addition, extreme weather events may lead to increased demands for defense support to civil authorities for humanitarian assistance or disaster response both within the United States and overseas."[vii]

Placed in this context, Section 526 is largely about accountability. It simply ensures that alternative fuel providers do not benefit from federal procurement initiatives if their products make addressing these risks even more difficult than they already are. Stated another way, removing Section 526 would allow fuel producers to access public coffers without at least making efforts to mitigate these well acknowledged national concerns.

Finally, repealing Section 526 sends the wrong signal to the broader economy. Even if the DoD chooses not to pursue high carbon fuels due to previously noted concerns, repealing the provision would increase tolerance for these types of fuels. A signal that increasingly harmful fuels are now endorsed by the federal government could help encourage investments that are wholly incompatible with the need to reduce carbon pollution and harmful extractive practices while drastically reducing opportunities in cleaner, sustainable fuels that that provide a wider array of benefits.

Long Term Contracting Provisions must Include Environmental Protections.

Section 7 of the American Alternative Fuels Act empowers the Department of Defense to enter 20-year contracts for alternative fuels. As written, NRDC opposes this provision since it fosters alternative fuels without the necessary safeguards to avoid unacceptable environmental costs.

Current regulations limit the Department of Defense from entering into fuel procurement contracts that exceed a five year period. But there has been growing interest in extending the contracting window. This is because many emerging technologies pose high risk due to initial technology costs and lack of commercial experience. In the past, long term fixed price contracts have been viewed as a way to mitigate those risks by establishing a known and stable revenue stream. It is believed that this certainty will help attract private capital for the project.

NRDC agrees that some form of genuinely low carbon alternative fuel is desirable for both environmental and energy security reasons. However, this provision falls short of encouraging such fuels and could easily function to the opposite effect. First, the provision acts

in conjunction with repealing Section 526 to provide long term financial support for fuels that are more destructive than today's. Secondly, the language fails to set any environmental parameters that ensure alternative fuels do not create unacceptably high ecological costs. NRDC does not categorically oppose these forms of support, so long as the resulting fuels are consistent with public health, climate science and environmental protection. But the long term contracting provision in this bill appears to create a pathway for unchecked high carbon, high impact fuels.

As an example, I will once again use liquid coal to describe the risk. Liquid coal facilities are large, centralized and capital intensive. By some estimates, the investment costs might approach $125,000 per barrel of daily production capacity.[viii] Indeed, recent cost estimates for proposed commercial scale projects exceed billions of dollars per facility. Given these costs, a long term contract, or even the possibility of such an arrangement could go a long way towards assuring investors that the project can generate profitable returns over a significant portion of the operating life.

Yet for reasons we have already discussed, federal agencies should not help deploy technologies that undermine climate and environmental priorities. Instead, these types of supports should be reserved for fuels that strike balance between security, environmental and climate concerns. These parameters will foster new fuel technologies that respond to, rather than ignore the growing impacts of increased fuel demand.

Even for advanced biofuels, the proposed language is environmentally insufficient. NRDC believes that emerging forms of drop in biofuel can provide sustainable options for aviation and ground transport if caution is observed throughout the chain of production. But vegetative feedstocks are intertwined with land and water health. Thus, careless development can lead to a range of consequences such as water quality deterioration, soil impaction, habitat

loss and greenhouse gas emissions. As a nascent advanced biofuels fuels industry scales up, it is critically important to observe these risks so that the supporting resources can sustain the industry.

Unfortunately, S. 937 is silent on these critical issues. To manage these concerns, NRDC recommends an approach taken by Senator Murray, Senator Cantwell and Representative Inslee. Their proposal, the Domestic Fuel for Enhancing National Security Act (D-FENS), would provide 15-year contracting authority for DoD but limit eligibility to "advanced biofuel" as defined under section 211(o) of the Clean Air Act. That definition includes critical land and wildlife protections as well as greenhouse gas targets. To that extent, the D-FENS Act addresses separate but linked challenges. Rather than favoring mountaintop removal and global warming, it helps diversify fuel supply with sustainable alternatives to oil. At the same time, it helps identify environmentally realistic pathways amid public concern over unintended environmental consequences of careless fuel development. And by encouraging genuinely low carbon fuel, it helps manage the recognized national security threats of global warming. This approach demonstrates how a core emphasis on performance can address multiple but linked challenges.

In sum, NRDC does not support the long term contracting provisions in American Alternative Fuels Act. While we believe that there may be some role for these instruments, the potential effects of significant alternative fuel production require careful attention to environmental protection and public health. At this time, parameters to encourage that balance have not been included.

The Clean Air Act's "Best Available Control Technology" Requirements Should Not Be Changed in an Alternative Fuels Bill.

Section 8 of the bill would amend the determination of best available control technology (BACT) under the Clean Air Act. The requirement for major new and modified sources to meet emission limitations reflecting BACT was originally adopted as part of the 1977 Clean Air Act amendments. The Act requires a preconstruction review and the issuance of a permit for the construction of any new or modified "major emitting facility".[ix] The BACT requirement is designed to require new or modified major facilities to minimize their emissions of any regulated air pollutant, including greenhouse gas emissions.

The American Alternative Fuels Act introduces, for the first time, an off-site consideration in determining BACT. It is not at all clear how off-site emission reductions would be incorporated into a determination of BACT. Perhaps most importantly, there is significant risk that this provision would fail to protect those whose health will be adversely affected by increased emissions of power plant pollutants that are directly dangerous to human health such as sulfur dioxide, particulates, oxides of nitrogen, and mercury, as well as carbon pollution that contributes to risks of death, illness, and injury through climate change impacts. There is no guarantee that off-site emission reductions will affect the same locations that are affected by unmitigated power plant pollution. There is certainly no guarantee that electric vehicles will be deployed in the immediate vicinity of large power plants where some pollutant concentrations are highest. In those cases, it would be highly inequitable to allow air quality for some local businesses and residents to deteriorate simply because it improved elsewhere.

Moreover, it would base the long term BACT determination upon factors that are hard to discern and may fluctuate over time. While a plant must undergo a BACT determination only before major construction, the vehicle mix and vehicle usage patterns may shift on an ongoing basis, rendering the original determination inaccurate. For instance, the determination would not

respond to subsequent vehicle retirements, migrations or other shifts to the fleet mix. It is also unclear what the assumed pollutant reductions would be in reference to as an increasing number of clean and efficient vehicle choices enter the market. While generating emissions can be predicted with relative accuracy, it will be hard to determine what the vehicle purchaser would have chosen if not an electric vehicle. Comparison to an average vehicle, a cleaner vehicle or something less efficient will yield different pollution reductions that could applied in the BACT determination.

Finally, introducing offsets into the BACT determination essentially allows power plants to forego available technology that could improve health and save lives. The determination process includes an analysis on technical and economic feasibility, ensuring that the environmental measures are achievable. Indeed, it is worth noting that vehicle electrification is a key opportunity for power producers to enter the lucrative transportation fuel market. As more electric and plug-in electric vehicles hit the road, power producers will meet the new electricity demand and therefore capture new revenue. NRDC believes that allowing them to minimize their responsibility over emissions that are a direct result of significant new business opportunities provides a windfall at the expense of those who may be affected by air quality impacts.

Conclusions

NRDC appreciates and shares the desire to identify alternative fuel sources. The nation's dependence on petroleum is a known economic and national security burden. However, we also maintain that each alternative fuel pathway provides unique tradeoffs, some greater than others. These effects are destined to grow as fuels achieve self sufficiency and expand in scale. Policymakers must be highly cognizant of the potential impacts in order to avoid the significant

unintended consequences that wide scale fuel production can create. The best way to manage these risks is to establish parameters that guide investment decisions. With regards to S.937 those should be:

- Avoid actions that move us backward on climate change. Given the national security, environmental and economic implications, it is best to forego commercializing high carbon, high risk technology. To that extent, Section 526 must remain in place because it sends the right signal to private markets and government alike.
- Only extend long term financial support to technologies with demonstrable environmental benefits. Federal procurement awards represent an exciting opportunity to develop fuels with climate, supply, and environmental advantages. Capturing these benefits once again requires embedding the right parameters to optimize results.
- Maintain strong protections for public health and air quality. While vehicle electrification may reduce pollution in some regions, these reductions may not geographically match where pollution from the power facility would increase. It is inequitable to relax pollution controls in these regions simply because pollution has declined elsewhere.

Once again, NRDC thanks you for the opportunity to present its views. As the nation continues to strive towards alternatives to petroleum, we look forward to working with the Committee to develop policies that foster a balanced and sustainable outcome.

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[i] Environmental Protection Agency, "EPA and NHTSA Finalize Historic National Program to Reduce Greenhouse Gases and Improve Fuel Economy for Cars and Trucks", April 2010.

[ii] James Bartis et al, *Producing Liquid Fuels from Coal*, RAND Corporation, 2008.

[iii] Energy Information Administration, *Annual Energy Review 2009*, August 2010.

[iv] June 25, 2008: House Permanent Select Committee on Intelligence & House Select Committee on Energy Independence and Global Warming: Statement for the Record by Dr. Thomas Fingar, Deputy Director of National Intelligence for Analysis - National Intelligence Assessment on the National Security Implications of Global Climate Change to 2030

[v] ibid.
[vi] Center for Naval Analysis, *Powering America's Defense: Energy and the Risks to National Security,* May 2009.
[vii] U.S. Department of Defense, *Quadrennial Defense Review*, February, 2010.
[viii] James Bartis et al, *Producing Liquid Fuels from Coal*, RAND Corporation, 2008.
[ix] *See* 42 U.S.C. §§ 7475, 7501-7503.