Statement of Vice Admiral Dennis V. McGinn, USN, Retired
Before the
United States House of Representatives
Select Committee on Energy Independence and Global Warming
"Not Going Away: America's Energy Security, Jobs and Climate Challenges"
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Chairman Markey and Members of the Committee, it is an honor to appear before you today to discuss the critically important topics of energy, climate change and national security.

I previously appeared before this Committee at your first hearing on April 18th, 2007. Since that time, I have had the privilege of serving with some of America's most distinguished and senior retired military leaders on the CNA Military Advisory Board, which produced three reports directly related to the topic of this hearing. The first report examined the national security threats of climate change, the second analyzed the national security threats of America's current energy posture, and our last report, released in July of this year, explored the growing challenges that link our nation's energy posture to our future economic and national security.

We are just beginning to emerge from one of the most serious global financial crises of our lifetimes. This understandably has focused our attention on jobs and near term fiscal issues. However, after several years of carefully examining climate change and the United States' energy use, and having spoken with many business and civic groups across our nation, it is clear to me that our economic, energy, climate change and national security challenges are inextricably linked. And it is also clear that our past pattern of energy use is responsible, in a significant way, for our economic situation today. For these reasons, we must take a long range, comprehensive view to develop effective national policies and make real and positive changes to the ways in which we power America. A rational clean energy and climate policy would be a positive economic and job creation driver, in contrast to the business as usual approach to fossil fuels that is the real job killer. By continuing our over reliance on fossil fuels and fearfully taking only small, incremental steps, we will not create the kind of future energy security, jobs and prosperity that the American people and our great Nation deserve. The time to act, and to act boldly, is now. It is not too late to turn these growing challenges into great economic opportunity.

Weakened national economies have temporarily reduced global demand and somewhat slowed the rising cost of oil. However, as this recession ends, the volatile and economically disruptive cycle of ever-higher energy prices will most certainly return. Population growth and projected per capita increase in energy consumption over the next twenty years will make fossil fuel supply and demand curves widely divergent unless we start now to diversify and change our energy posture.

This is the most critical and long term international security issue for the 21st century– it is an issue that stretches across geographical boundaries, over political divides, and one that will not go away until we decide to do something about it. Even so, our fossil fuel dependence will be with us for decades to come. However, without comprehensive clean energy legislation, market enhancing policies and decisive action by our nation, fierce global competition, instability and conflict over dwindling supplies of fossil fuels and increasing global warming will be a major part of the future strategic landscape. Moving expeditiously toward clean and sustainable energy choices can greatly lessen that danger, improve global and national economic security and help us to confront the seriously growing challenges of global climate change and energy insecurity.

I will now briefly discuss those challenges.

The CNA Military Advisory Board produced a report in 2007 called *"National Security and the Threat of Climate Change*". Its principal conclusion is that climate change poses a serious threat to national security by acting as a "threat multiplier" for instability in some of the world's most volatile regions.

Climate change is different from traditional military threats, because it is not like having a specific enemy, a rapid and well-defined response timeline, or a clearly located crisis region to which we are responding. Climate change has the potential to create more frequent, intense and widespread natural and humanitarian disasters due to typhoons, flooding, drought, disease, crop failure and the consequent migration of large populations. These climate-driven severe weather events will magnify existing tensions in critical regions, overwhelm fragile political, economic and social structures, causing them to fracture and fail. The predictable result: much greater frequency and intensity of regional conflict and direct threats to U.S. interests and national security.

Some may be surprised to hear former generals and admirals talk about climate change and energy threats… but they shouldn't be. In the military, you learn quickly that reducing threats and vulnerabilities is essential, well before you get into harm's way. As military professionals we were trained, and learned by hard experience, to make decisions when faced with seriously threatening situations, even when they were defined by somewhat ambiguous information. But in the case of climate change, the information is not ambiguous. The global and U.S. science community has reached a clear and fact-based consensus in

concluding that our earth is warming and that human activities are a significant contributor to climate change. There is no disagreement in peer-reviewed literature. Every major professional science society and organization in the world has issued powerful statements to this effect, including the National Academies of Sciences for every major country. The G8 and 5 other nations said in May of last year, "The need for urgent action to address climate change is now indisputable."

As military leaders, we base our decisions on trends, indicators and warnings, because waiting for 100% certainty during a crisis can be disastrous. And as we carefully consider the threat of climate change and energy to global security, these trends and warnings are clear; we need to take appropriate action.

Two years ago, the Intergovernmental Panel on Climate Change -- the world's leading scientific panel on climate change -- including more than 200 distinguished scientists and officials from more than 120 countries, including the U.S. – predicted widening droughts in southern Europe and the Middle East, sub-Saharan Africa, the American Southwest and Mexico, and flooding that could imperil low-lying islands and the crowded river deltas of southern Asia. [i]

Last year, global climate researchers revised those predictions, now forecasting that the planet could warm by as much as 6.3 degrees Fahrenheit by the end of the century even if the world's leaders fulfill their most ambitious climate pledges, a much faster and broader scale pace of change than the IPCC forecast just two years ago. [1]

Their other findings include that sea level could rise by as much as six feet by 2100 instead of 1.5 feet, as the IPCC had projected, and the Arctic Sea may experience an ice-free summer by 2030, rather than by the end of the century.

Let me give you some examples, from a military perspective, of what the future could be like if we fail to adequately address the causes and effects of climate change.

In Africa, projected rising temperatures will dramatically reduce water availability, soil moisture, arable land and food production. Combined with increased extreme weather events – climate impacts will act to accelerate the destabilization of populations and governments already dealing with more traditional causes of conflict. Climate-driven crises are <u>already</u> happening there. Lack of water and changing agricultural patterns are at the root of crises in Darfur and Somalia, present day examples of failed social structures and governments, leading to widespread humanitarian crises, conflict, piracy and terrorism.

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[1] United Nations Environment Program

In South and Central America – melting glaciers in Venezuela and the Peruvian Andes will directly impact water supplies and hydroelectric power. The Peruvian plains, northeast Brazil and Mexico will experience longer and more serious droughts. Land degradation and loss of food production will hit hard in Latin America – particularly Brazil whose economy is fueled by food exports – possibly leading to social disruptions and significant migration. We need only reflect on present immigration and security challenges along the U.S. southern border to get a glimpse of what the future could hold: immigration driven not by a search for a better economic life but in search of basic needs.

In Bangladesh, the growing threat of more frequent and intense typhoons in the Bay of Bengal has the potential for wiping out essential coastal agriculture and fishing areas, just as it did in 1991 resulting in the U.S. military led Operation Sea Angel. Greater and more prolonged coastal typhoon damage would create an unprecedented humanitarian crisis, which could drive literally millions of refugees northwest toward India in search of relief.

As the Himalayan glaciers recede, Asian nations like China, India and Pakistan will have to deal with internal and external unrest due to a much less reliable source of water from four great rivers --- creating floods at some times of the year, prolonged drought during others-- to meet the needs of growing populations. This past summer, we saw massive flooding in Pakistan that continues to affect more than twenty million people in a nuclear-armed nation, with an ongoing extremist insurgency that has direct bearing on the outcome of allied operations in Afghanistan. 40 percent of Asia's four billion people live within 45 miles of the coast – with coastlines and infrastructure that could be inundated by rising seas. Even the most modest projections of increased temperature and sea level rise include widespread flooding and loss of significant percentages of coastal delta farmland and heavily populated areas.

In the Middle East, the vast majority of highly diverse populations already depend on water sources external to their borders. A greatly increased competition for diminishing supplies of water for agriculture and basic human needs would significantly ratchet up tensions in this historically critical and politically unstable region.

These potential climate change effects will not just create crisis events happening far away from American soil or along our borders. Disasters like Hurricane Katrina in 2005 reveal, in a very stark way, how a natural disaster-caused humanitarian crisis can quickly lead to suffering, civil unrest and the need for a massive, expensive and sustained mobilization of resources. In fact today, more than five years after Hurricane Katrina produced widespread destruction along the Gulf Coast, thousands of people have not returned to their homes and hundreds of millions of dollars in damaged infrastructure remain.

As CNA Military Advisory Board member Vice Admiral Richard Truly said climate change is not like “some hot spot we’re trying to handle.” “It’s going to happen to every country and every person in the whole world at the same time.” [ii]

And while the effects of global warming create this potential environmental havoc, its principal dynamic will be to shift the world's balance of power and money.[iii]

Drought and scant water supply have already fueled civil conflicts in global hot spots like Afghanistan, Nepal and Sudan, according to several new studies. The evidence is fairly clear that sharp downward deviations from normal rainfall in fragile societies elevate the risk of major conflict.[iv]

Climate impacts like extreme drought, flooding, storm, temperatures, sea level rise, ocean acidification, and wildfires – occurring more frequently and more intensely across the globe -- will inevitably create political instability where societal demands for the essentials of life exceed the capacity of governments to cope. As noted above, fragile governments will become failed states, and desperation and hopelessness will drive whole populations to be displaced on a scale far beyond what we see today. And into this turmoil and power vacuum will rush paramilitaries, organized crime, extremists producing a highly exportable brand of terrorism.

Clearly the U.S. Military will be called to respond to these new threats -- mobilizing to meet the needs of humanitarian crises, like our response to the 2004 tsunami in Indonesia. At the same time, we will be confronted with more frequent resource based conflicts -- think oil-- in the most volatile regions of the world. Climate-driven disruption is such a viable threat that the Pentagon has already started to prepare contingencies for such scenarios, and focused on the issue in its 2010 Quadrennial Defense Review, as did the State Department in its Quadrennial Diplomacy and Development Review.

At the same time, -- and this is at the very nexus of climate change, energy and national security -- increasing demand for, and dwindling supplies of fossil fuels will add greatly to this instability, in many of the very same places worst hit by climate change.

In its second report, May, 2009, the CNA Military Advisory Board concluded that <u>America’s current energy posture constitutes a serious and urgent threat to national security -- militarily, diplomatically and economically</u>. Further, this creates an ongoing unacceptable level of risk to our nation, exploitable by those who wish to do us harm.

Militarily, our dependence on oil stretches our military thin because we are obliged to protect and ensure the free flow of oil in hostile or destabilized regions

--even as our troops are on their third and fourth combat deployment in Iraq and Afghanistan. Protecting our access to foreign oil jeopardizes our military and exacts a huge price in dollars and lives.

Beyond assuring the free flow of oil, our nation's, and our military's inefficient use of fuel adds to the already great risks assumed by our troops. It reduces combat effectiveness and puts our troops – more directly and more often—in harm's way. Petro-dollars going into Iranian coffers have directly helped to finance our enemies in both Iraq and Afghanistan. The insurgents have used that money to buy communications, sensors and the most lethal components of improvised explosive devices and roadside bombs that continue to kill and maim our troops on a weekly basis.

Fuel convoys can stretch over great distances, traversing hotly contested territory and become attractive targets for enemy forces as we saw over the summer with burning NATO fuel convoys along the Pakistan border. Ensuring convoy safety and fuel delivery requires a tremendous diversion of money and combat force. [v] As in-theater energy demand increases, more assets must be diverted to protect fuel convoys rather than to directly engage enemy combatants and carry out the primary mission.

We saw this in Iraq and we are certainly seeing it again in Afghanistan where the tempo of military operations, the size of the force and its effectiveness is literally paced by our ability to get fuel when and where it's needed.

Outside the theater of combat, our country's dependence on oil undermines our foreign policy goals and US leverage because it entangles us with hostile regimes. The United States sent $386 billion dollars overseas in 2008, the beginning of our economic recession, to pay for oil; and too much of this money went to countries that are hostile to our interests. Last year, even in the depths of the recession, we sent more than a billion dollars a day out of our economy to pay for our oil addiction.

This oil dependence cripples our foreign policy and weakens our leverage internationally and limits our options. Much too frequently we find ourselves entangled with unfriendly rulers and undemocratic nations, simply because we need their oil. The difficulty of our international efforts to put an effective sanctions framework in place to prevent the realization of nuclear ambitions by Iran illustrates this limit to U.S. leverage.

But unlike what many believe -- it is not just foreign oil that jeopardizes our energy security. It is **all oil**. We simply do not have enough sustainable oil resources in this country to free us from the stranglehold of those who do. It is not environmental restrictions on oil exploration that are keeping us from energy independence; it is a fundamental problem of supply and demand that will grow more divergent over time. We cannot drill our way to sustainable energy

independence. The CNA Military Advisory Board concluded our dependence on **all oil** is a national security threat in part because the United States controls only 3 percent of the world's known oil reserves but uses over 25 percent of the world's oil supplies—we will never have enough domestic supply to meet our need for this fuel so we must deliberately and effectively wean ourselves from it and diversify our energy portfolio.

We also identified a series of converging risks posed by our fossil fuel dependence.

Economically --- It undermines our stability. As I noted earlier, our traditionally narrow approach to energy is a key part of our current financial crisis. We are heavily dependent on a global petroleum market that is highly volatile. In 2008, the year that the recession began, the per-barrel price of oil climbed as high as $147, and dropped as low as $40. But this price volatility is not limited to oil – natural gas and coal prices also had huge spikes that year. The benchmark Central Appalachian coal price hit $175 per short ton. While our ongoing economic downturn has caused those prices to come down, they still remain high and will inevitably begin to climb as the economy recovers. While this energy resource may be plentiful, it is increasingly difficult to access and, in addition to a high greenhouse gas footprint, has significant regional and local environmental impacts including ground water contamination, slurry spills and air pollution. When completely accounted for, the true economic and environmental costs of coal energy are very steep and must be factored in when developing a more comprehensive approach to energy for the U.S.

There are many who still say we cannot afford to deal with our energy issues right now. But if we don't address our long-term energy profile in significant ways, beginning now – future economic crises will dwarf this one. The oil price shocks of 1973-74, the late 1970s/early 1980s, and early 1990's were all followed by recessions.[vi] If oil prices rose to $200 per barrel, the U.S. would spend $1.5 trillion per year on oil, which would be equal to 22% of take-home pay (for all Americans who pay taxes)…In other words, the U.S. will be broke long before oil prices hit $200 per barrel, and the rest of the world would be sure to follow.[vii]

The bottom-line is we can invest now in changing our energy posture or pay much more later on, with far fewer options available. The current economic recession is beginning to end and U.S. energy demands will increase, the volatile cycle of fuel prices will become sharper and shorter because the market for fossil fuels will be shaped by finite supplies and increasing demand. Continuing the United States' pattern of energy usage in a business-as-usual manner creates an unacceptably high threat level to our economic security and, consequently, to our overall national security.

To further highlight this energy-economy-national security link, the CNA Military Advisory Board released its third report in July of this year, titled

"Powering America's Economy: Energy Innovation at the Crossroads of National Security Challenges". The major findings are quite clear and directly address the subject of this hearing:

- America's energy choices are inextricably linked to national and economic security
- The clean energy technology revolution presents great challenges and great opportunities
- Energy business-as-usual is not a viable option for the United States
- The Department of Defense can be a powerful catalyst of energy innovation

And the very first and most important recommendation of the report is a clear call to action by the President and Congress:

- The United States Government should take bold and aggressive action to support clean energy technology innovation and rapidly decrease the nation's dependence on fossil fuels.

On October 13th, Admiral Mike Mullen, the Chairman of the Joint Chiefs of Staff, closed his address to a DoD energy forum with these words:

"I'm proud of the work that the men and women of the Department of Defense are doing – the work many of you are leading – to ensure we turn our own energy security from a vulnerability to the strength it could be.

Few of us can argue that the need is not there.

Many of us can see that the right technology is emerging.

And I hope all of us can agree that the time for change is now."

While Admiral Mullen's comments are primarily focused on the Department of Defense, they apply across the board to America's energy security. Unless we take steps now, not later, to prevent, mitigate and adapt to our energy and climate challenges, the conflict over finite resources – from food to fuel – caused by rising energy demand and accelerating climate change will lead to a significant increase in conflicts, and in conflict intensity.

We need to carefully avoid the temptation to ignore these connections, and take only small steps to address narrow issues. Large, interconnected security challenges require bold, comprehensive solutions.

"We face," as the late John Gardner once said "a series of opportunities brilliantly disguised as unsolvable problems."

Members of the Committee, we must recognize we are at a pivotal moment in history, facing a Gordian knot unlike any the world has seen before. Those who say that now is not the time to act fail to recognize the gravity and urgency of our energy and climate change challenges – but they also fail to understand the tremendous economic **opportunity**.

There is a new multibillion-dollar revolution underway in clean technology around the world. And there is compelling evidence that clean energy policies are powerful economic drivers. To give just one example, precedent-setting statewide efficiency standards saved Californians $56 billion – the equivalent of $1000 per household – which were available to be spent on goods and services besides energy- and created 1.5 million additional jobs. Energy efficiency – the cleanest fuel that need never be mined, drilled or burned – represents a just barely tapped industry in our nation-creating a resource that holds enormous power for the entire United States and for all economies of the world.

The same is true for a whole host of clean and sustainable energy sources. There is general agreement that there is no "silver bullet" technology to meet our growing energy needs in an environmentally responsible way. However, there are a lot of "silver buckshot" approaches that can be effectively used to create a viable portfolio of future energy sources that are not reliant on greenhouse gas producing feed stocks and technologies. What is needed is the kind of energy policy structure that creates market certainty and invites significant public and private investment to significantly and rapidly scale up clean energy technologies. Absent new legislation that creates a clear market signal, it will be critical to maintain the Environmental Protection Agency's existing authority to regulate dangerous pollutants, including greenhouse gases. The United States can seize this opportunity to create jobs and bring our great innovation, technology infrastructure and private capital to the forefront with the right kind of legislation and policies.

Perhaps most important is the opportunity these challenges create for us to demonstrate, once again, the core values of America leadership to the world. How can we expect our enemies, or even our friends and allies, to understand the value of freedom and democracy if we are not actively engaged in protecting the essential air, water and soil that are its seeds? Ensuring that fragile democracies have the technologies needed to prevent, mitigate and adapt to climate change and to produce clean energy self reliance will help grow our economy and protect theirs. Most importantly, America's leadership and key partnership in addressing these truly global challenges will act as a powerful catalyst for international collaboration to better address a whole host of pressing issues. The United States has an opportunity and obligation to lead. We can untie the Gordian knot of economy, energy, climate and national security – and lead to much greater global security.

Members of the Committee, if we act with boldness and vision now, future

generations will look back on this as a time when we stopped clinging to the status quo and rose above narrow special interests and partisan divides to address the most pressing issues of this century. Through thoughtful dialogue, effective legislation and united action, we can transform daunting challenges to America into sustained security and prosperity, creating a better quality of life for our nation and for our world.

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[i] http://www.ipcc.ch/SPM6avr07.pdf KANTER, James and ANDREW C. REVKIN. "Scientists Detail Climate Changes, Poles to Tropics." *New York Times* (April 7, 2007). Jolis, Anne and Alex MacDonald. "U.N. Panel Reaches Agreement On Climate-Change Report." *Wall Street Journal* (Apr. 6, 2007).

[ii] "Military on Climate Change" *Washington Post* (April 15, 2007).

[iii] Informed Reader column "How Global Warming Will Play With Investors" *Wall Street Journal* (March 9, 2007).

[iv] Revkin, Andrew "Global Warming Called Security Threat." New York Times (April 15, 2007) http://www.ciesin.columbia.edu/pdf/waterconflict.pdf .

[v] Vice-Admiral Dennis McGinn calls Energy Independence a "Silver Bullet", http://www.operationfree.net/2009/09/18/vice-admiral-dennis-mcginn-calls-energy-independence-a-silver-bullet/

[vi] DOE, http://www.eia.doe.gov/oiaf/economy/energy_price.html

[vii] Forbes, http://www.forbes.com/2008/06/23/crude-biderman-margin-pf-etf-in_tt_0623trimtabs_inl.html