

Introduction

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Symposium Chair*

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Welcome to the

2010

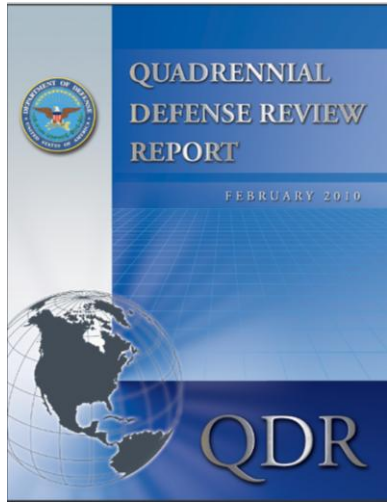
CLIMATE  **ENERGY**

IMPERATIVES FOR FUTURE NAVAL FORCES



Why Climate & Energy?

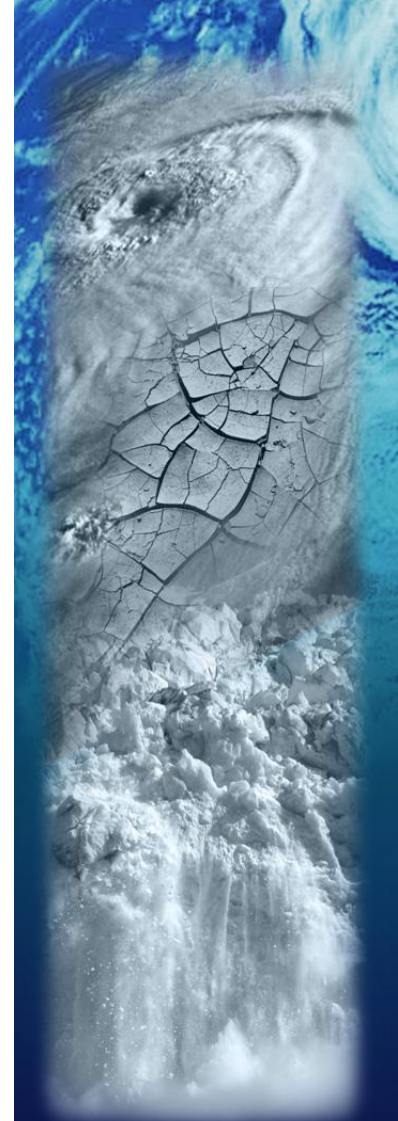
- US national security community has expressed increasing concern regarding potential effects of changes in climate and energy
 - DNI’s 2009 Threat Assessment declares: “*Climate change, energy, global health and environmental security are often intertwined, and while not traditionally viewed as threats 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

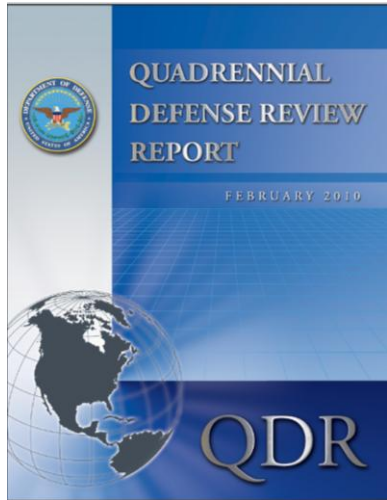


*USGCRP integrates climate-related activities of Commerce, Defense, Energy, Interior, State, Health & Human Services, Agriculture as well as NOAA, NASA, NSF, EPA, USAID, & the Smithsonian

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.”

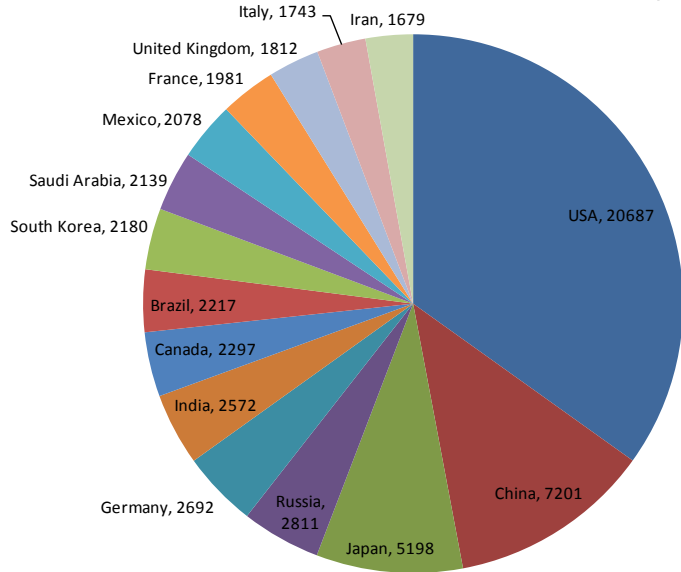




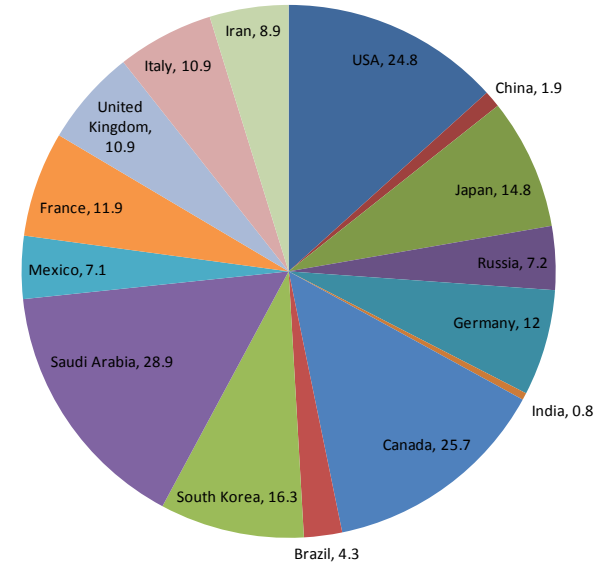
- ***Energy security for the Department means***
 - ***Having assured access to reliable supplies of energy***
 - ***The ability to protect and deliver sufficient energy to meet operational needs.***

Principal Petroleum Consumers

National Use in Kbbbl/day



Per Capita Use in bbl/yr



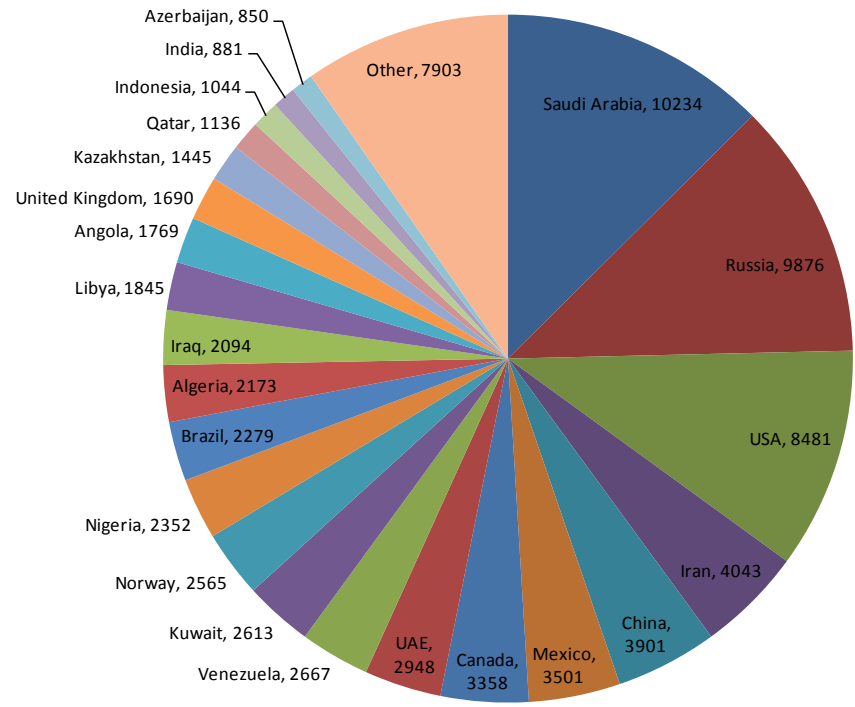
- USA is world's largest petroleum consumer in absolute terms; China is 2nd, India is 6th
- In per capita terms, USA ranks 3rd, China & India are far behind (by factors of 13 & 30, respectively)
- Relative to USA, increase in per capita consumption in China or India is leveraged by a factor of 4 given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



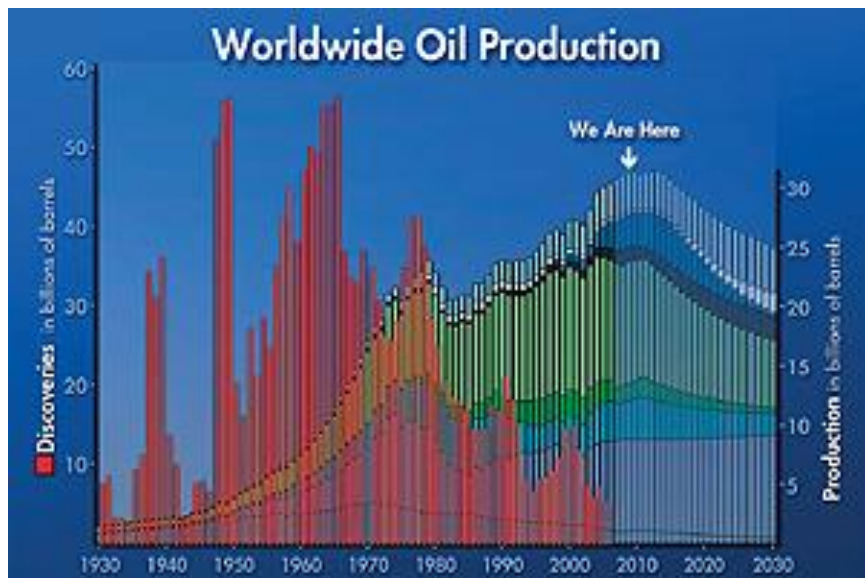
Principal Petroleum Producers

- 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

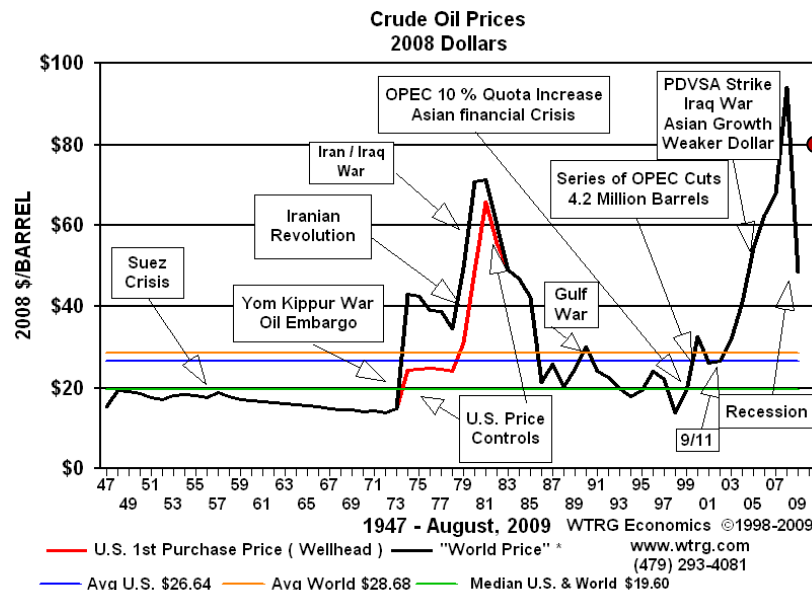
National Production in Thousands of Barrels per Day



Changes in Energy Supply & Demand



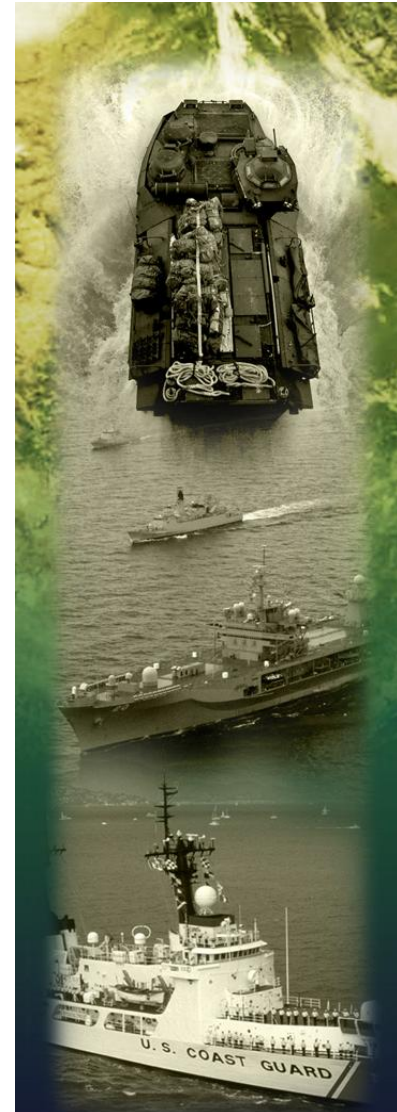
Source: ASPO-USA



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

- **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**

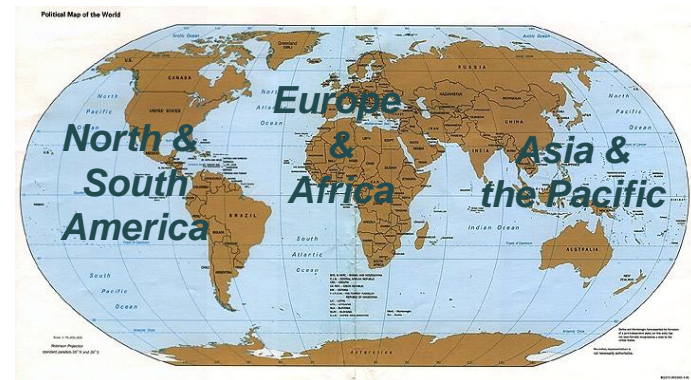


Symposium Objective

- 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**