



Energy & Climate Security

**General Chuck Wald, USAF (ret)
Director and Senior Advisor,
Aerospace & Defense Industry**

24 March 2010

Climate Change as a National Security Risk

- “What adverse **conditions** are climate changes likely to produce around the world?”
- “What are the ways in which these conditions may **affect** America’s **national security** interests?”
- “What **actions** should the nation take to address the national security consequences of climate change?”



**NATIONAL SECURITY
AND THE THREAT OF
CLIMATE CHANGE**

SecurityAndClimate.cna.org

CNA Military Advisory Board

GEN Gordon Sullivan, USA, Ret
Chief of Staff, US Army

GEN Paul Kern, USA, Ret
Commander, Army Materiel

ADM Skip Bowman, USN, Ret
Director, Navy Nuclear Power

Gen Ronald Keys, USAF, Ret
Commander, Air Combat

Gen Charles Boyd, USAF, Ret
Deputy Commander, EUCOM

ADM T. Joseph Lopez, USN, Ret
Commander, U.S. Navy Europe

Lt Gen Larry Farrell Jr., USAF, Ret
Chief Planner, HQ USAF

Gen Robert Magnus, USMC, Ret
Assistant Commandant, USMC

VADM Paul Gaffney II, USN, Ret
ONR and NDU

CNA Military Advisory Board

VADM Dennis McGinn, USN, Ret
Deputy CNO

ADM Joseph W. Prueher, USN, Ret
Commander, PACOM; China Amb

ADM John Nathman, USN, Ret
Commander, Fleet Forces

VADM Richard H. Truly, USN, Ret
NASA Administrator; Astronaut

RADM David Oliver Jr., USN, Ret
Principal Deputy, Navy Acq Exec

Gen Chuck Wald, USAF, Ret
Deputy Commander, EUCOM

ADM Don Pilling, USN, Ret
Vice Chief, US Navy

Gen Tony Zinni, USMC, Ret
Commander, CENTCOM

MAB Perspective on Scientific Debate

“ We never have 100% certainty.

If you wait until you have 100% certainty,
something bad is going to happen
on the battlefield.

That's something we know.”

— GEN Sullivan

Threats to Natural & Human Systems

Threats

Water



Food



Health

Weather

Case in Point: Darfur



Impacts: Decreased rainfall, increased drought







Climate Change: A Threat Multiplier...for Our Troops



Climate Change is a Threat Multiplier

- 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

Energy as a National Security Risk

- What are the **national security threats** associated with **energy**?
- What is an **appropriate role** for **DoD** in addressing these threats?

Powering America's Defense:
Energy and the Risks to
National Security



U.S. Energy Posture is a Threat



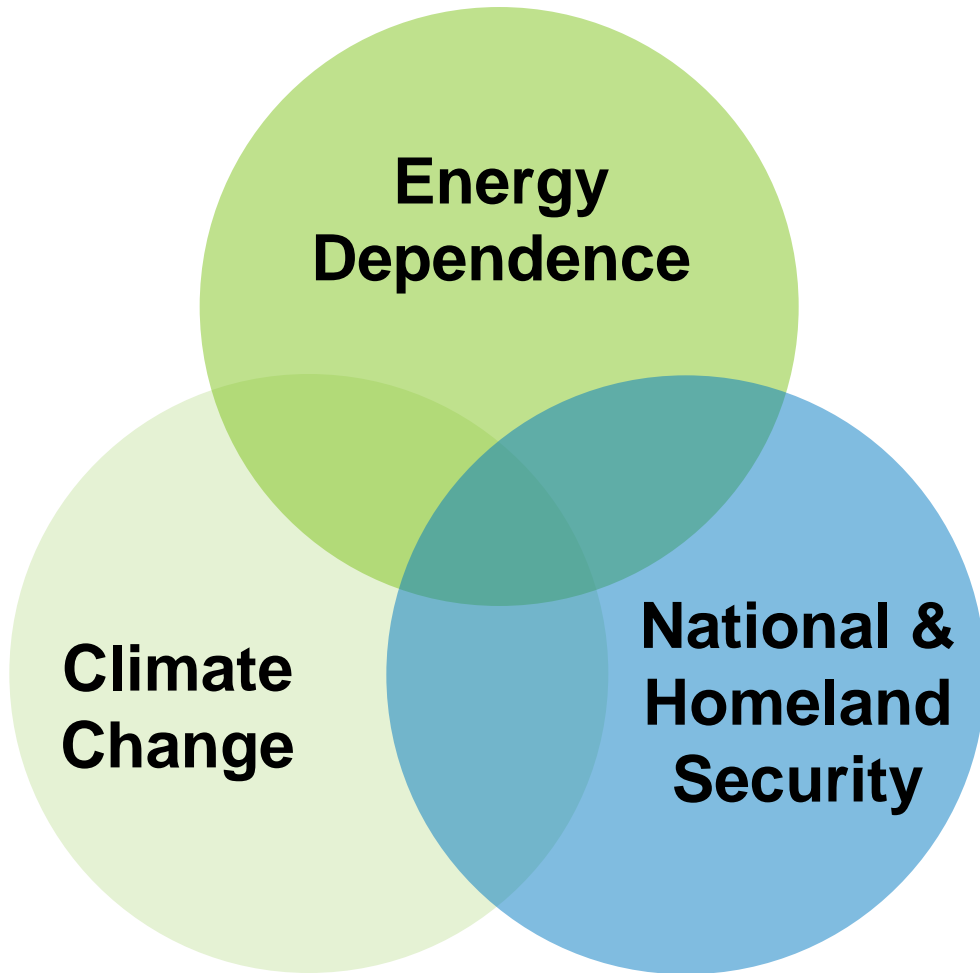
America's energy posture constitutes a **serious and urgent threat** to national security—**militarily, diplomatically and economically**

U.S. Oil Dependence Undermines National Security



- **Weakens** international leverage
- **Cripples** foreign policy
- **Jeopardizes** military
- **Exacts** huge price tag in dollars and lives
- **Entangles** US with hostile regimes
- **Undermines** economic stability

Interrelated Set of Challenges

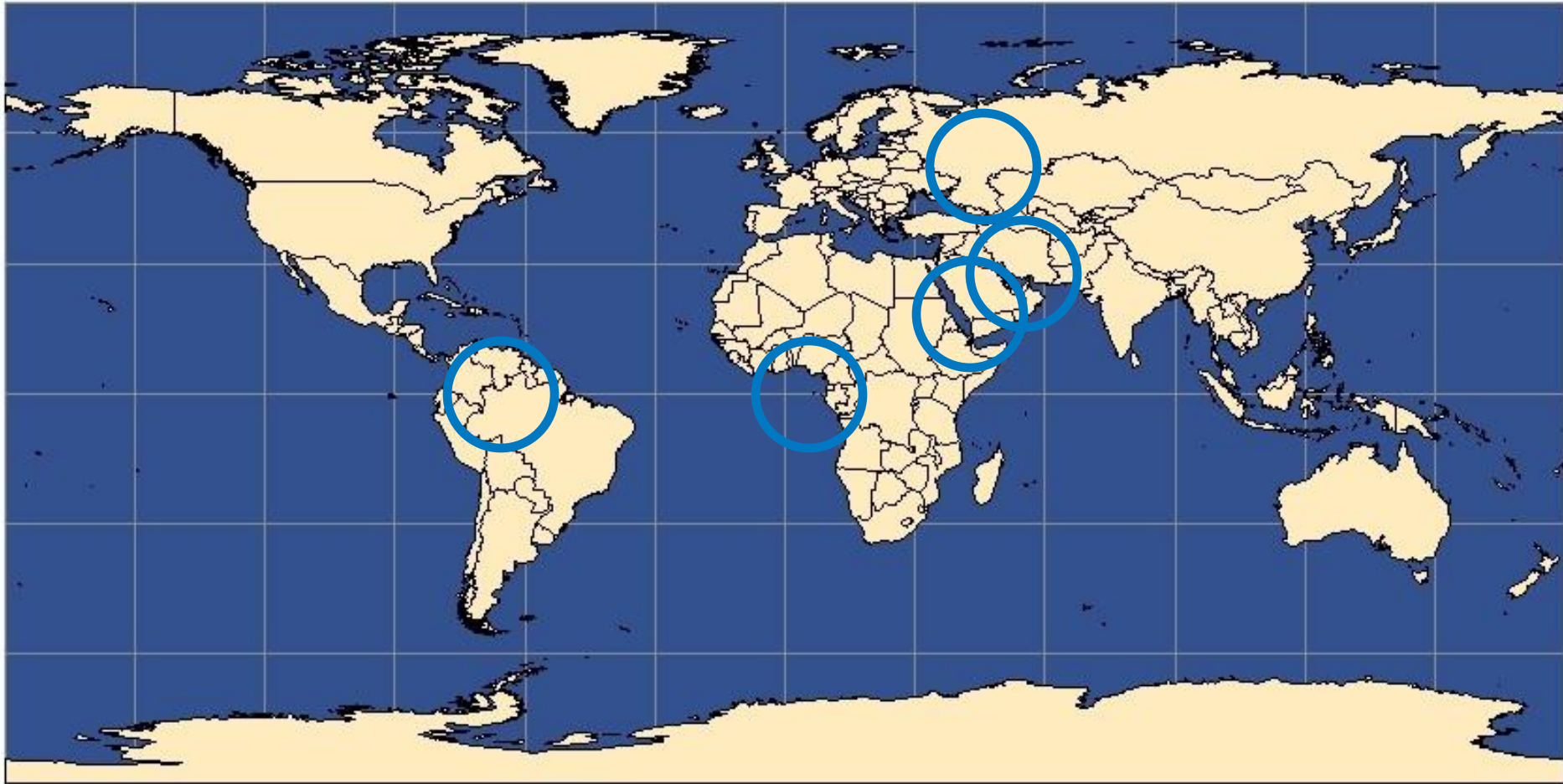


Continuing energy business-as-usual creates an **unacceptably high threat level** from a series of converging risks

Converging Risks

- Market for fossil fuels shaped by finite supplies, increasing demand and rising costs
- Conflict over fuel resources
- Destabilization driven by ongoing climate change

Dependence on oil: Drives instability



Dependence on oil: Drives instability



Dependence on oil: Mission impacts



Critical National Security Missions Depend on a Fragile Grid

- Electrical grid is:
 - Outdated
 - Fragile
 - Overtaxed
 - A threat to military capability



Finding



Achieving energy security in a carbon-constrained world is possible, and requires **concerted leadership and continuous commitment**

Finding



DoD can contribute to national solutions as a **technological innovator** and **early adopter**

Priority Recommendation



Energy security and climate change **goals should be clearly and fully integrated** into our national security and military **planning** processes

Climate Change & Energy in the QDR

“**Climate change** and **energy** are two key factors that will play a significant role in shaping the future security environment.

... [Climate change] may act as an **accelerant of instability or conflict** ...”

— 2010 DoD Quadrennial Defense Review

A Roadmap for Energy Security

1. Integrate energy & climate in the **planning** processes
2. Design & deploy systems to the field to **reduce the burden** of inefficient energy usage
3. Know your **Carbon Footprint**
4. **Transform installations** through aggressive pursuit of:
 - Energy efficiency
 - Smart grid technologies
 - Electrification of non-tactical vehicle fleet
5. Expand distributed & **renewable energy**_generation
6. Invest in long-term **shift to low-carbon**_liquid fuels

Silver Buckshot

“ While there may not be a “silver bullet” ...

there are a lot of “**silver buckshot**” technologies
which we can use
to scale up and create an

economically viable portfolio of energy
choices.

— VADM McGinn (Ret)

Where to Find CNA MAB Reports

- **[SecurityAndClimate.cna.org](https://www.securityandclimate.cna.org)**
- **[PoweringAmericasDefense.org](https://www.poweringamericasdefense.org)**



Energy & Climate Security

Sherri Goodman

Senior Vice President & General Counsel, CNA

Executive Director, CNA Military Advisory Board

11 February 2010

Regional Impacts: Europe



“Europe will be focused on its own borders. There is potential for fracturing some very strong alliances based on **migrations** and the **lack of control over borders.**”

—ADM Pilling

Regional Impacts: Africa

Climate change will facilitate:

- weakened governance
- economic collapse
- human migrations
- potential conflicts

Stability operations and humanitarian missions could increase for U.S.



Regional Impacts: Middle East

Water security will be threatened – two-thirds of the Arab world already depends on water sources external to their borders

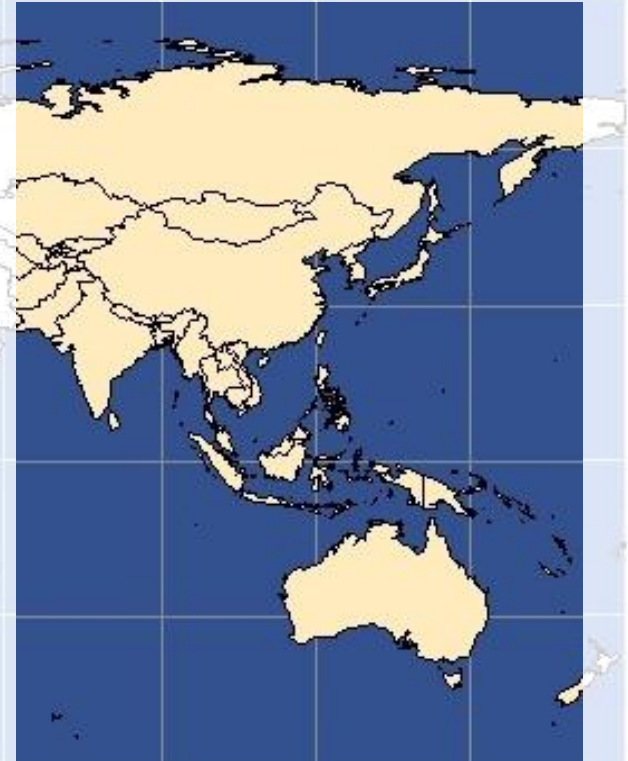
Loss of food and water security will increase **pressure to emigrate** across borders

Regional Impacts: Asia

Almost **40 percent** of Asia's **4 billion people** live within 45 miles of the coast

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

Threats to water, and spread of infectious disease will stress the region



Regional Impacts: Western Hemisphere



Coastal areas vulnerable to sea level rise coupled with more intense hurricanes

Loss of glaciers will strain water supply in several areas, such as Peru and Colombia

Migration into the U.S. will likely increase

Regional Impacts: Asia

Almost **40 percent** of Asia's **4 billion people** live within 45 miles of the coast

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

Threats to water, and spread of infectious disease will stress the region

