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STATEMENT OF

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BEFORE THE

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ON ENERGY AND POWER

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Mr. Chairman and distinguished Members, thank you for extending me the invitation to provide a Department of Navy perspective on alternative fuels. As the Deputy Assistant Secretary of Navy on Energy, I have been actively involved in assessing the policy, economic, technological, and environmental costs and benefits associated with the use of fossil fuels and alternative fuels.

I understand that this Committee is holding these hearings in consideration of HR 909 but I must confess I have not yet had the opportunity to thoroughly review HR 909. Today I would simply like to provide the Department of the Navy perspective on the viability of DoD constructing and operating a coal-to-liquid facility. In short, Department of the Navy does not believe that coal-to-liquid facilities, constructed and operated by Department of Defense is a sound policy objective.

### **The Need for Change**

Changing the way the United States uses, produces, and acquires energy is one of the central policy challenges that confront this nation. It is something that Secretary Mabus cares deeply about and it is something that the Navy and Marine Corps, under his leadership, has been aggressively working towards for the last two years.

As a military and as a country, we rely heavily on fossil fuels and heavily on foreign sources of oil. This dependency degrades our national security, hurts our economy, and ultimately affects our planet. Our dependency on fossil fuels makes us more susceptible to price shocks, supply shocks, natural and man-made disasters, and, as we have recently seen, political unrest in far away countries.

Americans clearly understand the economic linkage at work and the effects upon our economy. But the rising price of oil also dramatically impacts the military. For every \$1 rise in a barrel of oil, the US Navy and Marine Corps pay more than \$30 million. We don't have that money to spare. Every extra dollar we spend on fuel is a dollar we don't spend on operational requirements or on training and equipping our Sailors and Marines for the jobs they need to do.

But the challenges we face are not just about what types of fuels we use, or where and how those fuels are produced. Clearly, we must be more efficient in the fuels we use. The best barrel of oil is the barrel of oil we do not use. The challenge we face is that the 280+ ships and 3,700 aircraft in service today are largely the ones we will have tomorrow and into the future, so focusing on new sources of fuel, drop-in replacement fuel is critical. It is also critical that we look to make the ships and aircraft that we do have more efficient. And we are doing just that. We are seeing promising results in applying hull coatings, propeller coatings, stern flaps, and digital controls to our surface ships. A hybrid electric drive installed onboard the USS Makin Island has resulted in savings of more than \$2 million on its maiden journey to its homeport in San Diego which will save up to \$250 million over the life of this vessel. We are exploring how to make the engines on our aircraft more efficient, looking to upgrade our simulators to provide equal or better training environments to reduce fuel usage. And we're looking at incentivized energy

conservation programs both for our ships and our aircraft to further embed energy efficiency into our culture.

Making our ships and aircraft more efficient improves their fuel economy. For ships this means that we can increase the days between refueling – underway replenishments – improving both its security and combat capability. Better fuel economy for our aircraft means we can extend the range of our strike missions enabling us to base them farther away from combat areas. Being more efficient and more independent, more diverse in our sources of fuel improves our combat capability both strategically and tactically.

The Department of the Navy’s interest in this topic of alternative fuels is fundamentally about improving our national security and our long-term energy security. Doing so, we can lead the Department of the Navy, the Department of Defense, and the U.S. government in changing the way we use, produce, and procure energy. There is a commonly-held view that the more we replace foreign sources of oil with more diverse, domestically produced alternative fuels the better we are as a military and the better we are as a nation. How one successfully accomplishes that objective is where the debate lies and is a topic that the Department of the Navy has a specific perspective.

#### **“Best Near-term Solution”**

Several weeks ago and perhaps later today as I understand, the Subcommittee on Energy and Power received testimony suggesting that the best near-term approach to meet the Department of Defense fuel needs is a coal-derived or a mixture of coal-derived and biomass Fischer-Tropsch fuels.

Fischer-Tropsch is a thermo-chemical conversion process invented and developed in pre-World War II Germany to convert resources such as coal, natural gas, and biomass to fuel oil. Given the enormous quantities of biomass required and its relative limited availability at the scales required to operate Fischer-Tropsch plants, biomass as a long-term feedstock is typically not considered practical. More often than not, coal is viewed as the primary, if not exclusive, feedstock. As a result, in addition to requiring large, new sources of coal, it requires enormous quantities of water, \$5 to \$10 billion in capital per plant to provide a fuel result that has more than twice the carbon emissions of petroleum.

From the Navy’s perspective, there is a better way. In its ongoing dialogue with industry, associations, and government one thing is clear: America’s advanced biofuel industry knows no geopolitical boundaries. Unlike the proposed “near term” solution discussed above, the feedstocks and the refineries needed to produce advanced biofuels to power the Fleet or our aircraft can literally be made in all fifty states. The camelina grown in Florida and Montana, the algae grown in New Mexico, Hawaii or Pennsylvania, for example, can be turned into fuels blended in existing infrastructure in the Gulf or on the East or West coast to power the Fleet.

The U.S.-based companies comprising the advanced biofuels industry that are currently producing or will soon be producing fuels across a spectrum from the tens of thousands of gallons to the tens of millions of gallons per year. These are companies new and old, small and large. These are companies using algae, biomass, yellow grease, jatropha, switchgrass, corn stover, and rotational crops like camelina. Some are or once were small businesses and some are now publicly traded.

We've seen such rapid technological developments in our recent history across a broad range of technologies leading cutting-edge industry leaders to assert that the data suggests biofuels can scale to the quantity needed without impact food availability. These companies represent the type of innovation and spirit needed to meet the energy demands of the future. This industry, America's advanced biofuel industry, generally holds itself to a higher standard as well. Not satisfied with simply having carbon emissions on par with petroleum, many of the companies are producing fuels having 50 percent lower carbon emissions. And, more often than not, they are producing fuels that do not compete for food, that do not overly burden water supplies, that do not generate enormous amounts of waste, and that minimize direct and indirect land use changes.

## **Conclusion**

A robust advanced drop-in biofuels market is an essential element of our national energy security. Energy security for the Nation requires unrestricted, uninterrupted access to affordable energy sources to power our economy and our military. Traditional fossil-fuel based petroleum derived from crude oil has increasingly challenging market and supply constraints. Chief among these is limited, unevenly distributed, and concentrated global sources of supply. Advanced biofuels that use a domestic, renewable feedstock provide a secure alternative that reduces the risks associated with petroleum dependence.

Diversification to advanced biofuels is essential to sustain the U.S. military's mission capabilities.. Accordingly, the Department of the Navy has adopted a goal of, by 2020, replacing one-half of conventional petroleum based fuel use with domestically sustainable fuel alternatives.

Only a handful of production facilities for renewable jet fuel and diesel will operate in the foreseeable future. Military and civilian end users of fuel have clear strategic incentives to adopt renewable drop-in fuels, but widespread adoption will be possible only when those fuels become cost-competitive.

As Secretary Mabus has said the Navy has always been a leader in adopting new technologies to power our ships over the past 235 years. We went from sail to coal in the 1800's, coal to oil in the early 1900's, and added nuclear power in the 1950's. And at each step of the way there were those who said the Navy's approach was a mistake, that it was too risky or too costly, that we were trading a known global infrastructure for one that was not big enough to meet the needs of the Fleet. And in every single instance those folks were wrong. The energy revolutions made us

a better Navy and a better country. The impacts to our national security, energy security, and our war fighting capability are clear.

Adding domestically produced, advanced biofuels to power the Fleet and being more efficient in how we use that energy is merely just one more revolution, one more innovation. And it precisely the kind of uniquely American spirit behind these innovations that will lead us into a new century.

In closing, I would like to personally thank the Committee for addressing the important topic of alternative fuels and for providing the Department of the Navy the opportunity to offer its perspective.