Texas House Trade Committee

National Security:
The Nexus of Climate Change and Energy

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- Sherri Goodman
• Projected climate change poses a **serious threat** to America’s national security

• Climate change acts as a **threat multiplier** for instability in some of the most volatile regions of the world

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

• **Climate change, national security, and energy dependence** are a related set of global challenges
• U.S. energy posture is a serious and urgent threat to our national security

• Fragile and overtaxed national electrical grid is a dangerously weak link in our national security infrastructure

• A business-as-usual approach to energy security poses an unacceptably high threat level from a series of converging risks

• Achieving energy security in a carbon-constrained world is possible, will require leadership and focus

• The national security planning processes have not been sufficiently responsive to the security of our current energy posture

• The Department of Defense can contribute to national solutions as a technological innovator, early adopter, and test-bed
American’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
America’s dependence on oil constitutes a significant national security threat.

A 30 percent reduction in our use of petroleum would significantly improve our national security.

We can achieve a significant portion of a 30 percent reduction through greater efficiency in oil use.

There are many promising alternatives to oil as a transport… all of the most promising alternative fuels examined can lower overall national security risks rather than continuing our overreliance on oil.
Climate change will exacerbate:
- weakened governance
- economic collapse
- human migrations
- potential conflicts
- northern spread of disease

Stability operations and humanitarian missions could increase for U.S.
Water security will be threatened – two-thirds of the Arab world already depends on water sources external to their borders.

Loss of food and water security will increase pressure to emigrate across borders.
Almost 40 percent of South Asia’s 2 billion people live within 100 miles of the coast.

Inundation of coastal areas, with loss of settled areas and agricultural land.

Threats to water including loss of glacier fed rivers will increase cross border tensions.
Arctic Challenges and Opportunities

- **Increased maritime shipping** – both intra Arctic and trans Arctic
- **Improved access to energy, mineral, fisheries** resources
- **Other strategic considerations**
  - Loss of permafrost
  - Arctic as an area for Naval Operations (SAR)
  - Risk of accelerated environmental degradation (spills, pollution)
  - Potential dispute over resources
  - Changes to the livelihood/sustainment of indigenous peoples

Shrinking cap

The Arctic polar ice cap is at its smallest size in 30 years of observations.

Source: NASA Goddard Space Flight Center
Bangladesh: Challenges

Socio-economic and political conditions

- **150-170 million people**, eighth most populous
- One of **most densely populated**
- GDP drivers are service and agriculture
- “Among Bangladesh’s most significant obstacles to growth are poor governance and weak public institutions.” World Bank

Climate challenges

- **Ranks first as the most vulnerable nation to the impacts of climate change** in the coming decades
- Rainfall, rising sea levels, and tropical cyclones are expected to increase
- Sea level and extreme weather will affect agriculture, water and food security, human health and shelter
- Rising sea level expected to create more than 20 million refugees
"Significant upheaval related to the warming planet is probably the most likely thing that is going to happen . . . that will cripple the security environment, probably more likely than the other scenarios we all often talk about.”

"We have interjected into our multilateral dialogue - even with China and India - the imperative to kind of get military capabilities aligned [for] when the effects of climate change start to impact these massive populations,"

“If it goes bad, you could have hundreds of thousands or millions of people displaced and then security will start to crumble pretty quickly."
Bases Threatened by Rising Sea Levels

Diego Garcia: Major logistics hub for U.S. and Britain

Average Elevation: 4 Feet
Drought and the U.S.
Military Training and Readiness
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CNA MAB National Security Framework

- Economic Strength
- Geopolitical Stability
- Military Capability
- Environmental Sustainability

National Security Is More Than DOD

- National Security and the Threat of Climate Change
- Powering America’s Defense: Energy and the Risks to National Security
- Powering America’s Economy: Energy Innovation at the Crossroads of National Security Challenges
**Recommendations**

**National Security and the Threat of Climate Change (2007)**

- The national security consequences of climate change should be fully integrated into national security and national defense strategies.
- 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.
- The U.S. should commit to global partnerships that help less developed nations build the capacity and resiliency to better manage climate impacts.
- DoD 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 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.
Priority 1: Energy security and climate change goals should be clearly integrated into national security and military planning processes.

Priority 2: DoD should design and deploy systems to reduce the burden that inefficient energy use places on our troops as they engage overseas.

Priority 3: DoD should understand its use of energy at all levels of operations. DoD should know its carbon footprint.

Priority 4: DoD should transform its use of energy at installations through aggressive pursuit of energy efficiency, smart grid technologies, and electrification of its vehicle fleet.

Priority 5: DoD should expand the adoption of distributed and renewable energy generation at its installations.

Priority 6: DoD should transform its long-term operational energy posture through investments in low-carbon liquid fuels that satisfy military performance requirements.
Recommendations


• 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.

• The Departments of Defense and Energy should more closely align their energy-related research and development activities, funding priorities, and intellectual capital.

• The Department of Defense should partner with private sector innovators and establish an Operational Energy Innovation Center.

• The Department of Defense should require widespread sharing of energy information in its research and development enterprise.

• The Department of Defense should include acquiring clean energy technologies as a priority in its installation acquisition strategy.
Recommendations
Ensuring America’s Freedom of Movement (2011)

• To assure our national security, government must take action to promote the use of a more diverse mix of transportation fuels and to drive wider public acceptance of these alternatives.

• In the immediate future, our nation’s leaders must develop a comprehensive energy roadmap or strategic plan to enable consistent and strategic energy policies and investments.

• The U.S. must take swift and aggressive action to reduce our use of oil.

• DoD should continue to be a leader in advancing alternative transportation fuels while balancing mission effectiveness and overall efficiency. DOD must be provided the necessary resources so innovation and experimentation with alternative fuels is not traded for military capability and capacity.
Climate and Social Stress: Implications for Security Analysis

National Research Council Climate Study (2012)
NRC Findings: Expect to be surprised

...prudent for security analysts to expect climate surprises in the coming decade, including:

- More single events that were considered rare
- Simultaneous or sequential conjunctions of events will stress response capacity
- Shocks to globally integrated systems (e.g., food supply, strategic commodities, public health)
- Impacts occurring far from triggering events
Increasing Risks “Events”

- Accumulation of scientific evidence indicates that the **risks of potentially disruptive climate events are increasing**: “Climate change is occurring, and poses significant risks for—and in many cases is already affecting—a broad range of human and natural systems” (NRC, 2010a:3)

- It is becoming **increasingly likely that the world will experience climate-related conditions it has not seen before.**

Example: Summer temperature events >3 standard deviations above the historic mean occurred about one time in 700 before 1981, following statistical averages.
Climate Stress and Security Outcome Model

- Climate Conditions
- Other Environmental Conditions
- Socioeconomic & Political Conditions
- Climate Event
- Exposure
- Susceptibility To Harm
- Coping Response & Recovery
- Security Outcome

Vulnerability