

# Introduction

*L. Dean Simmons, JHU/APL  
Symposium Chair*

*23 March 2010*

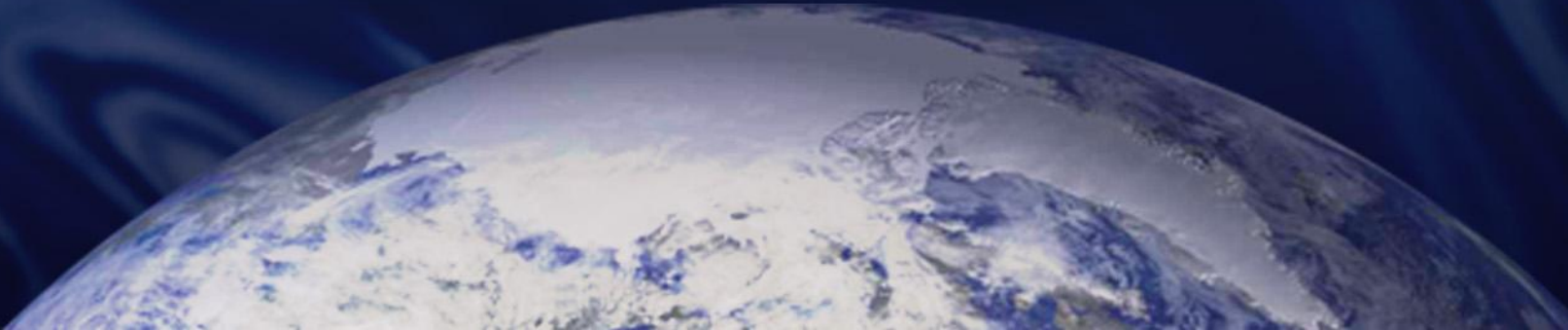
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*Welcome to the*

2010

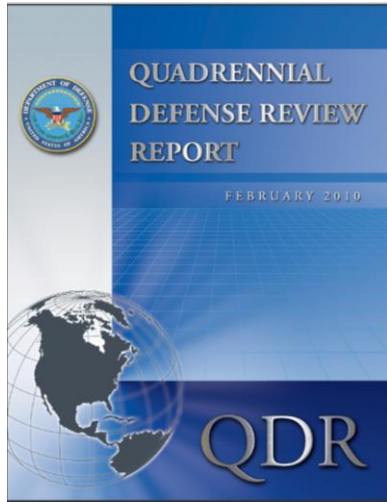
**CLIMATE**  **ENERGY**

**IMPERATIVES FOR FUTURE NAVAL FORCES**



# Why Climate & Energy?

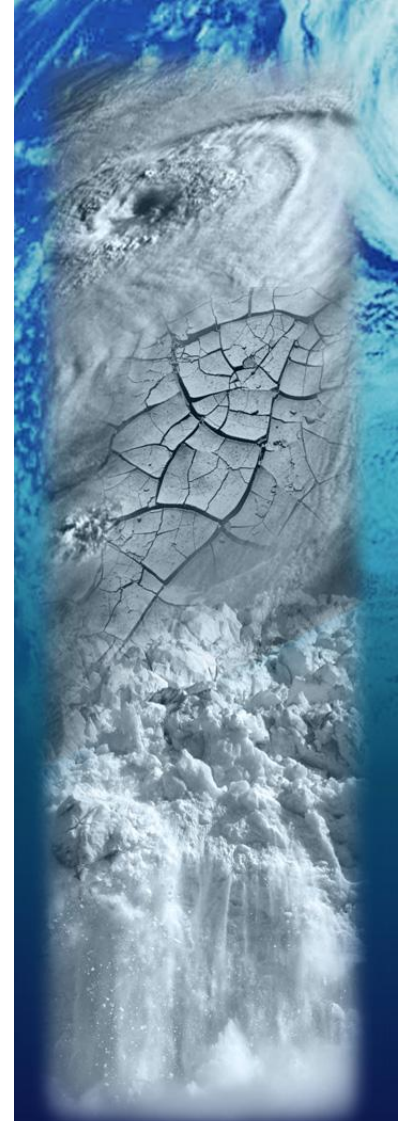
- US national security community has expressed increasing concern regarding potential effects of changes in climate and energy
  - DNI’s 2009 Threat Assessment declares: “*Climate change, energy, global health and environmental security are often intertwined, and while not traditionally viewed as threats to U.S. national security, they will affect Americans in major ways.*”
  - In Sep 2009, CIA established Center for Climate Change and National Security to assess impacts of “*desertification, rising sea levels, population shifts & heightened competition for natural resources*”
  - 2010 Quadrennial Defense Review discusses importance of “*Crafting a Strategic Approach to Climate and Energy*”



- ***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*
- ***Climate change will affect DoD in two broad ways.***
  - *First, climate change will shape the operating environment, roles, and missions that we undertake.*
  - *Second, DoD will need to adjust to the impacts of climate change on our facilities and military capabilities.*

# Observed Effects of Climate Change

- **According to US Global Change Research Program\*, observed effects of climate change include:**
  - 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
  - Increases in heavy downpours
  - Earlier snowmelt
  - Alterations in river flows

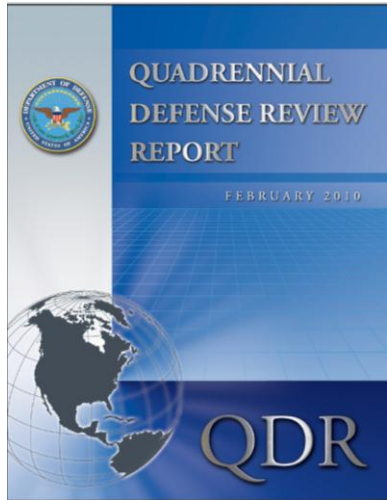


\*USGCRP integrates climate-related activities of Commerce, Defense, Energy, Interior, State, Health & Human Services, Agriculture as well as NOAA, NASA, NSF, EPA, USAID, & the Smithsonian

# National Security Impacts of Climate Change

- According to the 2010 QDR, “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,
  - Increase the spread of disease, and
  - May spur or exacerbate mass migration.”

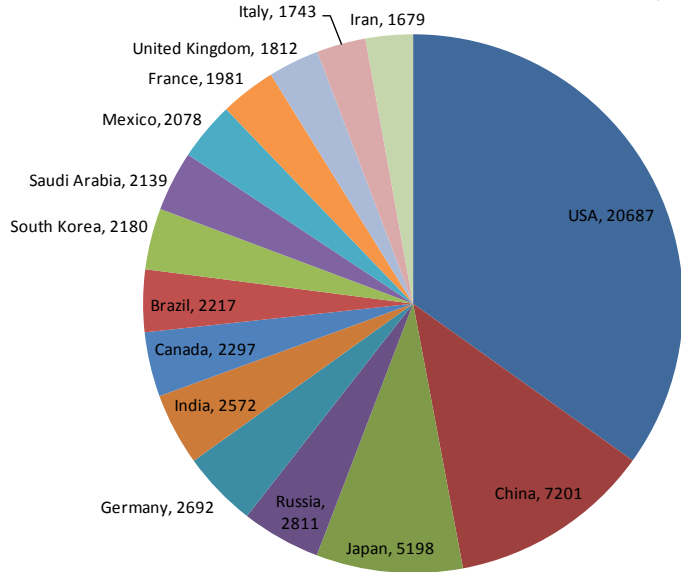




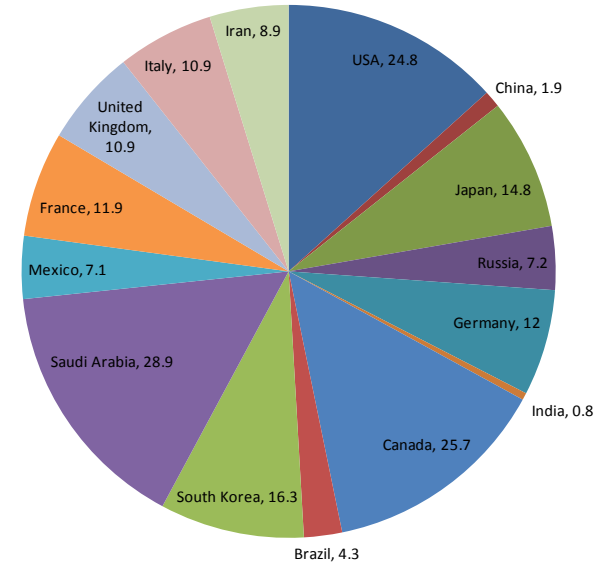
- ***Energy security for the Department means***
  - ***Having assured access to reliable supplies of energy***
  - ***The ability to protect and deliver sufficient energy to meet operational needs.***

# Principal Petroleum Consumers

**National Use in Kbbbl/day**



**Per Capita Use in bbl/yr**



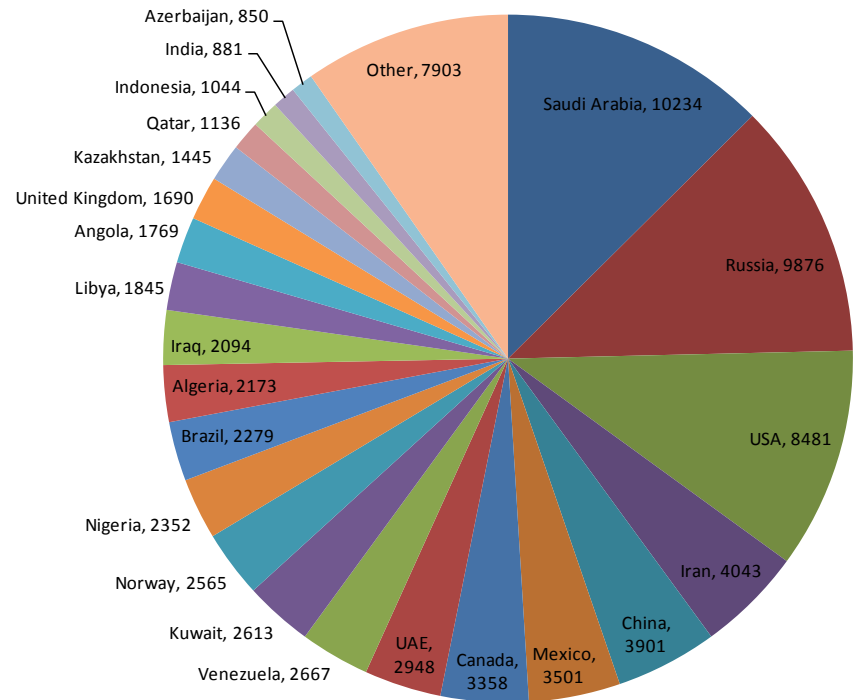
- **USA is world's largest petroleum consumer in absolute terms; China is 2<sup>nd</sup>, India is 6<sup>th</sup>**
- **In per capita terms, USA ranks 3<sup>rd</sup>, China & India are far behind (by factors of 13 & 30, respectively)**
- **Relative to USA, increase in per capita consumption in China or India is leveraged by a factor of 4 given their billion+ populations**



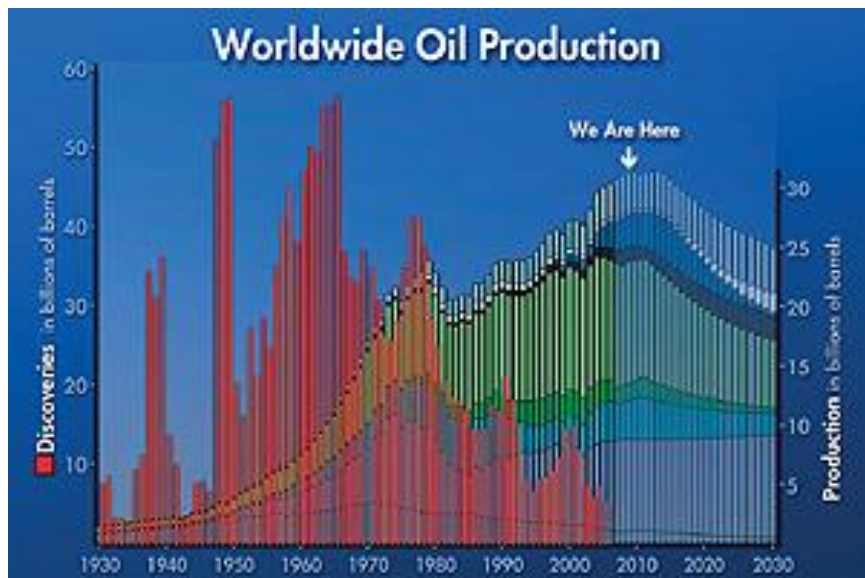
# Principal Petroleum Producers

- **USA produces ~40% of the petroleum we consume each day**
- **Remaining 60% must be imported, sometimes from nation's whose interests may differ markedly from ours**
  - **Russia**
  - **Iran**
  - **China**
  - **Venezuela**
  - **Libya**

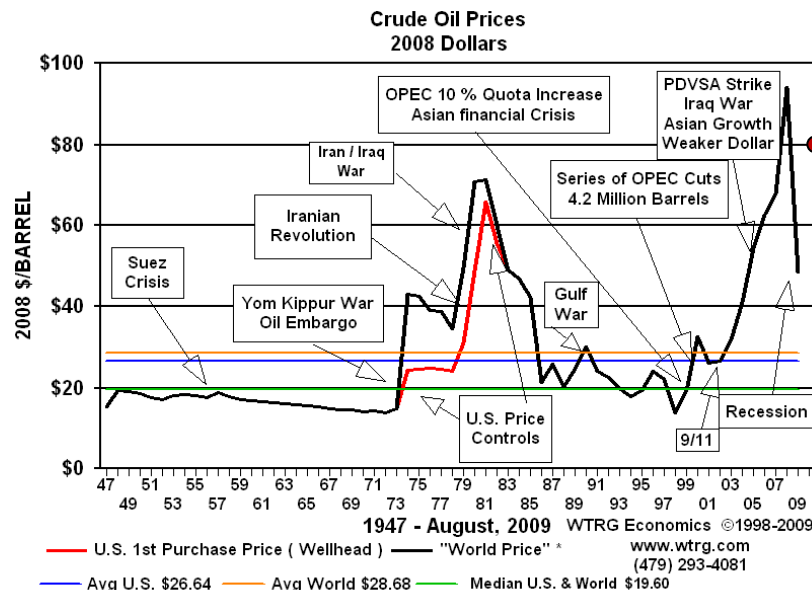
**National Production in Thousands of Barrels per Day**



# Changes in Energy Supply & Demand



Source: ASPO-USA

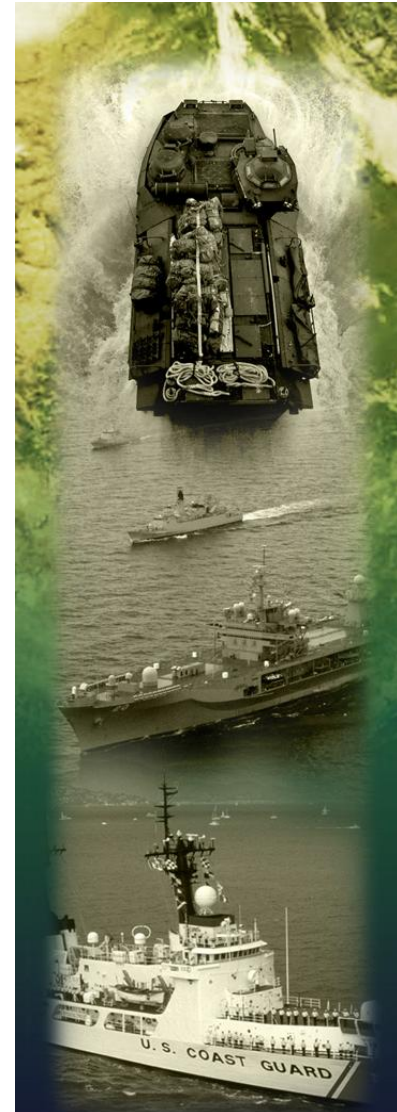


Today's Price >\$80 per bbl

- Some observers argue that world is nearing “peak production” – and hence that global demand will soon begin to exceed supply
- Small changes in petroleum demand can lead to substantial changes in price

# Imperatives for Naval Forces 1/2

- **Effects of climate change will be keenly felt by our nation's naval forces**
  - Reduction in Arctic sea ice will provide new sea routes and increased access to natural resources
  - Rising sea levels will affect
    - 40% of world population who live within 100 kilometers (60 miles) of the sea coast (~3 billion people)
    - Installations used by Navy, Marines, and Coast Guard
  - Changes in frequency and severity of storms will affect demand for humanitarian assistance
  - Navy's Task Force Climate Change established to address such concerns



- **Changes in petroleum supply – to include source, quantity, and price – will have significant effects on our nation’s naval forces**
  - **Navy, Marine Corps, and Coast Guard**
    - Devote significant resources to securing U.S. access to energy resources, especially petroleum
    - Consume large amounts of increasingly expensive petroleum products themselves
  - **Navy’s Task Force Energy and Marine Corps Expeditionary Energy Office established to address such concerns**

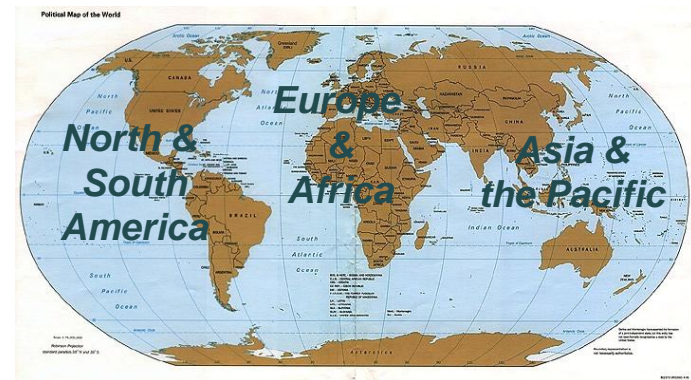


# Symposium Objective

- How will changes in climate and energy affect future US Naval Forces?
  - What will our naval forces need to be able to do?
  - How should they be organized to accomplish those tasks?
  - How should they be equipped to accomplish those tasks?



## Geographic Regions



# Symposium Logistics

- **Entire symposium is being videotaped by Defense Media**
- **Open to the public; press participation**
- **Check-in required both days**
- **Questions and comments**
  - Open microphone for featured speakers
  - Question cards for roundtables
  - **Electronic systems for comments and questions**
    - ✓ Instructions in your program
    - ✓ **UNCLASSIFIED** input for **ALL** speakers and roundtables
      - Comments only for featured speakers
      - Comments **AND** questions for roundtables
- **Symposium Proceedings available in August timeframe**
  - **Distributed to all symposium participants and attendees**
- **Presentations will be posted soon, subject to authors' restrictions**