Submitted by: ASSEMBLY MEMBER DRUMMOND
Prepared by: Assembly Counsel's Office
For reading: August 17, 2010

CLERK'S OFFICE
APPROVED
Date: 8-17-10

ANCHORAGE, ALASKA
AR NO. 2010–240

A RESOLUTION OF THE ANCHORAGE MUNICIPAL ASSEMBLY TO SUPPORT COMPREHENSIVE FEDERAL CLEAN ENERGY LEGISLATION IN THE YEAR 2010.

WHEREAS, concerned about our future, our economy and our community, we cannot afford to wait to act on comprehensive clean energy; and

WHEREAS, currently the United States spends over $1 billion per day to import oil, draining our economy and enriching countries that are fighting against us; and

WHEREAS, according to a study conducted in 2007 by the Center for Naval Analysis, generals concluded that climate change was a "threat multiplier" requiring the full attention of the Department of Defense and action by the United States government before it was too late; and

WHEREAS, the Department of Defense identified global climate change as a national security threat that brings additional risks and stressors to United States service members stationed overseas, including soldiers deployed from Fort Richardson and Elmendorf - bases located in the Municipality of Anchorage; and

WHEREAS, efforts to reduce pollution and to promote cleaner energy sources will increase demand for natural gas and help create favorable conditions for bringing Alaska's natural gas to market; and

WHEREAS, Alaska has abundant opportunities for renewable energy resources including wind power, geothermal power, hydroelectric power, tidal power, and biomass; and

WHEREAS, statewide efforts to reduce carbon pollution, to increase energy efficiency, and to produce renewable energy provide numerous local benefits by creating new jobs that cannot be exported, developing reliable local power, cutting energy bills and saving taxpayers money;

NOW THEREFORE BE IT RESOLVED that the Anchorage Assembly respectfully requests our Federal Delegation to thoughtfully consider and work together with Congress to pass comprehensive energy legislation in the year 2010 that creates new incentives for natural gas, renewable energy and adoption of energy efficient technologies while reducing our country's dependence on foreign oil and increasing our national security.

PASSED AND APPROVED by the Anchorage Assembly this 17th day of August, 2010.

Chair

ATTEST:

Municipal Clerk

MUNICIPALITY OF ANCHORAGE
ASSEMBLY MEMORANDUM
No. AM 444-2010

Meeting Date: August 17, 2010

From: ASSEMBLY MEMBER DRUMMOND
Subject: **AR 2010-240 — A RESOLUTION OF THE ANCHORAGE MUNICIPAL ASSEMBLY TO SUPPORT COMPREHENSIVE FEDERAL CLEAN ENERGY LEGISLATION IN THE YEAR 2010.**

In February 2010, the *Quadrennial Defense Review Report* concluded that climate change would affect the Department of Defense and would shape its operating environment, roles, and missions. As per the report, extreme weather events may lead to increased demand for defense support for humanitarian assistance or disaster response. According to the report, in some nations, the military is the only institution with the capacity to respond to a large-scale disaster. Selected pages from *Quadrennial Defense Review Report* are attached. The full report may be found at: http://www.defense.gov/qdr/

Additionally, the *Quadrennial Defense Review Report* affirms that the Department of Defense will need to adjust to the impacts of climate change on its facilities and military capabilities. According to the report, climate change will pose challenges for civil society and the Department of Defense, particularly due to the nation's extensive coastal infrastructure. The report stated that the National Intelligence Council judged, in 2008, that more than 30 U.S. military installations were already facing elevated levels of risk from rising sea levels. Since the Department of Defense's operational readiness hinges on continued access to land, air, and sea training, the *Quadrennial Defense Review Report* recommends that the Department of Defense complete a comprehensive assessment of all installations to assess potential impacts of climate change on its missions and adapt as required.

In its 2007 report, *National Security and the Threat of Climate Change*, the Center for Naval Analysis determined that atmospheric carbon dioxide levels were greater then (2007) than at any time in the past 650,000 years. Additionally, the average global temperature has continued a steady rise.

The *National Security and the Threat of Climate Change* report includes recommendations on appropriate action that should begin now to help mitigate the severity of these emergent changes. The Center for Naval Analysis' recommendations include commitment by the United States of America to a stronger national and international role to help stabilize climate change at levels that will avoid significant disruption to global security and stability. Selected pages from *National Security and the Threat of Climate Change* are attached. The full report may be found at: http://securityandclimate.cna.org/

Currently, the United States spends over $1 billion per day to import oil which is draining our economy. The increasing cost of fossil fuel energy is a burden on our community, especially our vulnerable and low-income residents. While in turn, foreign countries, hostile to the United States, are enriched.

In a recent article out of Juneau, Alaska, *Gas Line Prospects May Be Unknown for Months*, Associated Press Writer Becky Bohrer reported that Larry Persily, the federal coordinator for Alaska natural gas projects, said that the odds for an Alaska gas pipeline would increase if federal legislation moves forward that pushes the nation toward greater natural gas use. According to the article, Mr. Persily stated that Alaska's hope for a gas pipeline rests on whether the market needs our gas. Driving that demand growth will be large volume, long-term users like electric companies. As per the article, Mr. Persily added that federal legislation encouraging cleaner energy would help. A copy of *Gas Line Prospects May Be Unknown for Months* is attached.

Through the Home Energy Rebate Program and Weatherization Assistance Program, thousands of Alaskans statewide are already benefitting from cleaner and more efficient energy use. Of additional benefit to Alaskans, the Home Energy Rebate and Weatherization Assistance Programs have created an estimated 2,000 to 2,500 jobs.

Under the Home Energy Rebate Program, existing homeowners sign up for an energy rater to rate their homes for energy efficiency. As per the energy raters' recommendations, the homeowner pays for the work to be completed and may be reimbursed up to $10,000. Under the Home Energy Rebate Program, 24,796 homes have been rated and 6,913 rebates have been paid. An average rebate is $6,235. The Home Energy Rebate Program estimates that homeowners save $1,600 per year in energy costs.

Under the Weatherization Assistance Program, qualified renters and qualified homeowners throughout the state apply for free home weatherization in order to bring their homes up to safe, healthy and energy-efficient standards. Weatherization adds years of life to buildings and brings the benefit of energy conservation, saving homeowners and renters up to 50% off their heating bills. Since 2008, over 6,655 homes have been weatherized.

Our future, our economy and our community depend on comprehensive clean energy. Only through concerted efforts, as a nation, can we thwart this threat to our future and relieve these economic burdens. Our leaders, including those at the federal level, must accept as a national priority the development of renewable energy technology and infrastructure. This AR 2010-240 gives support from and on behalf of the Municipality of Anchorage for the passage of comprehensive clean energy legislation for our country.

Respectfully submitted:

Assembly Member Harriet Drummond, Section 3

QUADRENNIAL DEFENSE REVIEW REPORT

FEBRUARY 2010

Quadrennial Defense Review Report

February 2010

The global economy has changed, with many countries now possessing advanced research, development, and manufacturing capabilities. Moreover, many advanced technologies are no longer predominantly developed for military applications with eventual transition to commercial uses, but follow the exact opposite course. Yet, in the name of controlling the technologies used in the production of advanced conventional weapons, our system continues to place checks on many that are widely available and remains designed to control such items as if Cold War economic and military-to-commercial models continued to apply.

The U.S. export system itself poses a potential national security risk. Its structure is overly complicated, contains too many redundancies, and tries to protect too much. Today's export control system encourages foreign customers to seek foreign suppliers and U.S. companies to seek foreign partners not subject to U.S. export controls. Furthermore, the U.S. government is not adequately focused on protecting those key technologies and items that should be protected and ensuring that potential adversaries do not obtain technical data crucial for the production of sophisticated weapons systems.

These deficiencies can be solved only through fundamental reform. The President has therefore directed a comprehensive review tasked with identifying reforms to enhance U.S. national security, foreign policy, and economic security interests. Reform efforts must reflect an inherently interagency process as current export control authorities rest with other departments. Similarly, meaningful reforms will not be possible without congressional involvement throughout the process. The Department of Defense has a vital stake in fundamental reform of export controls, and will work with our interagency partners and Congress to ensure that a new system fully addresses the threats that the United States will face in the future.

Crafting a Strategic Approach to Climate and Energy

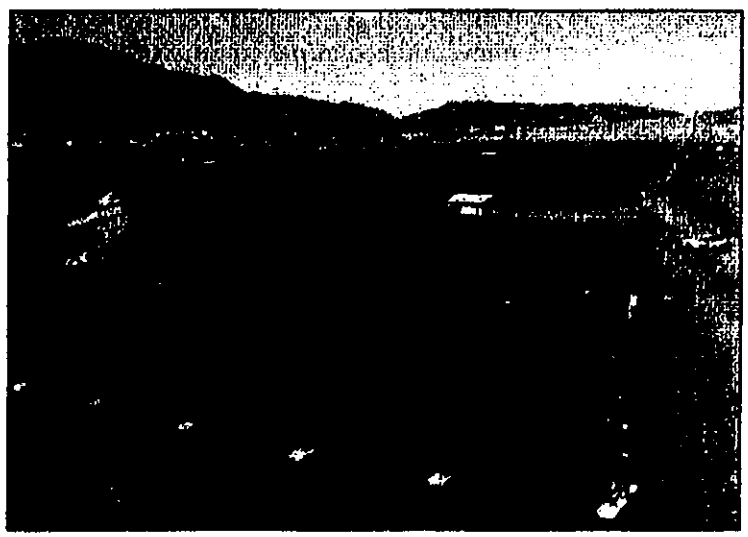
Climate change and energy are two key issues that will play a significant role in shaping the future security environment. Although they produce distinct types of challenges, climate change, energy security, and economic stability are inextricably linked. The actions that the Department takes now can prepare us to respond effectively to these challenges in the near term and in the future.

Climate change will affect DoD in two broad ways. First, climate change will shape the operating environment, roles, and missions that we undertake. The U.S. Global Change Research Program, composed of 13 federal agencies, reported in 2009 that climate-related changes are already being observed in every region of the world, including the United States and its coastal waters. Among these physical changes are increases in heavy downpours, rising temperature and sea level, rapidly retreating glaciers, thawing permafrost, lengthening growing seasons, lengthening ice-free seasons in the oceans and on lakes and rivers, earlier snowmelt, and alterations in river flows.

Assessments conducted by the intelligence community indicate that climate change could have significant geopolitical impacts around the world, contributing to poverty, environmental degradation, and the further weakening of fragile governments. Climate change will contribute to food and water scarcity, will increase the spread of disease, and may spur or exacerbate mass migration.

While 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. In some nations, the military is the only institution with the capacity to respond to a large-scale natural disaster. Proactive engagement with these countries can help build their capability to respond to such events. Working closely with relevant U.S. departments and agencies, DoD has undertaken environmental security cooperative initiatives with foreign militaries that represent a nonthreatening way of building trust, sharing best practices on installations management and operations, and developing response capacity.

Second, DoD will need to adjust to the impacts of climate change on our facilities and military capabilities. The Department already provides environmental stewardship at hundreds of DoD installations throughout the United States and around the world, working diligently to meet resource efficiency and sustainability goals as set by relevant laws and executive orders. Although the United States has significant capacity to adapt to climate change, it will pose challenges for civil society and DoD alike, particularly in light of the nation's extensive coastal infrastructure. In 2008, the National Intelligence Council judged that more than 30 U.S. military installations were already facing elevated levels of risk from rising sea levels. DoD's operational readiness hinges on continued access to land, air, and sea training and test space. Consequently, the Department must complete a comprehensive assessment of all installations to assess the potential impacts of climate change on its missions and adapt as required.



At Fort Carson, Colo., the Army partnered with a local energy provider in an enhanced-use lease. The energy provider built a photovoltaic solar array on top of a closed landfill. That site now provides energy to some 540 homes. U.S. Army photo.

In this regard, DoD will work to foster efforts to assess, adapt to, and mitigate the impacts of climate change. Domestically, the Department will leverage the Strategic Environmental Research and Development Program, a joint effort among DoD, the Department of Energy, and the Environmental Protection Agency, to develop climate change assessment tools. Abroad, the Department will increase its investment in the Defense Environmental International Cooperation Program not only to promote cooperation on environmental security issues, but also to augment international adaptation efforts. The Department will also speed innovative energy and conservation technologies from laboratories to military end users. The Environmental Security and Technology Certification Program uses military installations as a test bed to demonstrate and create a market for innovative energy efficiency and renewable energy technologies coming out of the private sector and DoD and Department of Energy laboratories. Finally, the Department is improving small-scale energy efficiency and renewable energy projects at military installations through our Energy Conservation Investment Program.

Personnel from the University of Washington's Applied Physics Laboratory prepare to recover a torpedo from under the ice on March 20, 2009. DoD photo by Mass Communication Spec. First Class Tiffini M. Jones, U.S. Navy.

The effect of changing climate on the Department's operating environment is evident in the maritime commons of the Arctic. The opening of the Arctic waters in the decades ahead which will permit seasonal commerce and transit presents a unique opportunity to work collaboratively in multilateral forums to promote a balanced approach to improving human and environmental security in the region. In that effort, DoD must work with the Coast Guard and the Department of Homeland Security to address gaps in Arctic communications, domain awareness, search and rescue, and environmental observation and forecasting capabilities to support both current and future planning and operations. To support cooperative engagement in the Arctic, DoD strongly supports accession to the United Nations Convention on the Law of the Sea.

As climate science advances, the Department will regularly reevaluate climate change risks and opportunities in order to develop policies and plans to manage its effects on the Department's operating environment, missions, and facilities. Managing the national security effects of climate

change will require DoD to work collaboratively, through a whole-of-government approach, with both traditional allies and new partners.

Energy security for the Department means having assured access to reliable supplies of energy and the ability to protect and deliver sufficient energy to meet operational needs. Energy efficiency can serve as a force multiplier, because it increases the range and endurance of forces in the field and can reduce the number of combat forces diverted to protect energy supply lines, which are vulnerable to both asymmetric and conventional attacks and disruptions. DoD must incorporate geostrategic and operational energy considerations into force planning, requirements development, and acquisition processes. To address these challenges, DoD will fully implement the statutory requirement for the energy efficiency Key Performance Parameter and fully burdened cost of fuel set forth in the 2009 National Defense Authorization Act. The Department will also investigate alternative concepts for improving operational energy use, including the creation of an innovation fund administered by the new Director of Operational Energy to enable components to compete for funding on projects that advance integrated energy solutions.

The Department is increasing its use of renewable energy supplies and reducing energy demand to improve operational effectiveness, reduce greenhouse gas emissions in support of U.S. climate change initiatives, and protect the Department from energy price fluctuations. The Military Departments have invested in noncarbon power sources such as solar, wind, geothermal, and biomass energy at domestic installations and in vehicles powered by alternative fuels, including hybrid power, electricity, hydrogen, and compressed national gas. Solving military challenges—through such innovations as more efficient generators, better batteries, lighter materials, and tactically deployed energy sources—has the potential to yield spin-off technologies that benefit the civilian community as well. DoD will partner with academia, other U.S. agencies, and international partners to research, develop, test, and evaluate new sustainable energy technologies.

Indeed, the following examples demonstrate the broad range of Service energy innovations. By 2016, the Air Force will be postured to cost-competitively acquire 50 percent of its domestic aviation fuel via an alternative fuel blend that is greener than conventional petroleum fuel. Further, Air Force testing and standard-setting in this arena paves the way for the much larger commercial aviation sector to follow. The Army is in the midst of a significant transformation of its fleet of 70,000 non-tactical vehicles (NTVs), including the current deployment of more than 500 hybrids and the acquisition of 4,000 low-speed electric vehicles at domestic installations to help cut fossil fuel usage. The Army is also exploring ways to exploit the opportunities for renewable power generation to support operational needs: for instance, the Rucksack Enhanced Portable Power System (REPPS). The Navy commissioned the USS *Makin Island*, its first electric-drive surface combatant, and tested an F/A-18 engine on camelina-based

biofuel in 2009—two key steps toward the vision of deploying a "green" carrier strike group using biofuel and nuclear power by 2016. The Marine Corps has created an Expeditionary Energy Office to address operational energy risk, and its Energy Assessment Team has identified ways to achieve efficiencies in today's highly energy-intensive operations in Afghanistan and Iraq in order to reduce logistics and related force protection requirements.

To address energy security while simultaneously enhancing mission assurance at domestic facilities, the Department is focusing on making them more resilient. U.S. forces at home and abroad rely on support from installations in the United States. DoD will conduct a coordinated energy assessment, prioritize critical assets, and promote investments in energy efficiency to ensure that critical installations are adequately prepared for prolonged outages caused by natural disasters, accidents, or attacks. At the same time, the Department will also take steps to balance energy production and transmission with the requirement to preserve the test and training ranges and the operating areas that are needed to maintain readiness.

NATIONAL SECURITY AND THE THREAT OF CLIMATE CHANGE

SecurityAndClimate.cna.org

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/s/

Sherri Goodman
Executive Director, Military Advisory Board
General Counsel, The CNA Corporation
This document represents the best opinion of The CNA Corporation at the time of issue.

NATIONAL SECURITY AND THE THREAT OF CLIMATE CHANGE

To the reader,

During our decades of experience in the U.S. military, we have addressed many national security challenges, from containment and deterrence of the Soviet nuclear threat during the Cold War to terrorism and extremism in recent years.

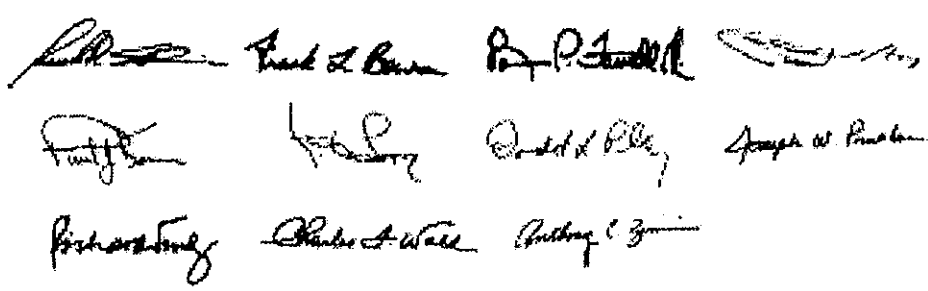
Global climate change presents a new and very different type of national security challenge.

Over many months and meetings, we met with some of the world's leading climate scientists, business leaders, and others studying climate change. We viewed their work through the lens of our military experience as warfighters, planners, and leaders. Our discussions have been lively, informative, and very sobering.

Carbon dioxide levels in the atmosphere are greater now than at any time in the past 650,000 years, and average global temperature has continued a steady rise. This rise presents the prospect of significant climate change, and while uncertainty exists and debate continues regarding the science and future extent of projected climate changes, the trends are clear.

The nature and pace of climate changes being observed today and the consequences projected by the consensus scientific opinion are grave and pose equally grave implications for our national security. Moving beyond the arguments of cause and effect, it is important that the U.S. military begin planning to address these potentially devastating effects. The consequences of climate change can affect the organization, training, equipping, and planning of the military services. The U.S. military has a clear obligation to determine the potential impacts of climate change on its ability to execute its missions in support of national security objectives.

Climate change can act as a threat multiplier for instability in some of the most volatile regions of the world, and it presents significant national security challenges for the United States. Accordingly, it is appropriate to start now to help mitigate the severity of some of these emergent challenges. The decision to act should be made soon in order to plan prudently for the nation's security. The increasing risks from climate change should be addressed now because they will almost certainly get worse if we delay.



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EXECUTIVE SUMMARY

The purpose of this study is to examine the national security consequences of climate change. A dozen of the nation's most respected retired admirals and generals have served as a Military Advisory Board to study how climate change could affect our nation's security over the next 30 to 40 years—the time frame for developing new military capabilities.

The specific questions addressed in this report are:

1. What conditions are climate changes likely to produce around the world that would represent security risks to the United States?
2. What are the ways in which these conditions may affect America's national security interests?
3. What actions should the nation take to address the national security consequences of climate change?

The Military Advisory Board hopes these findings will contribute to the call President Bush made in his 2007 State of the Union address to "...help us to confront the serious challenge of global climate change" by contributing a new voice and perspective to the issue.

FINDINGS

Projected climate change poses a serious threat to America's national security.

The predicted effects of climate change over the coming decades include extreme weather events, drought, flooding, sea level rise, retreating glaciers, habitat shifts, and the increased spread of life-threatening diseases. These conditions have the potential to disrupt our way of life and to force changes in the way we keep ourselves safe and secure.

In the national and international security environment, climate change threatens to add new hostile and stressing factors. On the simplest level, it has the potential to create sustained natural and humanitarian disasters on a scale far beyond those we see today. The consequences will likely foster political instability where societal demands exceed the capacity of governments to cope.

Climate change acts as a threat multiplier for instability in some of the most volatile regions of the world. Projected climate change will seriously exacerbate already marginal living standards in many Asian, African, and Middle Eastern nations, causing widespread political instability and the likelihood of failed states.

Unlike most conventional security threats that involve a single entity acting in specific ways and points in time, climate change has the potential to result in multiple chronic conditions, occurring globally within the same time frame. Economic and environmental conditions in already fragile areas will further erode as food production declines, diseases increase, clean water becomes increasingly scarce, and large populations move in search of resources. Weakened and failing governments, with an already thin margin for survival, foster the conditions for internal conflicts, extremism, and movement toward increased authoritarianism and radical ideologies.

The U.S. may be drawn more frequently into these situations, either alone or with allies, to help provide stability before conditions worsen and are exploited by extremists. The U.S. may also be called upon to undertake stability and reconstruction efforts once a conflict has begun, to avert further disaster and reconstitute a stable environment.

Projected climate change will add to tensions even in stable regions of the world. The U.S. and Europe may experience mounting pressure to accept large numbers of immigrant and refugee populations as drought increases and food production declines in Latin America and Africa. Extreme weather events and natural disasters, as the U.S. experienced with Hurricane Katrina, may lead to increased missions for a number of U.S. agencies, including state and local governments, the Department of Homeland Security, and our already stretched military, including our Guard and Reserve forces.

Climate change, national security, and energy dependence are a related set of global challenges. As President Bush noted in his 2007 State of the Union speech, dependence on foreign oil leaves us more vulnerable to hostile regimes and terrorists, and clean domestic energy alternatives help us confront the serious challenge of global climate change. Because the issues are linked, solutions to one affect the other. Technologies that improve energy efficiency also reduce carbon intensity and carbon emissions.

RECOMMENDATIONS OF THE MILITARY ADVISORY BOARD:

1. The national security consequences of climate change should be fully integrated into national security and national defense strategies.

As military leaders, we know we cannot wait for certainty. Failing to act because a warning isn't precise enough is unacceptable. The intelligence community should incorporate climate consequences into its National Intelligence Estimate. The National Security Strategy should directly address the threat of climate change to our national security interests. The National Security Strategy and National Defense Strategy should include appropriate guidance to military planners to assess risks to current and future missions caused by projected climate change. The next Quadrennial Defense Review should examine the capabilities of the U.S. military to respond to the consequences of climate change, in particular, preparedness for natural disasters from extreme weather events, pandemic disease events, and other related missions.

2. The U.S. should commit to a stronger national and international role to help stabilize climate change at levels that will avoid significant disruption to global security and stability.

Managing the security impacts of climate change requires two approaches: mitigating the effects we can control and adapting to those we cannot. The U.S. should become a more constructive partner with the international community to help build and execute a plan to prevent destabilizing effects from climate change, including setting targets for long term reductions in greenhouse gas emissions.

3. The U.S. should commit to global partnerships that help less developed nations build the capacity and resiliency to better manage climate impacts.

As President Bush noted in his State of the Union speech, "Our work in the world is also based on a timeless truth: To whom much is given, much is required." Climate forecasts indicate countries least able to adapt to the consequences of climate change are those that will be the most affected. The U.S. government should use its many instruments of national influence, including its regional commanders, to assist nations at risk build the capacity and resiliency to better cope with the effects of climate change. Doing so now can help avert humanitarian disasters later.

4. The Department of Defense should enhance its operational capability by accelerating the adoption of improved business processes and innovative technologies that result in improved U.S. combat power through energy efficiency.

Numerous Department of Defense studies have found that combat forces would be more capable and less vulnerable by significantly reducing their fuel demand. Unfortunately, many of their recommendations have yet to be implemented. Doing so would have the added benefit of reducing greenhouse gas emissions.

5. The Department of Defense should conduct an assessment of the impact on U.S. military installations worldwide of rising sea levels, extreme weather events, and other projected climate change impacts over the next 30 to 40 years.

Many critical defense installations are located on the coast, and several strategically important ones are on low-lying Pacific islands. Sea level rise and storm surges will threaten these facilities. Planning and action can make these installations more resilient. Lack of planning can compromise them or cause them to be inundated, compromising military readiness and capability.

This report is intended to advance a more rigorous national and international dialogue on the impacts of climate change on national security. We undertook this analysis for the primary purpose of presenting the problem and identifying first-order solutions. We therefore keep this list of findings and recommendations intentionally brief. We hope it will stimulate further discussion by the public and a more in-depth analysis by those whose job it is to plan for our national security.

FINDINGS

Finding 1:
Projected climate change poses a serious threat to America's national security.

Potential threats to the nation's security require careful study and prudent planning—to counter and mitigate potential detrimental outcomes. Based on the evidence presented, the Military Advisory Board concluded that it is appropriate to focus on the serious consequences to our national security that are likely from unmitigated climate change. In already-weakened states, extreme weather events, drought, flooding, sea level rise, retreating glaciers, and the rapid spread of life-threatening diseases will themselves have likely effects: increased migrations, further weakened and failed states, expanded ungoverned spaces, exacerbated underlying conditions that terrorist groups seek to exploit, and increased internal conflicts. In developed countries, these conditions threaten to disrupt economic trade and introduce new security challenges, such as increased spread of infectious disease and increased immigration.

Overall, climate change has the potential to disrupt our way of life and force changes in how we keep ourselves safe and secure by adding a new hostile and stressing factor into the national and international security environment.

Finding 2:
Climate change acts as a threat multiplier for instability in some of the most volatile regions of the world.

Many governments in Asia, Africa, and the Middle East are already on edge in terms of their ability to provide basic needs: food, water, shelter and stability. Projected climate change will exacerbate the problems in these regions and add to the problems of effective governance. Unlike most conventional security threats that involve a single entity acting in specific ways at different points in time, climate change has the potential to result in multiple chronic conditions, occurring globally within the same time frame. Economic and environmental conditions in these already fragile areas will further erode as food production declines, diseases increase, clean water becomes increasingly scarce, and populations migrate in search of resources. Weakened and failing governments, with an already thin margin for survival, foster the conditions for internal conflict, extremism, and movement toward increased authoritarianism and radical ideologies. The U.S. may be drawn more frequently into these situations to help to provide relief, rescue, and logistics, or to stabilize conditions before conflicts arise.

Because climate change also has the potential to create natural and humanitarian disasters on a scale far beyond those we see today, its consequences will likely foster political instability

where societal demands exceed the capacity of governments to cope. As a result, the U.S. may also be called upon to undertake stability and reconstruction efforts once a conflict has begun.

Finding 3:

Projected climate change will add to tensions even in stable regions of the world.

Developed nations, including the U.S. and Europe, may experience increases in immigrants and refugees as drought increases and food production declines in Africa and Latin America. Pandemic disease caused by the spread of infectious diseases and extreme weather events and natural disasters, as the U.S. experienced with Hurricane Katrina, may lead to increased domestic missions for U.S. military personnel—lowering troop availability for other missions and putting further stress on our already stretched military, including our Guard and Reserve forces.

Our current National Security Strategy, released in 2002 and updated in 2006, refers to globalization and other factors that have changed the security landscape. It cites, among other factors, "environmental destruction, whether caused by human behavior or cataclysmic mega-disasters such as floods, hurricanes, earthquakes or tsunamis. Problems of this scope may overwhelm the capacity of local authorities to respond, and may even overtax national militaries, requiring a larger international response. These challenges are not traditional national security concerns, such as the conflict of arms or ideologies. But if left unaddressed they can threaten national security."

In addition to acknowledging the national security implications of extreme weather and other environmental factors, the National Security Strategy indicates that the U.S. may have to intervene militarily, though it clearly states that dealing with the effects of these events should not be the role of the U.S. military alone.

Despite the language in our current National Security Strategy, there is insufficient planning and preparation on the operational level for future environmental impacts. However, such planning can readily be undertaken by the U.S. military in cooperation with the appropriate civilian agencies, including the State Department, the United States Agency for International Development, and the intelligence community.

Finding 4:

Climate change, national security, and energy dependence are a related set of global challenges.

As President Bush noted in his 2007 State of the Union speech, dependence on foreign oil leaves us more vulnerable to hostile regimes and terrorists, and clean domestic energy alternatives help us confront the serious challenge of global climate change. Because the issues are linked, solutions to one affect the others. Technologies that improve energy efficiency also reduce carbon intensity and carbon emissions.

Recommendation 1:
The national security consequences of climate change should be fully integrated into national security and national defense strategies.
As military leaders, we know we cannot wait for certainty. Failing to act because a warning isn't precise is unacceptable. Numerous parts of the U.S. government conduct analyses of various aspects of our national security situation covering different time frames and at varying levels of detail. These analyses should consider the consequences of climate change.

The intelligence community should incorporate climate consequences into its National Intelligence Estimate. The National Security Strategy should directly address the threat of climate change to our national security interests. It also should include an assessment of the national security risks of climate change and direct the U.S. government to take appropriate preventive efforts now.

The National Security Strategy and the National Defense Strategy should include appropriate guidance to military planners to assess risks to current and future missions of projected climate change, guidance for updating defense plans based on these assessments, and the capabilities needed to reduce future impacts. This guidance should include appropriate revisions to defense plans, including working with allies and partners, to incorporate climate mitigation strategies, capacity building, and relevant research and development.

The next Quadrennial Defense Review should examine the capabilities of the U.S. military to respond to the consequences of climate change, in particular, preparedness for natural disasters from extreme weather events, pandemic disease events, and other missions the U.S. military may be asked to support both at home and abroad. The capability of the National Guard and Reserve to support these missions in the U.S. deserve special attention, as they are already stretched by current military operations.

The U.S. should evaluate the capacity of the military and other institutions to respond to the consequences of climate change. All levels of government—federal, state, and local—will need to be involved in these efforts to provide capacity and resiliency to respond and adapt.

Scientific agencies such as the National Oceanic and Atmospheric Administration (NOAA), the National Aeronautics and Space Administration (NASA) and the United States Geologic Survey (USGS) should also be brought into the planning processes.
The defense and intelligence communities should conduct research on global climate and monitor global climate signals to understand their national security implications. Critical security-relevant knowledge about climate change has come from the partnership between environmental scientists and the defense and intelligence communities. That partnership, vibrant in the 1990s, should be revived.

Recommendation 2:
The U.S. should commit to a stronger national and international role to help stabilize climate changes at levels that will avoid significant disruption to global security and stability.
All agencies involved with climate science, treaty negotiations, energy research, economic policy, and national security should participate in an interagency process to develop a deliberate policy to reduce future risk to national security

from climate change. Actions fall into two main categories: mitigating climate change to the extent possible by setting targets for long-term reductions in greenhouse gas emissions and adapting to those effects that cannot be mitigated. Since this is a global problem, it requires a global solution with multiple relevant instruments of government contributing.

While it is beyond the scope of this study to recommend specific solutions, the path to mitigating the worst security consequences of climate change involves reducing global greenhouse gas emissions. Achieving this outcome will also require cooperation and action by many agencies of government.

Recommendation 3:

The U.S. should commit to global partnerships that help less developed nations build the capacity and resiliency to better manage climate impacts.

Some of the nations predicted to be most affected by climate change are those with the least capacity to adapt or cope. This is especially true in Africa, which is becoming an increasingly important source of U.S. oil and gas imports. Already suffering tension and stress resulting from weak governance and thin margins of survival due to food and water shortages, Africa would be yet further challenged by climate change. The proposal by DoD to establish a new Africa Command reflects Africa's emerging strategic importance to the U.S., and with humanitarian catastrophes already occurring, a worsening of conditions could prompt further U.S. military engagement. As a result, the U.S. should focus on enhancing the capacity of weak African governments to better cope with societal needs and to resist the overtures of well-funded extremists to provide schools, hospitals, health care, and food.

The U.S. should target its engagement efforts, through regional military commanders and other U.S. officials, toward building capacity to mitigate destabilizing climate impacts. For example, regional commanders have routinely used such engagement tools as cooperation on disaster preparedness to help other nations develop their own ability to conduct these efforts.

Cooperative engagement has the potential to reduce the likelihood of war fighting. As Gen. Anthony C. (Tony) Zinni (Ret.) has said: "When I was commander of CENTCOM, I had two missions: engagement and war fighting: If I do engagement well, I won't have to do war fighting." The U.S. cannot do this alone; nor should the military be the sole provider of such cooperative efforts. But the U.S. can lead by working in cooperation with other nations. Such efforts promote greater regional cooperation, confidence building and the capacity of all elements of national influence to contribute to making nations resilient to the impacts of climate change.

Recommendation 4:

The Department of Defense should enhance its operational capability by accelerating the adoption of improved business processes and innovative technologies that result in improved U.S. combat power through energy efficiency.

DoD should require more efficient combat systems and should include the actual cost of delivering fuel when evaluating the advantages of investments in efficiency. Numerous DoD studies dating from the 2001 Defense Science Board report "More Capable Warfighting Through Reduced Fuel Burden" have concluded that high fuel demand by combat forces detracts from our combat capability, makes our forces more vulnerable, diverts combat assets from offense to supply line protection, and increases operating costs. Nowhere are these problems more evident than

in Iraq, where every day 2.4 million gallons of fuel is moved through dangerous territory, requiring protection by armored combat vehicles and attack helicopters.

Deploying technologies that make our forces more efficient also reduces greenhouse gas emissions. DoD should invest in technologies that will provide combat power more efficiently. The resulting technologies would make a significant contribution to the vision President Bush expressed in his State of the Union when he said, "America is on the verge of technological breakthroughs that ... will help us to confront the serious challenge of global climate change."

Recommendation 5:
DoD should conduct an assessment of the impact on U.S. military installations worldwide of rising sea levels, extreme weather events, and other possible climate change impacts over the next 30 to 40 years.

As part of prudent planning, DoD should assess the impact of rising sea levels, extreme weather events, drought, and other climate impacts on its infrastructure so its installations and facilities can be made more resilient.

Numerous military bases, both in the U.S. and overseas, will be affected by rising sea levels and increased storm intensity. Since World War II, the number of overseas bases has diminished, and since the Base Realignment and Closure process began the number of stateside bases has also declined. This makes those that remain more critical for training and readiness, and many of them are susceptible to the effects of climate change. For example, the British Indian Ocean Territory island of Diego Garcia, an atoll in the southern Indian Ocean, is a major logistics hub for U.S. and British forces in the Middle East. It is also only a few feet above sea level at its highest point. The consequences of the losing places like Diego Garcia are not insurmountable, but are significant and would require advance military planning. The Kwajalein is a low-lying atoll, critical for space operations and missile tests. Guam is the U.S. gateway to Asia and could be moderately or severely affected by rising sea levels. Loss of some forward bases would require us to have longer range lift and strike capabilities and possibly increase our military's energy needs.

Military bases on the eastern coast of the U.S. are vulnerable to hurricanes and other extreme weather events. In 1992, Hurricane Andrew virtually destroyed Homestead Air Force Base in Florida. In 2004 Hurricane Ivan knocked out Naval Air Station Pensacola for almost a year. Most U.S. Navy and Coast Guard bases are located on the coast, as are most U.S. Marine Corps locations. The Army and Air Force also operate bases in low-lying or coastal areas. One meter of sea level rise would inundate much of Norfolk, Virginia, the major East Coast hub for the U.S. Navy. As key installations are degraded, so is the readiness of our forces.

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Gas line prospects may be unknown for months

Associated Press

By BECKY BOHRER, Associated Press Writer
Tue Jul 20, 8:01 pm ET

JUNEAU, Alaska – The federal coordinator for Alaska natural gas projects said Tuesday it could be be late this year, or early next, before Alaskans know whether they're closer to securing a major natural gas pipeline.

Larry Persily said Tuesday that the public shouldn't expect any major announcements next week, when TransCanada Corp. is slated to end its three-month process of courting gas producers and securing commitments for shipping deals. He said the end of the open season will simply mark the start of negotiations between the company and potential shippers, with possible issues such as gas volume commitments, years of expected use and what a shipper wants to pay needing to be ironed out.

Once a deal is reached, the developer and shipper sign a precedent agreement, and Persily said those commitments help provide the basis for the developer beginning to spend hundreds of millions toward building a line.

All of this, of course, assumes there are bidders; the goal of an open season is to gauge interest in building a major line.

Persily said the odds for a pipeline would increase if federal legislation moves forward that pushes the nation toward greater use of natural gas.

"The hope for an Alaska gas pipeline rests on whether the market needs our gas. It's just that simple," he told reporters during an informal briefing in Anchorage. Underpinning that demand growth will be large volume, long-term users like electricity companies, not scattered individual users.

If the U.S. turns to natural gas as primary fuel for new power plants and moves away from coal plants that can be expensive to retrofit to meet changing emissions standards, "we've got a chance, I believe, for this project," Persily said.

He said federal legislation encouraging cleaner energy would help.

"I think Alaskans, while they're waiting for the results of the open season, need to think that reasonable climate change legislation really can be good for a North Slope pipeline," he said.

There are currently two competing projects vying for attention that would bring gas from Alaska's prodigous North Slope to market, and it's widely believed that only one will go forward, if, any go forward at all.

TransCanada is working with Exxon Mobil Corp. to advance its project. It's moving forward with the promise of up to $500 million from the state under an exclusive license it won under the Alaska Gasline Inducement Act, championed by then-Gov. Sarah Palin as a way to bring to fruition the long-hoped for natural gas line.

The second project, Denali-The Alaska Gas Pipeline, is a joint effort of BP America and ConocoPhillips. It began its open season earlier this month, with a run slated to end Oct. 4.

Based on the developers' own timelines, which are subject to change, and the signing of any precedent agreements, it could be late this year or early next until it's known whether Alaska is any closer to securing a line, Persily said.

That timeline puts it past the November election.

The pipeline — and questions of how best to bring gas to market — has become a major issue among the Republican candidates for governor. Gov. Sean Parnell has remained committed to the process he inherited when Palin resigned last year. Two high-profile challengers, Ralph Samuels and Bill Walker, believe this is a wrong-headed approach.
