FUTURE OF THE GLOBAL OIL INDUSTRY:

Resources, Challenges, And Consequences of a Failed USA Energy Policy

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Van Tuyl Lecture

October 27, 2011

ACKNOWLEDGEMENTS

The author thanks the following organizations, companies and individuals for providing information for this presentation:

American Geological Institute
Devon Energy
IHS Energy, Inc.
IHS Herold, Inc.
Schlumberger, Inc.
Baker Hughes, Inc.
Dr. Peter Stark, IHS Energy
Dr. Marcia McNutt, United States Geological Survey
Dr. Richard Feely, NOAA

The opinions and policy recommendations herein are solely those of the author, and do not reflect the positions of the organizations and individuals who have contributed PowerPoint slides to this presentation.

The Issues……

- ENERGY REALITY CHECK
- ARE WE RUNNING OUT OF OIL & GAS?
- WHAT ARE THE INDUSTRY AND POLITICAL CHALLENGES?
- FOSSIL VS. GREEN ENERGY
- CLIMATE AND ENERGY
- CONFLICTING POLICIES
- POLICIES THAT WILL MAKE A DIFFERENCE
- CAN WE MAKE IT WORK?

REALITY CHECK #1

We live in a Global Economy
....and must plan our energy policies accordingly!

DEMAND – THE "CONSUMER AGE" IS NOW A GLOBAL REALITY!

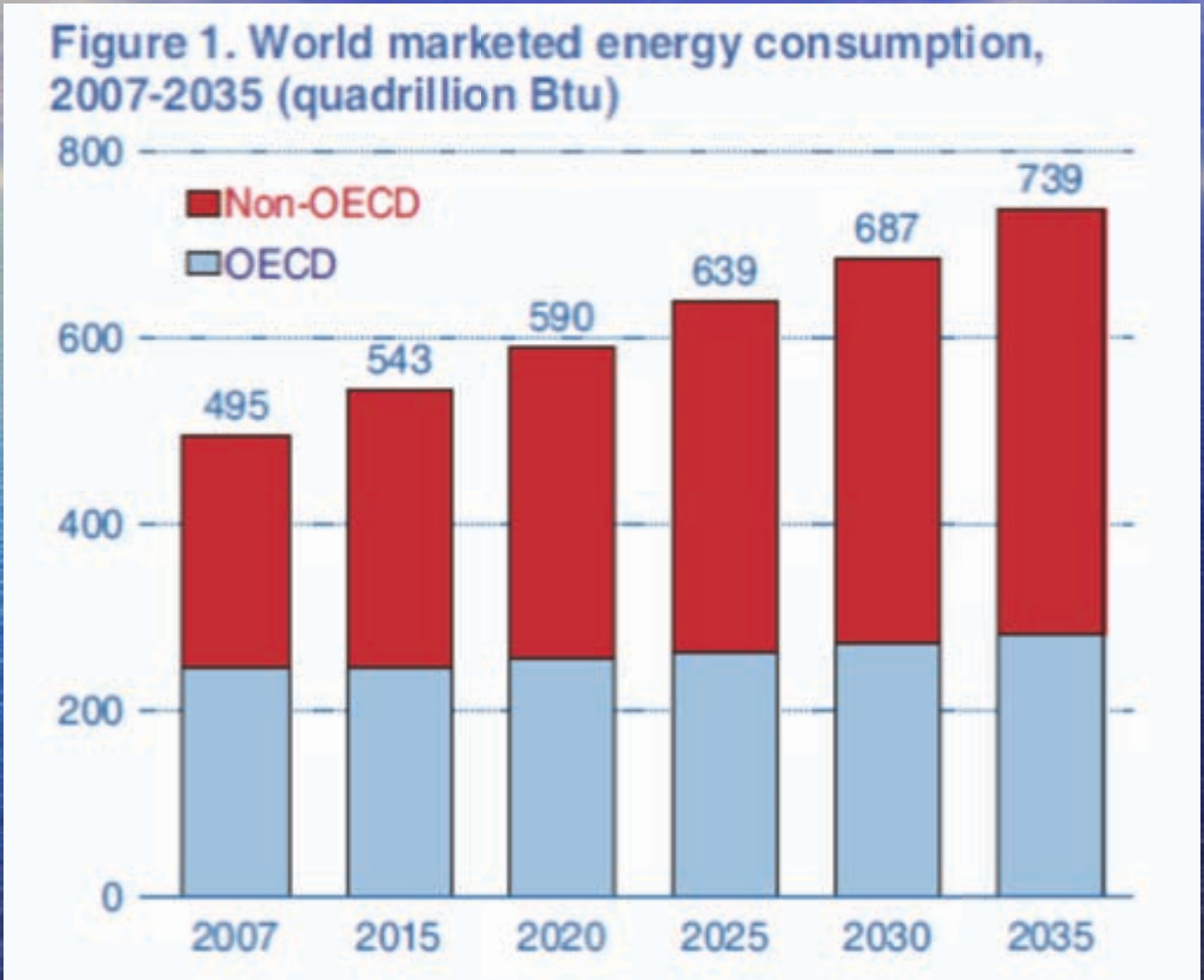
. …….the OECD countries now have serious competition for fossil fuels!

Night Energy Use Early 1970's

Night Energy Use 2005

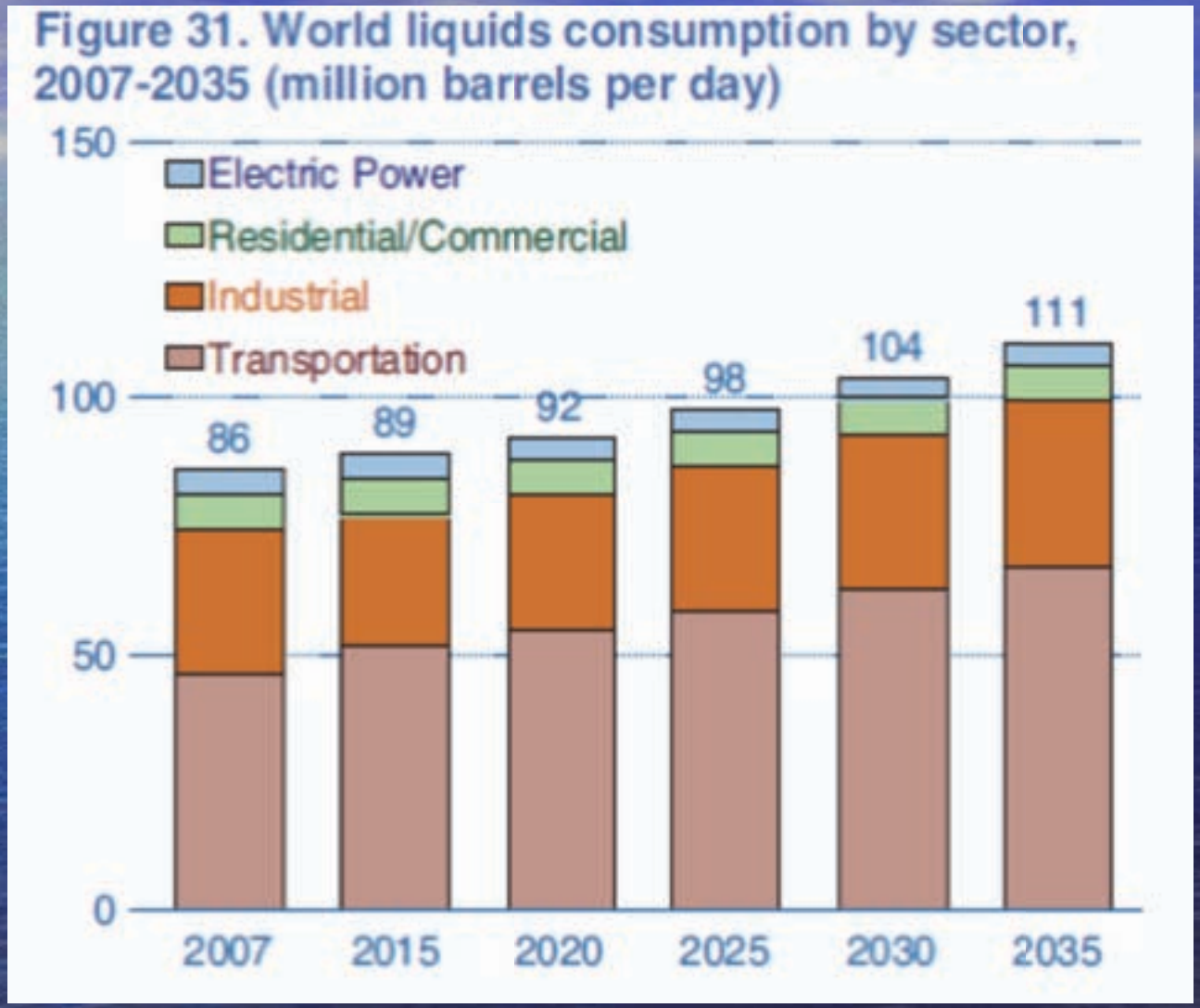
DEMAND

GLOBAL ENERGY GROWTH



Source: EIA International Energy Outlook 2010

GLOBAL ENERGY GROWTH



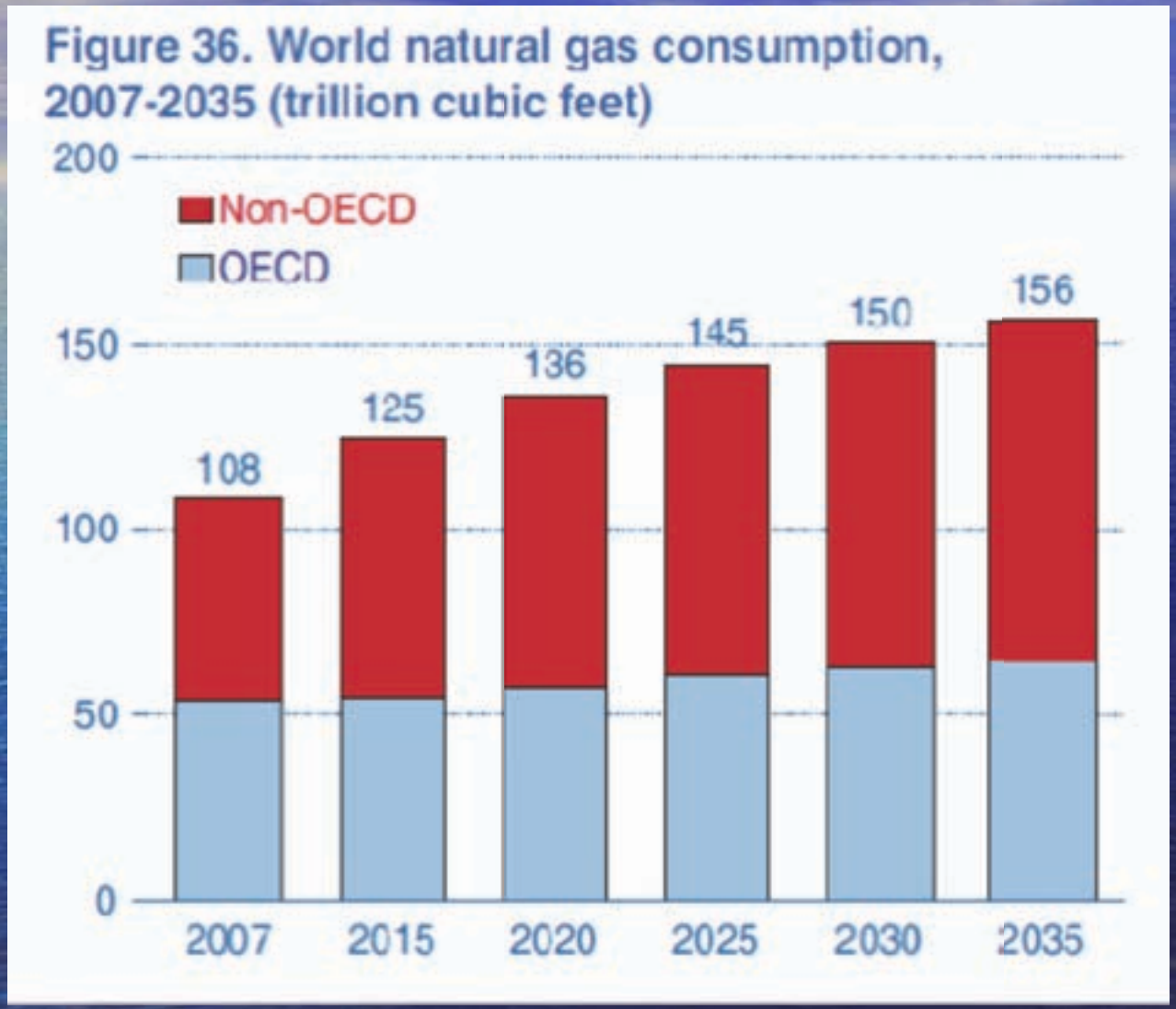
Source: EIA International Energy Outlook 2010

Global Oil Demand for 2011 @ 89 MMBO/day

Projected @ 91 MMBO/day for 2012

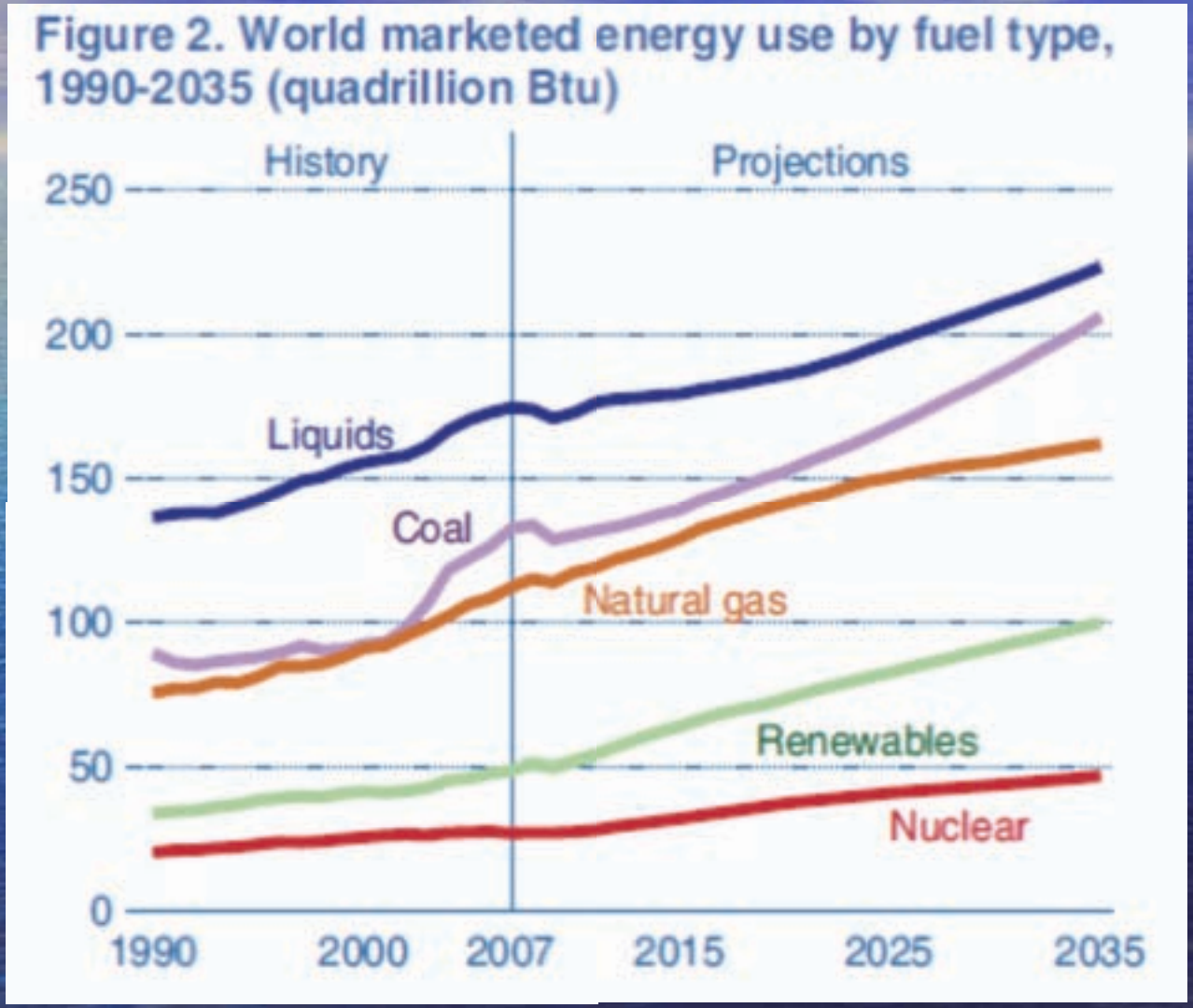
Source: IEA

GLOBAL ENERGY GROWTH



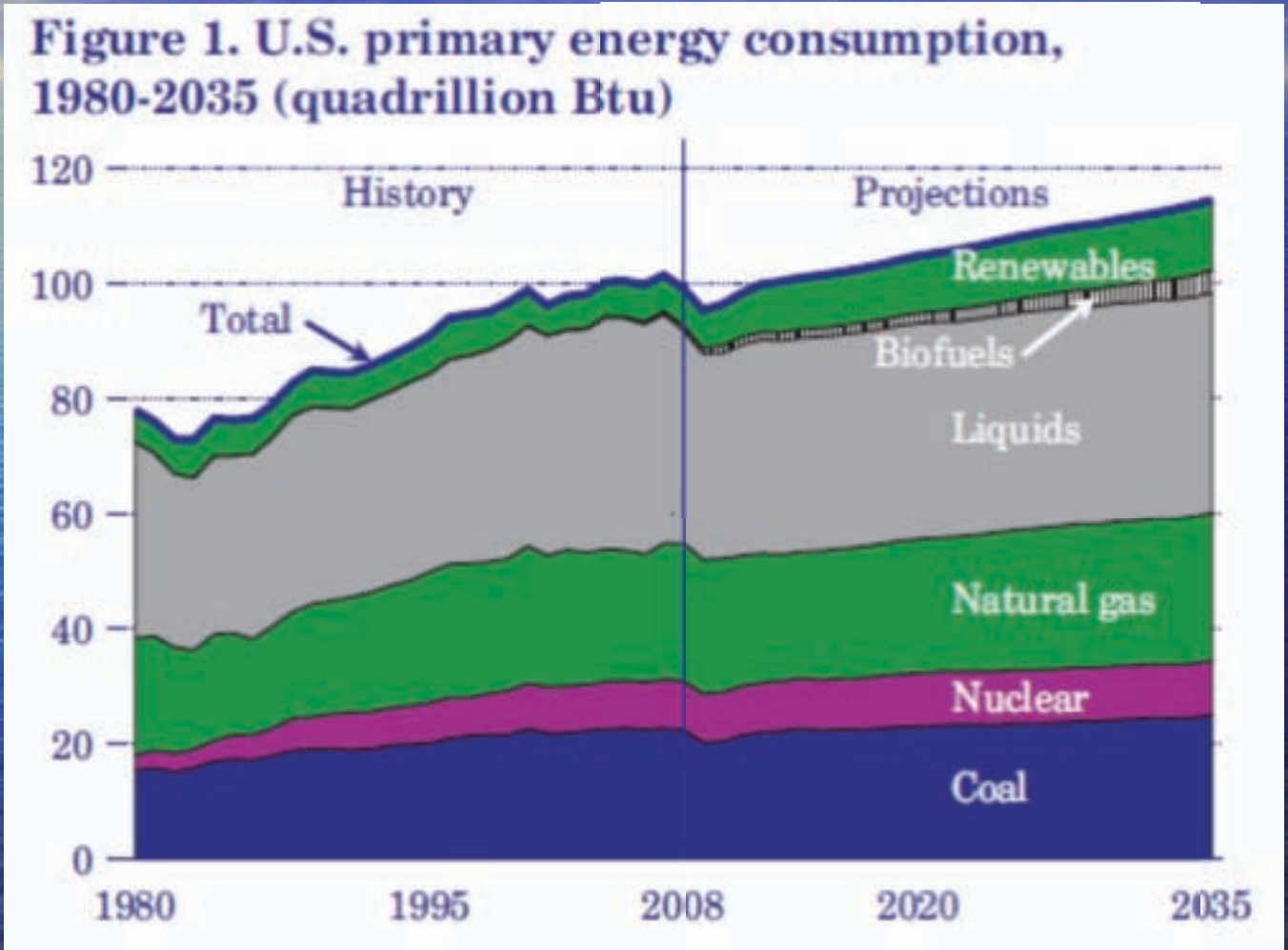
Source: EIA International Energy Outlook 2010

GLOBAL ENERGY GROWTH



Source: EIA International Energy Outlook 2010

USA ENERGY CONSUMPTION PROJECTIONS BY FUEL TYPE



Source: EIA Annual Energy Outlook 2010

POINT OF REFERENCE…..

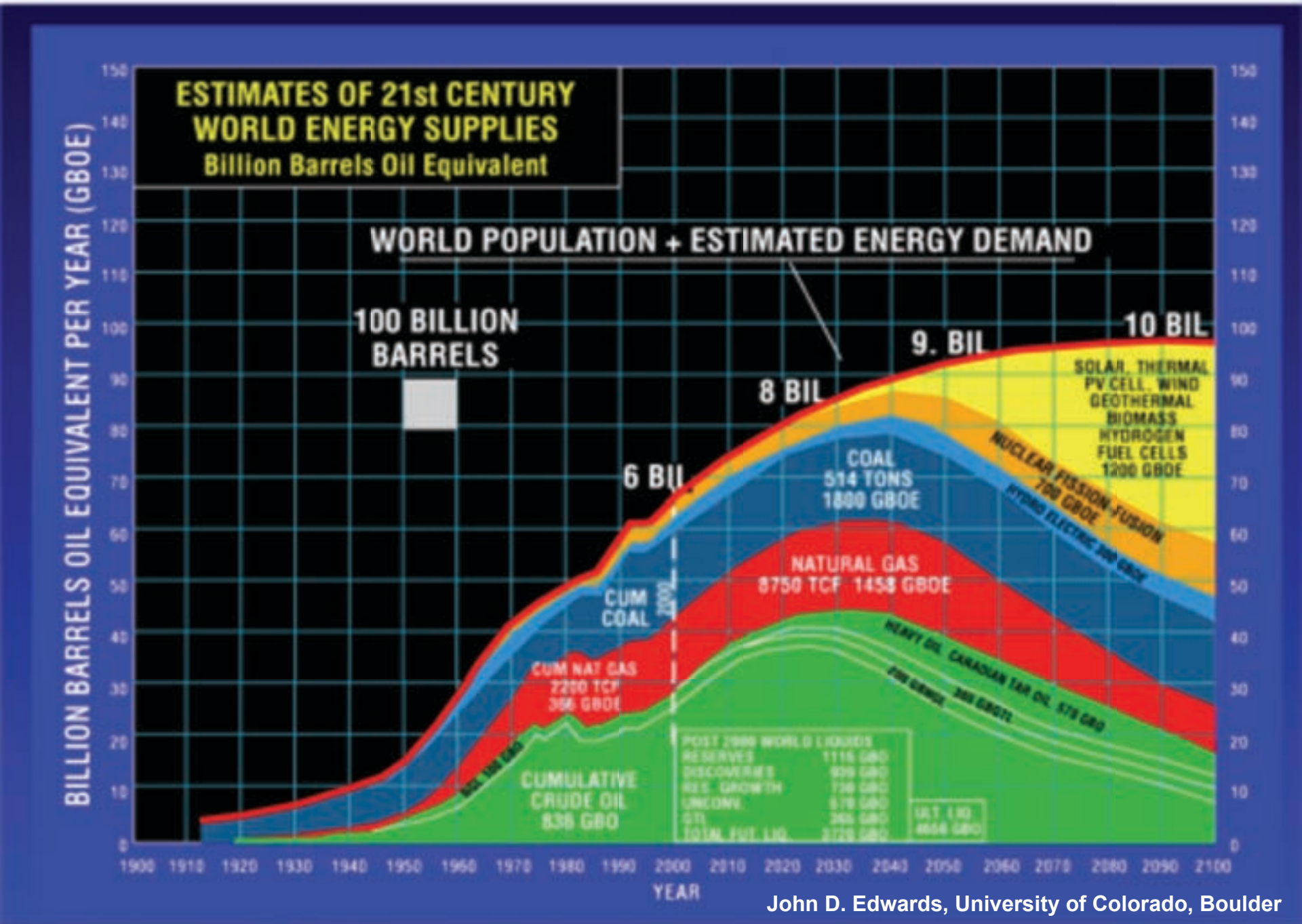
THE WORLD CONSUMES
ABOUT 31.7 BILLION BARRELS OF OIL PER YEAR

USA CONSUMES ABOUT 7 BILLION BARRELS PER YEAR.

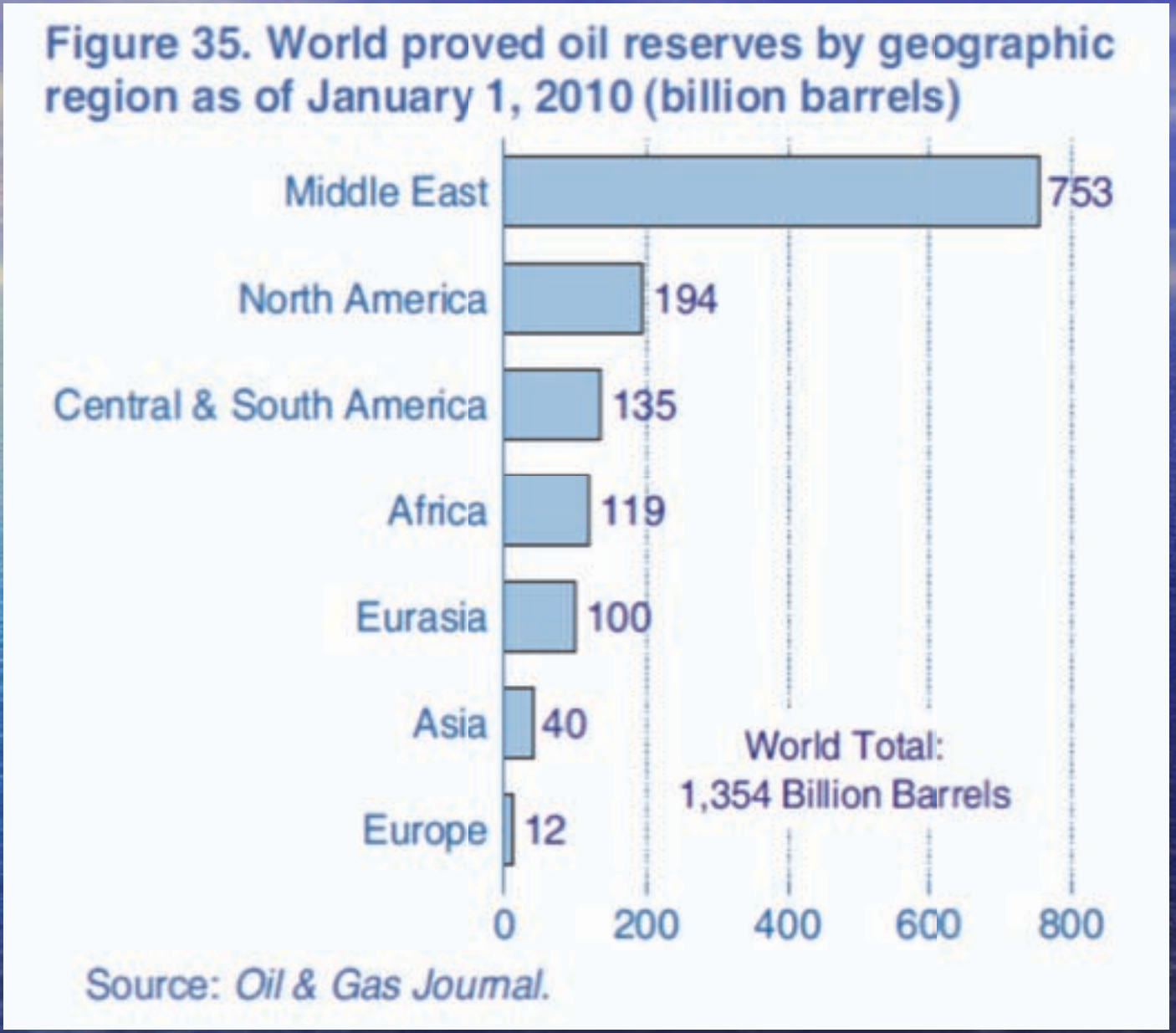
HISTORICAL CONSUMPTION
OF OIL
HAS BEEN ABOUT
1 TRILLION BARRELS

GLOBAL PETROLEUM RESOURCES

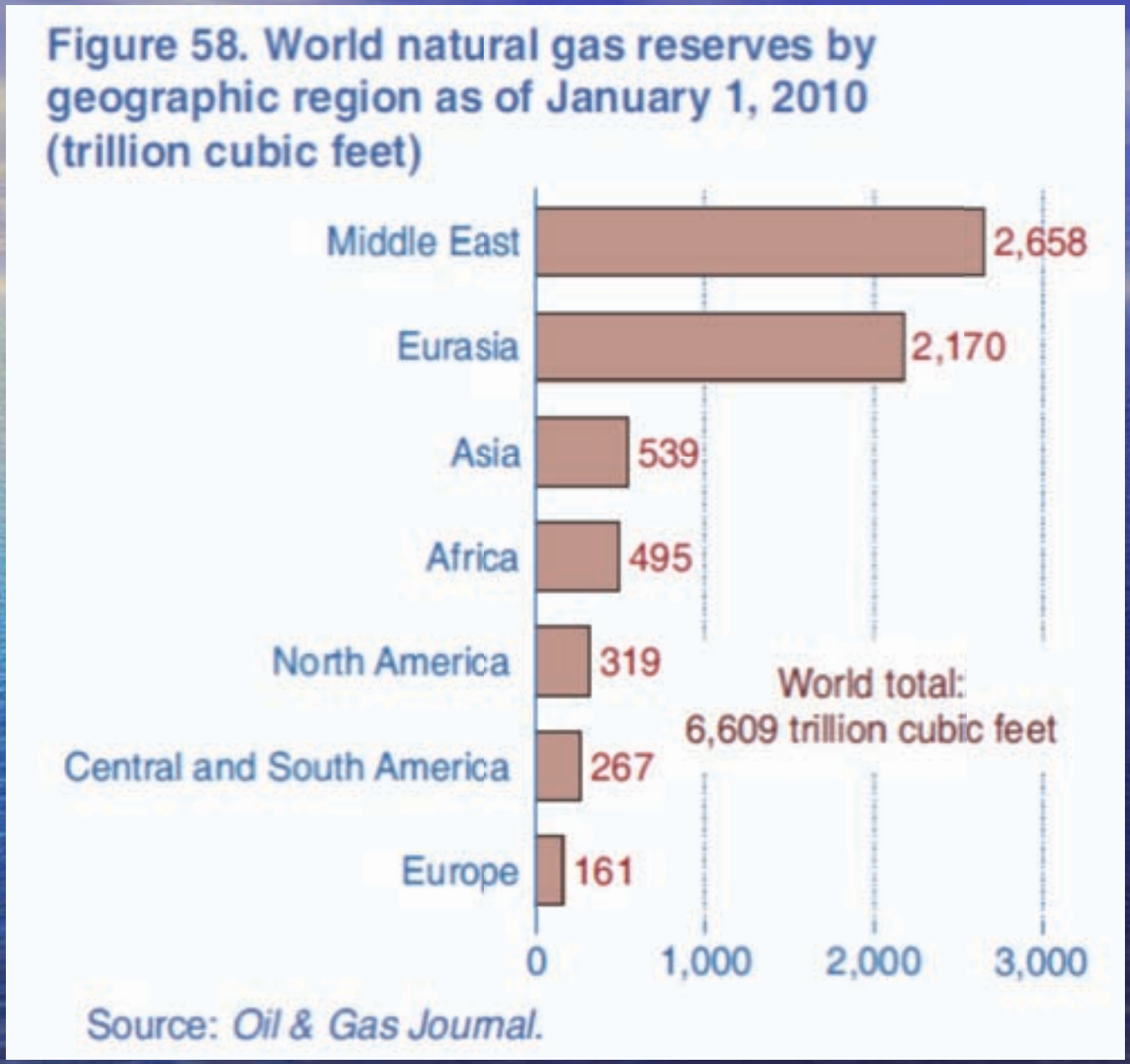
……..ARE WE RUNNING OUT OF OIL?



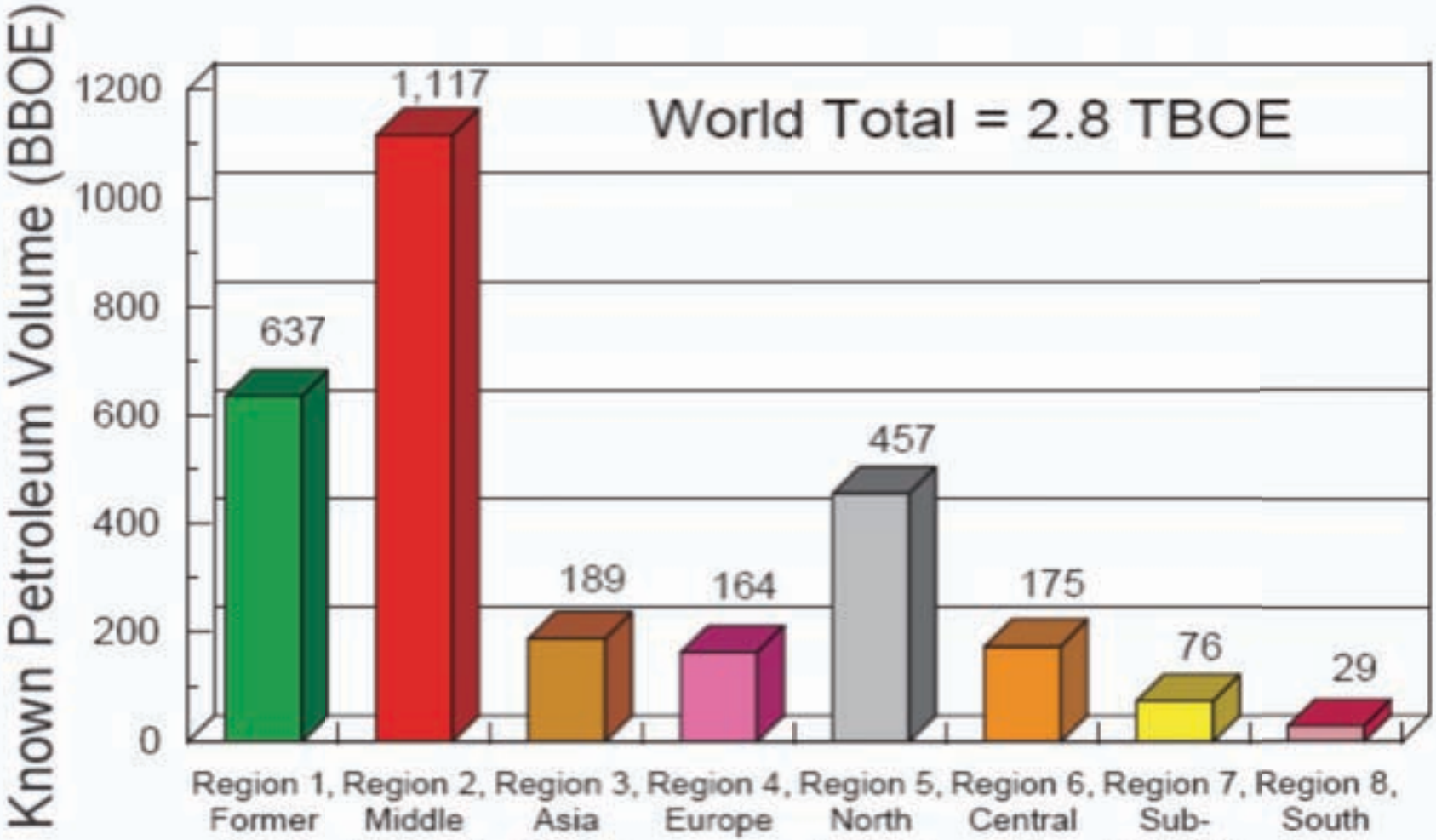
John D. Edwards, University of Colorado, Boulder



Source: EIA International Energy Outlook 2010



Source: EIA International Energy Outlook 2010



Number of Oil and Gas Provinces	43	54	110	44	80	47	13	15	Total 406

Source: USGS Open File Report 97-463

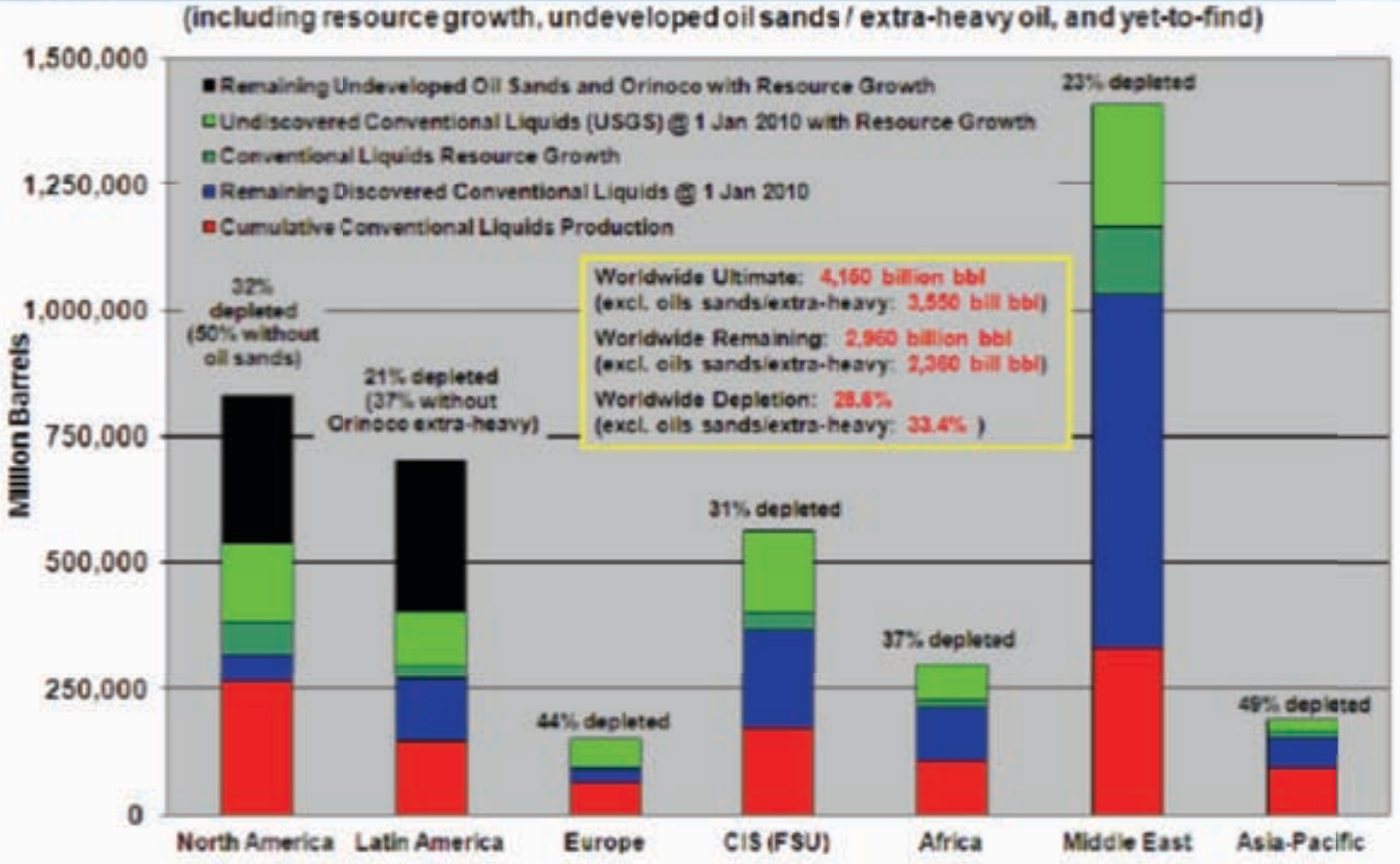
FUTURE PETROLEUM RESOURCES

USGS 2000 World Petroleum Assessment
Mean Estimate of Undiscovered Resources

724 Billion BO
5,196 TCF Natural Gas

(and this was before the advent of shale gas and oil!)

Produced & Remaining Recoverable Liquids Resources End-2009



Two-Thirds Of Known Conventional Petroleum Resources in the following 12 Basins:

- West Siberia
- Mesopotamian Foredeep
- Greater Ghawar Uplift
- Zagros Fold Belt
- Rub Al Khali
- Qatar Arch
- Volga-Ural Region
- North Sea Graben
- Western Gulf of Mexico
- West Texas Permian Basin
- Maracaibo Basin
- Niger Delta

Source: USGS Open File Report 97-463

WHERE WILL WE FIND THE NEW RESERVES?

The best place to look is where we know oil to exist …….. The 12 basins on the previous slide!

Plus……

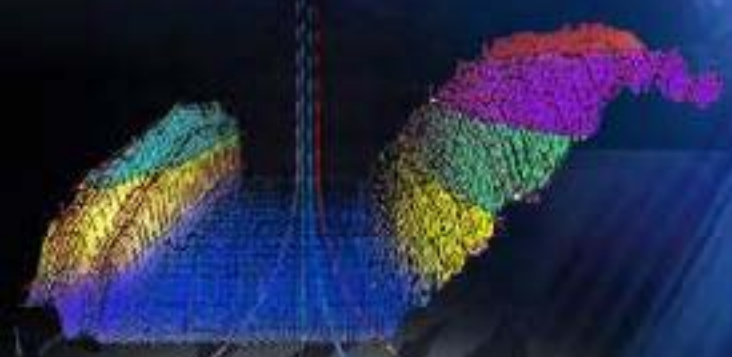
- **Deep water at the mouths of the world's great river systems- Mississippi, Mackenzie, Niger, Congo, Orinoco, Amazon, Ganges, Lena.**
- **Deep water offshore Mexico, Brazil, West Africa, NW Shelf Australia, … and now East Africa.**
- **Hostile environments offshore the Arctic rim, Greenland and Labrador, East Siberia**

GLOBAL PETROLEUM

… Finding new resources

Schlumberger Technology Needs and Drivers

Cost-effective technology for mature environments

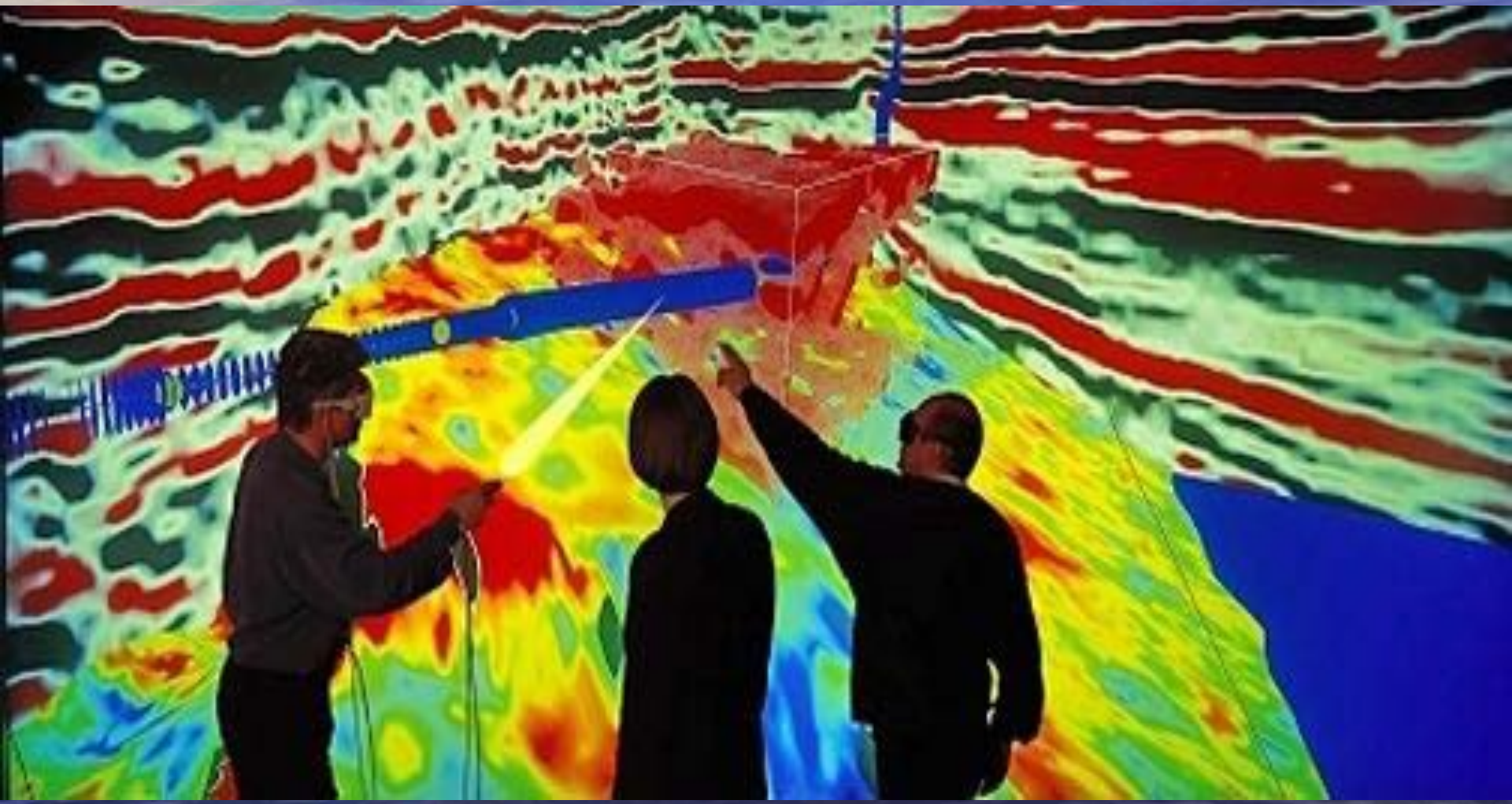


Digitally enabled technology for real-time operations

Cutting-edge technology for exploration and hostile environments

Technology for production of unconventional hydrocarbons

TECHNOLOGY + GOOD GEOLOGY + ACCESS

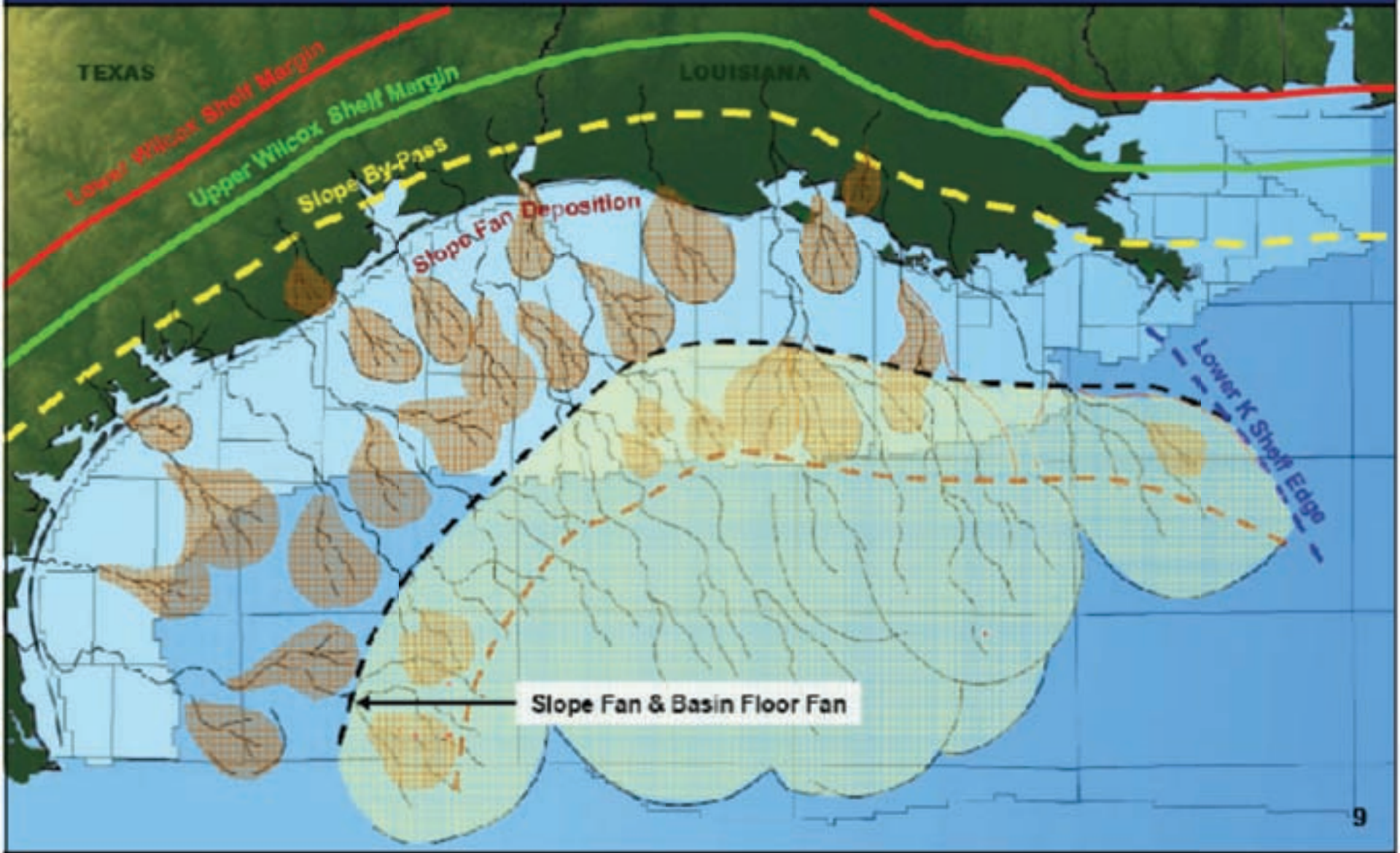


Shallow Salt Cover

devon

Lower Tertiary Wilcox Depositional Model

devon



ULTRA-DEEP GOM – "Jack" Discovery Drilled to 29,000' in 6,965' Water
Tested 6,000 B0PD from 350+ feet Pay

Has the USA Really Run Out of Exploration Opportunities? Not Likely!

September 2, 2009

BP announces potential 3+ Billion Barrel discovery at Tiber Prospect

Could be bigger than 3 BB Kaskida discovery (2006)!

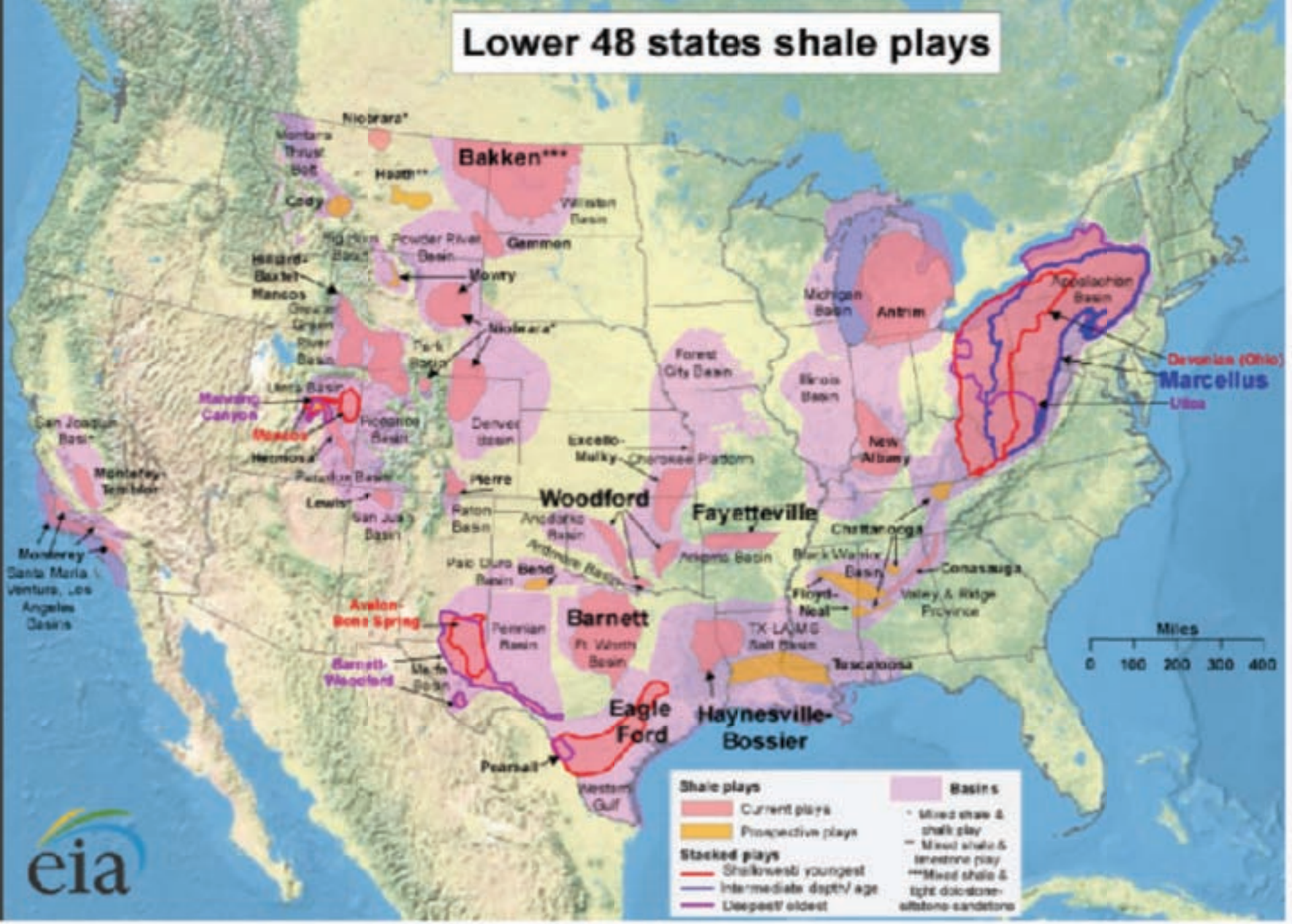
Lower Tertiary Trend

Industry Results to Date

- Industry Discovery
- Industry Non Commercial
- Results Unannounced

- 17 announced discoveries out of 33 prospects tested
- Trend data for Alaminos Canyon, Keathley Canyon and Walker Ridge only
- Additional penetrations along trend to the northeast

15 BB Potential New Resources!



Source: U.S. Energy Information Administration based on data from various published studies
Update: May 9, 2011

NEW SHALE RESOURCES

Potential Gas Committee (June 09) estimates 1/3 of total USA Potential Gas Resource base is shale gas @ 616 TCF

750 Tcf gas and 24 B oil recoverable shale resources

per DOE INTEK Study July 2011

Note: USA Proved Gas Reserves
@ 12/09 were 284 TCF (21% Shale gas)
(up from 244 TCF @ 12/08)

GLOBAL SHALE GAS

Technically recoverable shale gas resource in 48 basins outside

Russia and Middle East

@ 5,760 TCF *

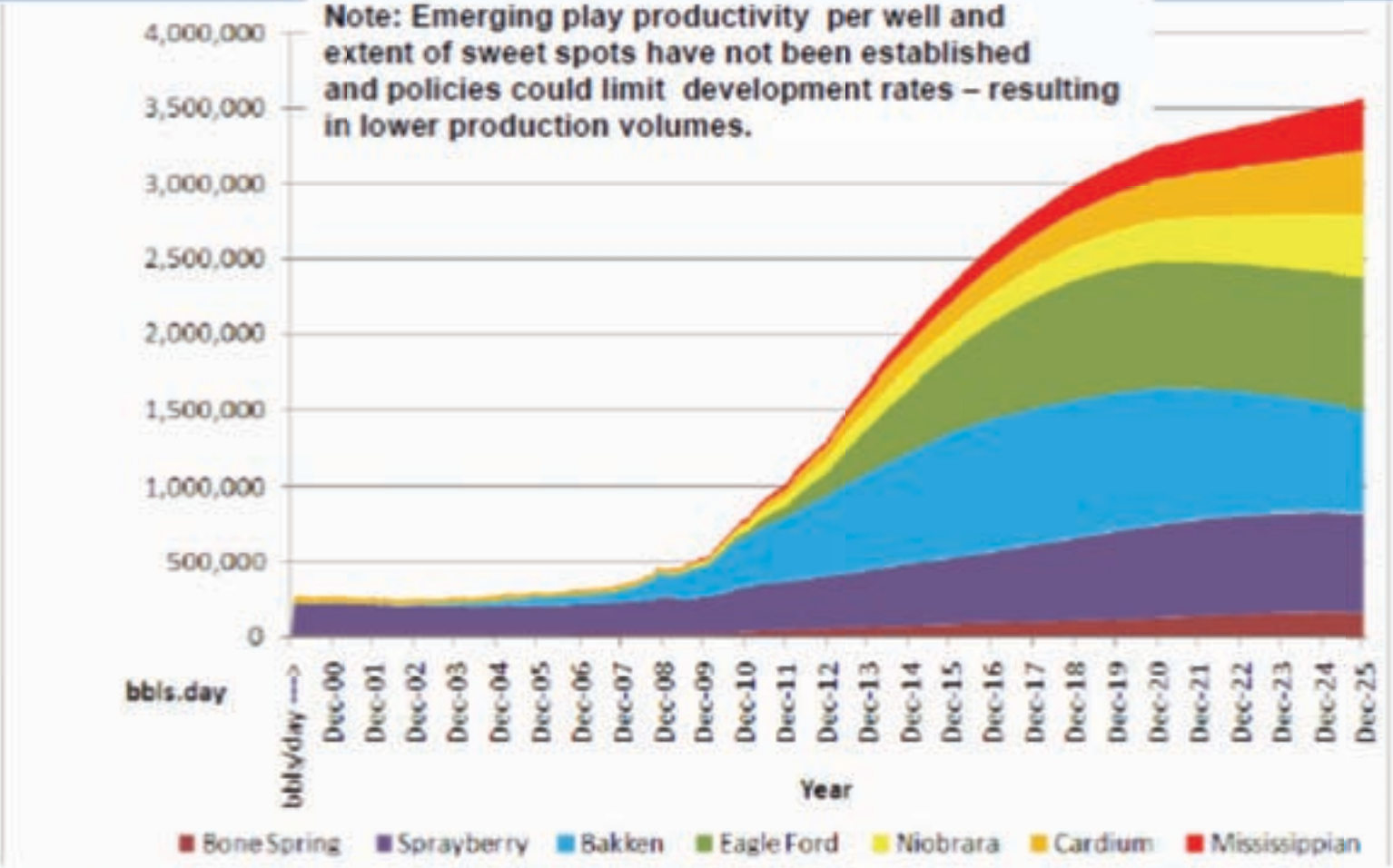
But.....

Economic, environmental and social issues!

Will this gas ever be produced?

Source: Advanced Resources International study for EIA – April 5, 2011

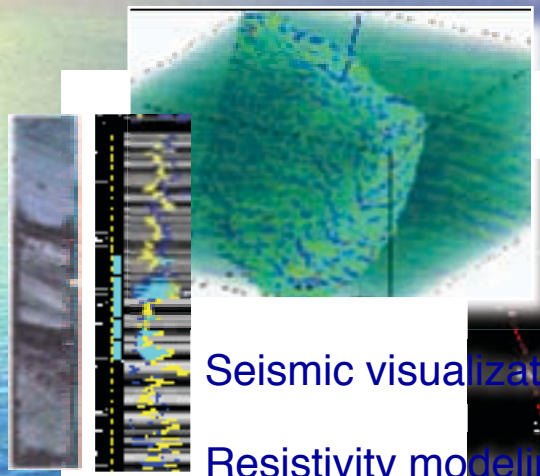
Potential Production - Major Tight Oil Plays
High Activity Development Scenario

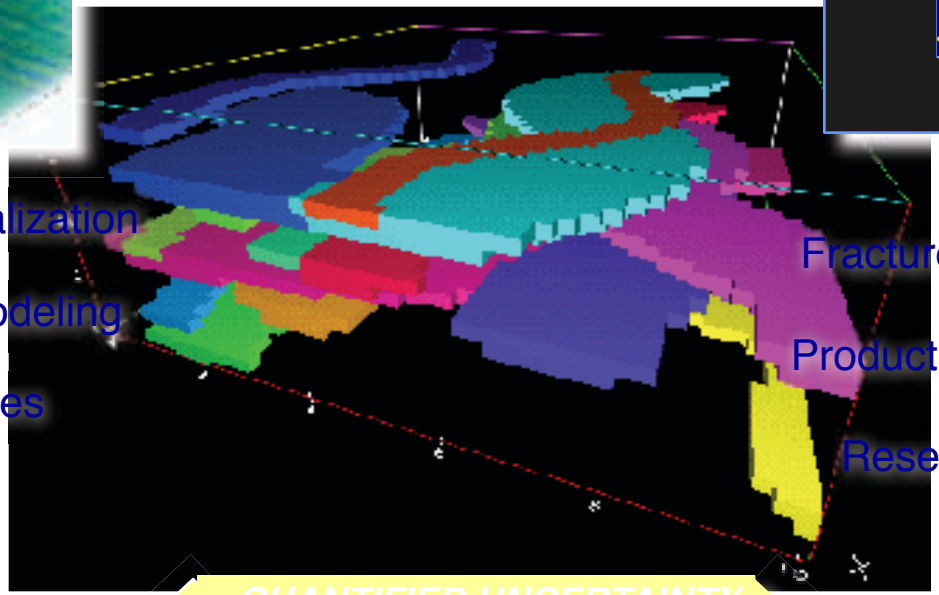


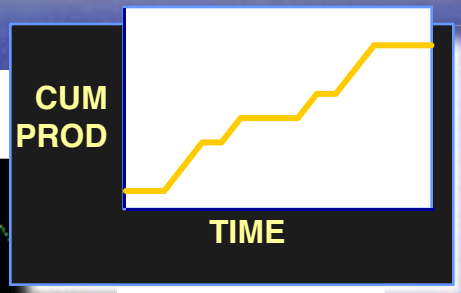
Reservoir Characterization:

Sedimentology
Fluid Flow
Computer Simulation

Reservoir Characterization focuses on data integration to model reservoir architecture and flow properties







Seismic visualization

Resistivity modeling

Outcrop studies

Geostatistics

Fracture characterization

Production data inversion

Reservoir Optimization

QUANTIFIED UNCERTAINTY

Volumetric and reserve estimation

Geosteering

Reservoir simulation

From Armentrout, 2000, AAPG.org

Why is Reservoir Characterization So Important to Global Oil Supply?

Average Global Recovery Factor (RF) = 34%

Increase RF by 3% = 200 BBO incremental production

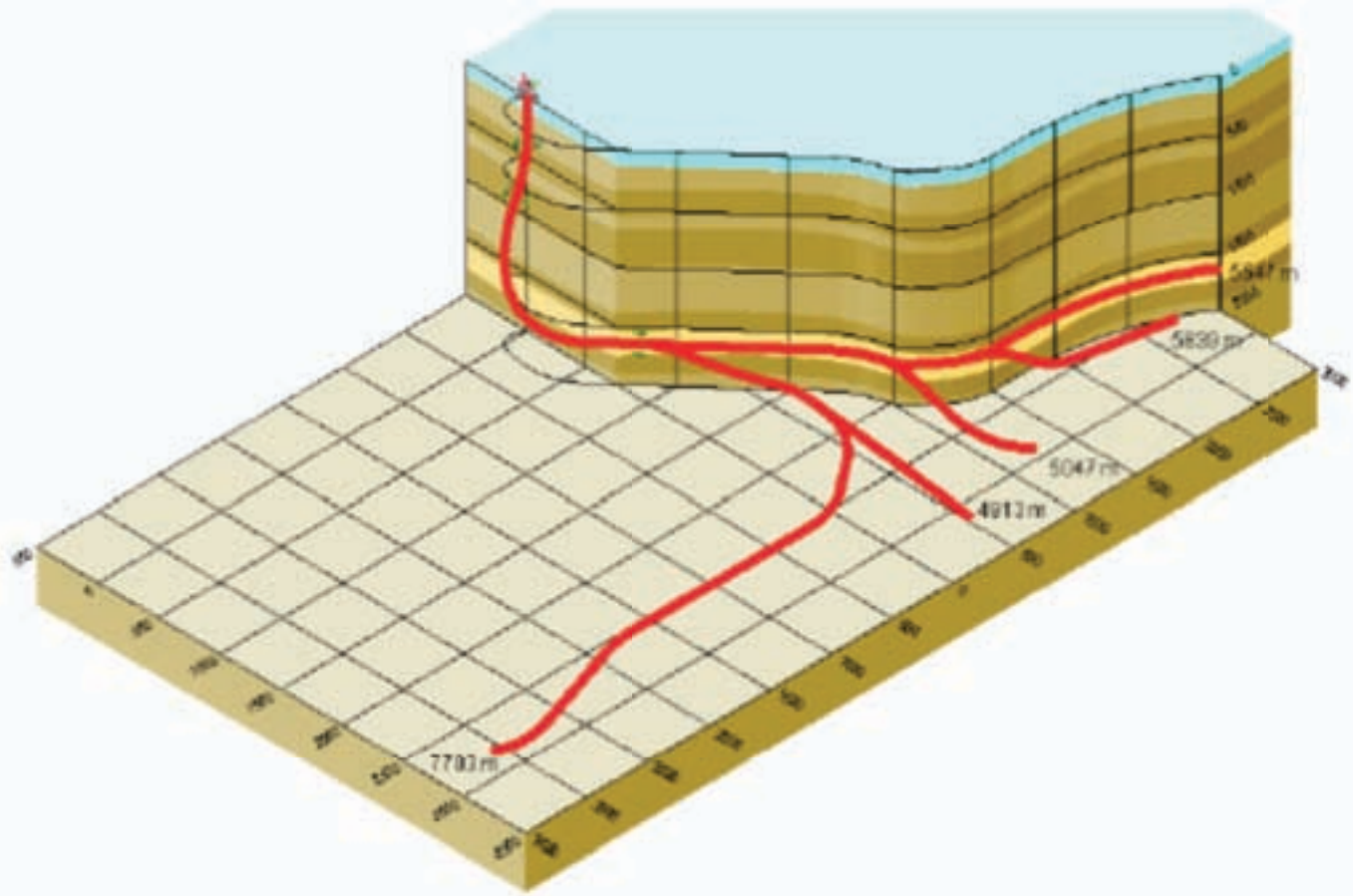
If RF increased to 45% = + 1 Trillion BO

(= R&D Focus area $$$)

Source: AAPG Hedberg Conference 11 / 06

NEW TECHNOLOGIES INCREASE RF!

North Sea
"Starfish Well"



44,000' of horizontal multi-lateral wellbore drilled in upper 2' of 28' thick oil rim at Troll Field in Norwegian North Sea

Recovery of oil in Place raised from 15% to 70% !

Source: Baker Hughes

NATURAL GAS HYDRATES:
An Energy Bonanza or Distant Mirage?

Global resource vastly exceeds conventional gas resources!

(= Active USGS and DOE R&D Project)

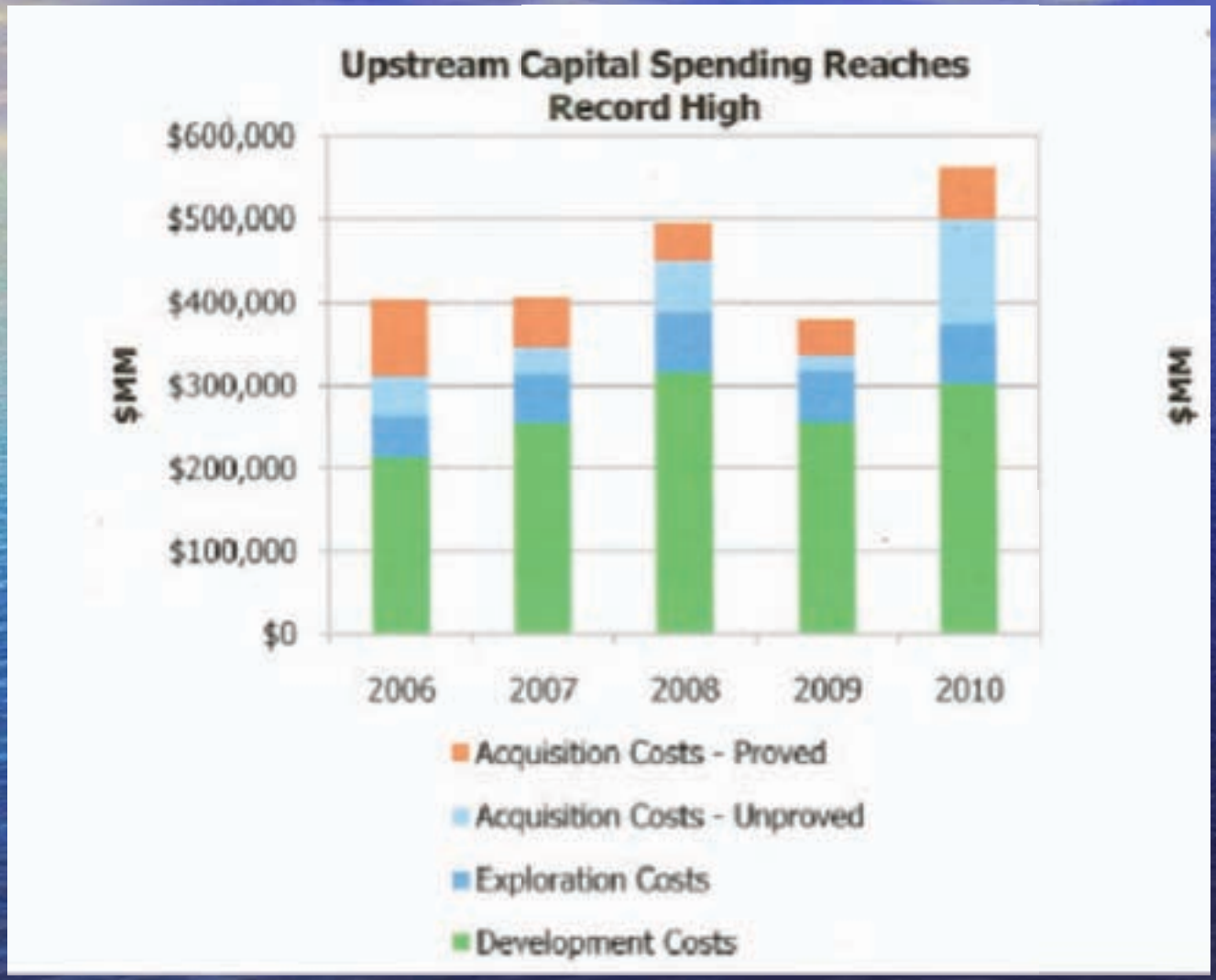
Source: USGS 1996

What does all this cost?

What are the challenges for the Petroleum industry?

Can we keep up the momentum?

Point of Reference…….
2010 GLOBAL UPSTREAM INVESMENT @ $562 BILLION



Source: IHS Herold, 2011 Global Upstream Performance Review of 222 public companies

CHALLENGES….
Beyond the Rocks

- Hostile Operating Environments
- Geopolitical Environments
- Regulatory Environments
- Commodity Price Volatility
- Declining value of US$
- Capital & Operating Cost Volatility
- Lack of trained professionals may delay projects
- Energy Policy conflicts

Supply- Political Uncertainty

Dateline……..Caracas, Venezuela

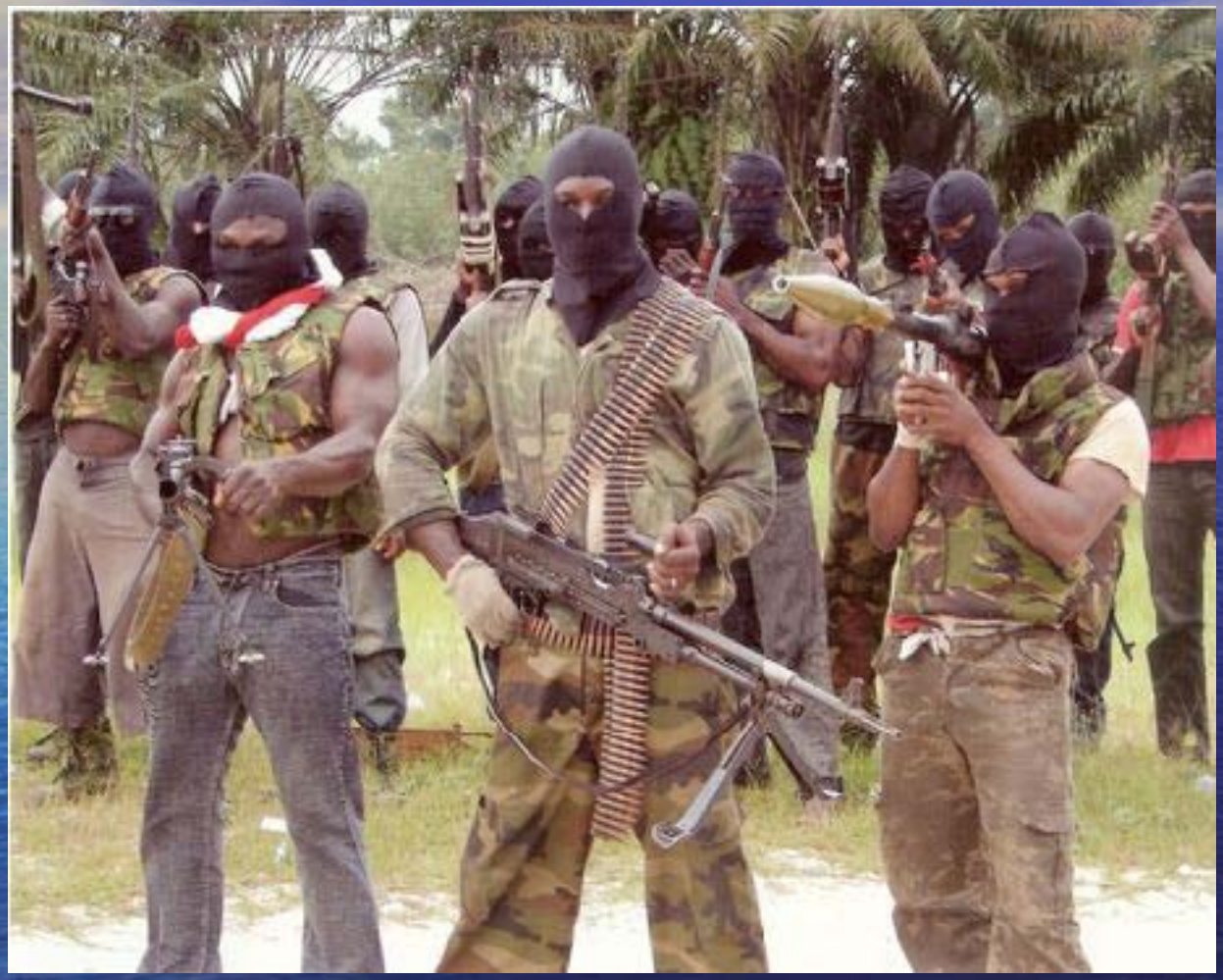
Supply- Even More Uncertainty and Vulnerability !

Dateline……. Tehran

Supply / demand Vulnerability… The Weather

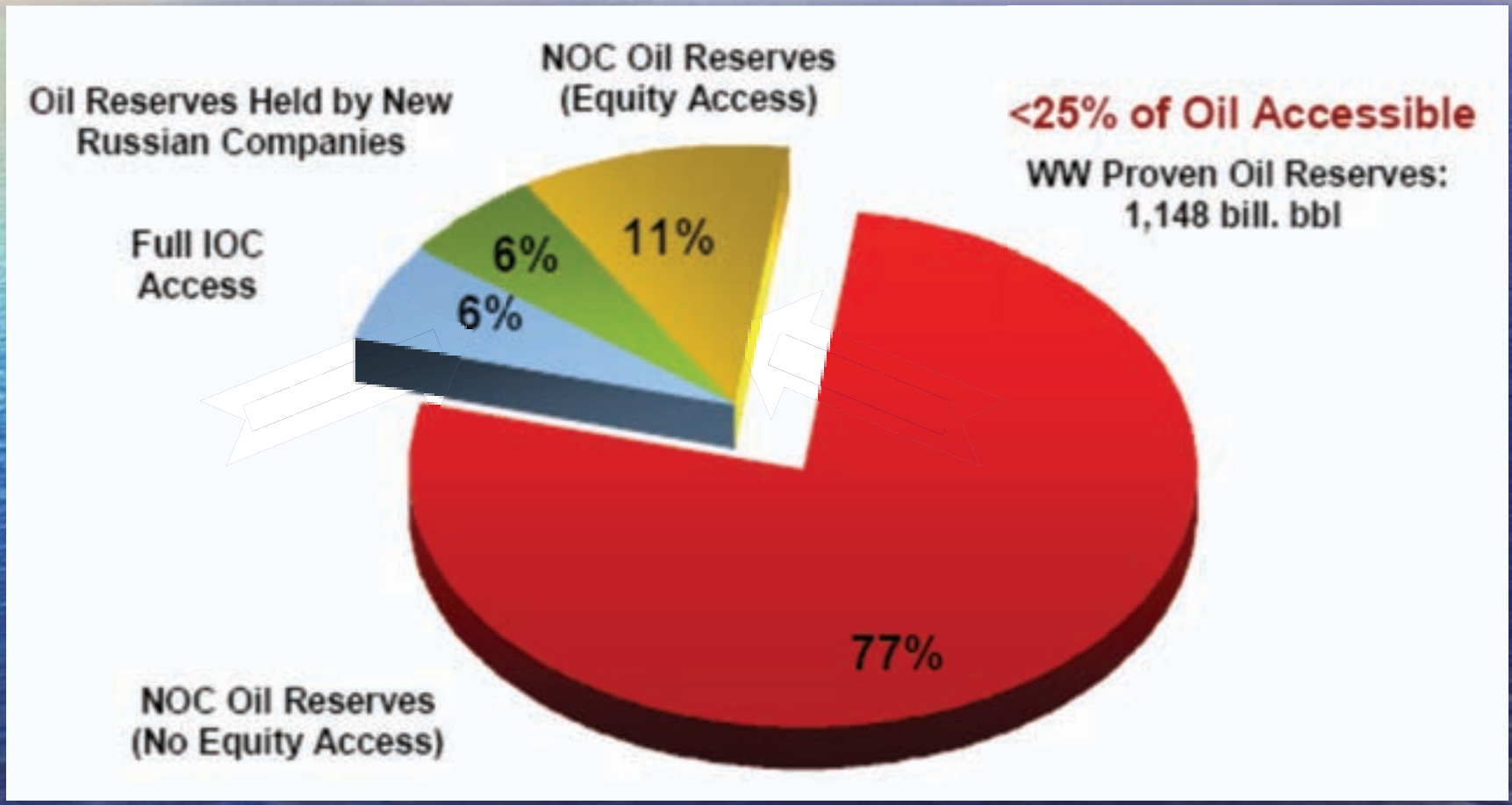
Hurricane Katrina Knocked out 700,000 BO and 3.6 Bcf per day Gulf production
Domestic oil and gas prices spiked as a result

Vulnerability….And you thought the weather was tough!



These gentlemen cut Nigerian production
by 1.6 MMBO per day in July 2009.
(Al Qaeda could do a lot more damage elsewhere!)

Control of Proven Oil Reserves



Source: AAPG after PFC Energy

SUPPLY CHALLENGES

Global oil production decreases 3.5 MMBO/day/year through natural decline. This must be replaced to say even with demand!

SAUDIA ARABIA AS SWING PRODUCER

12.5 MMBO/day Capacity -Producing @ 9.7 MMBO/day

OPEC Currently @ 30 MMBO/day (= 34% Total)

As demands ramps up with an improving economy,
will OPEC supply be there…at a price that is affordable?

Yes – If capital investments made.
(Iraq @ 6 MMBO/day ???)

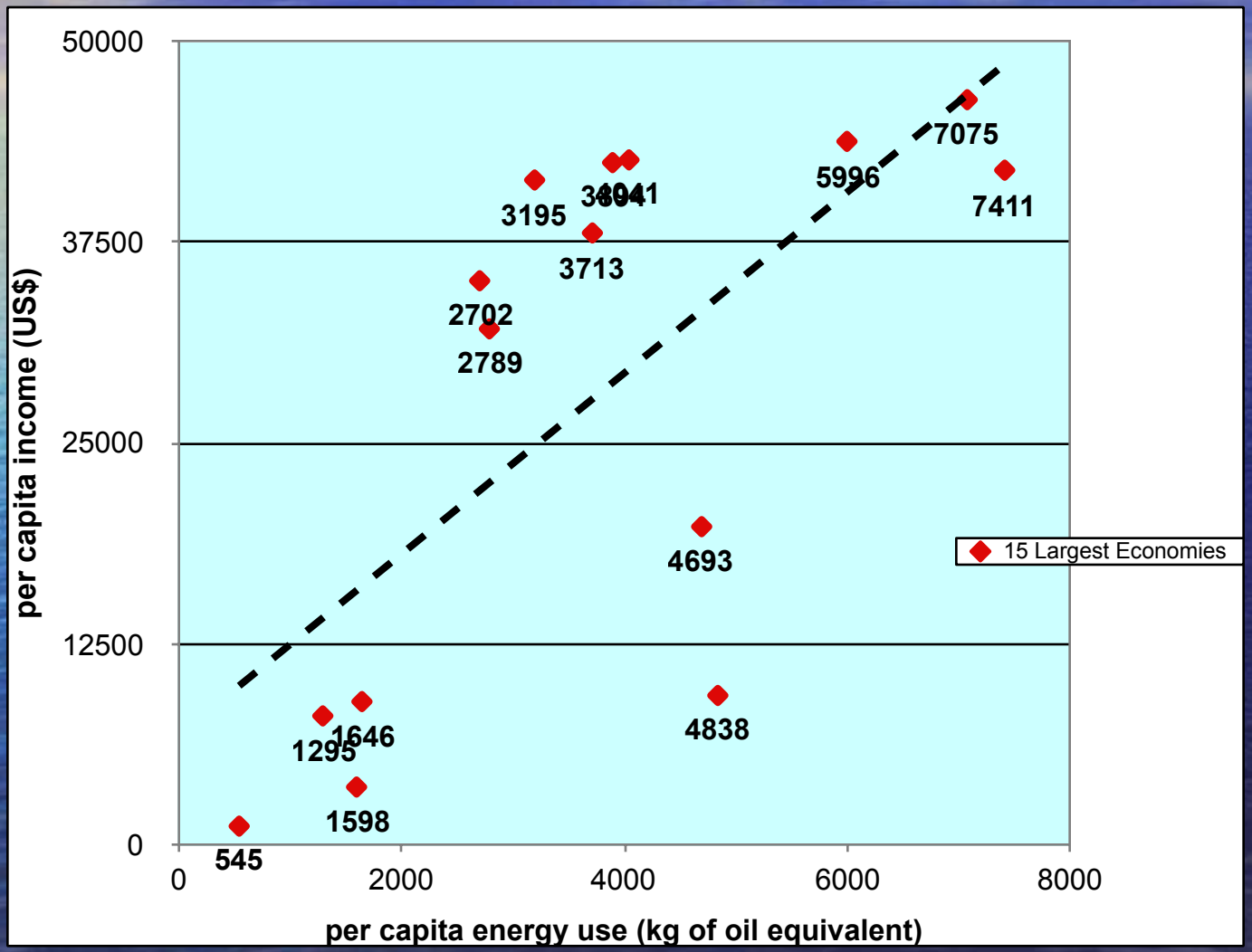
Plus…… Political Stability in Middle East (???)

**The Incremental barrel of supply,
or lack thereof,
sets the global price!**

REALITY CHECK #2

Current USA and Global energy use and practices are unsustainable.

Energy Consumption as an Indicator of the Wealth of Nations



Source: The World Bank, 2009 Data

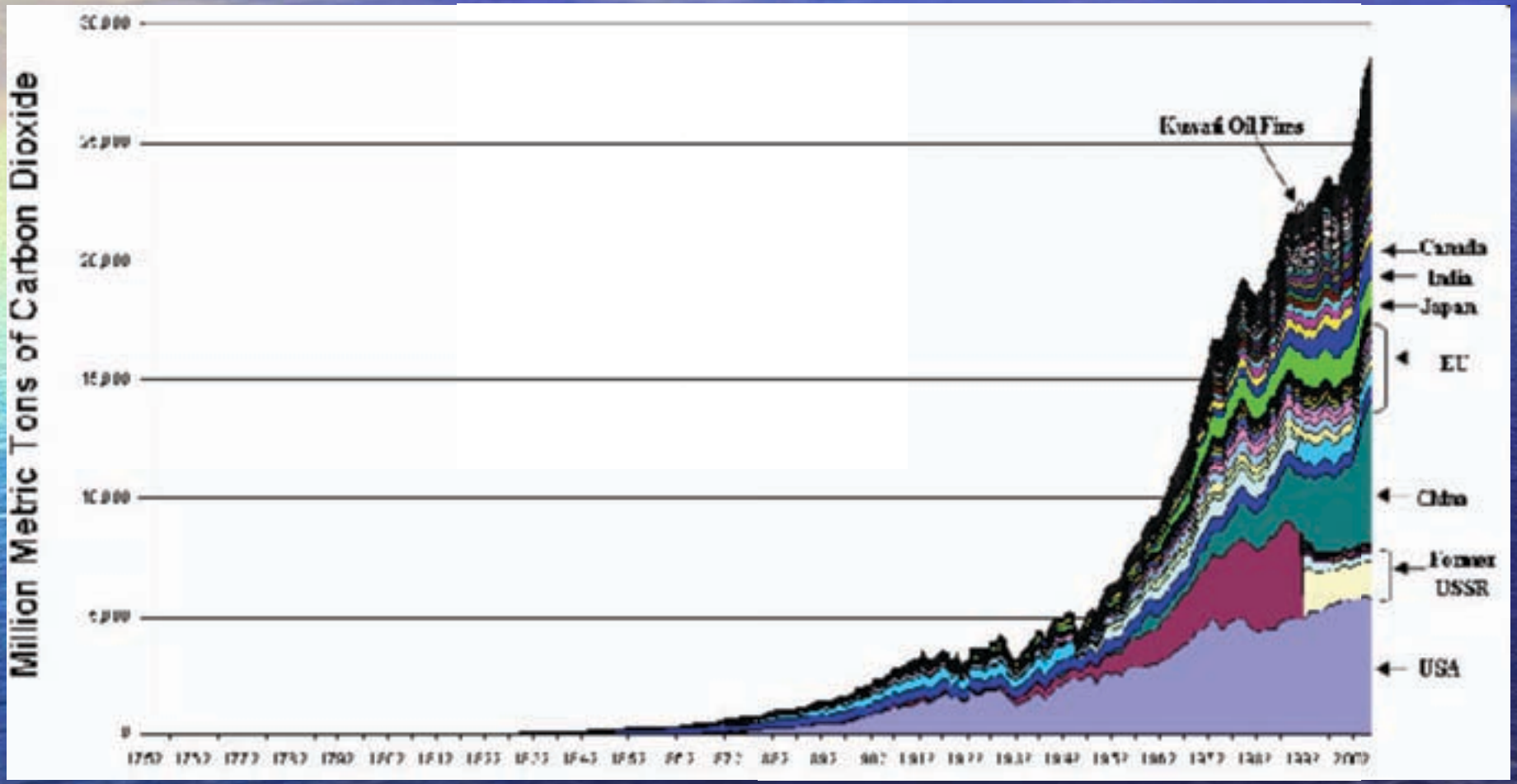
Cheap and abundant fossil fuels have energized America's economy and made it great!

But……

There is an unforeseen consequence!

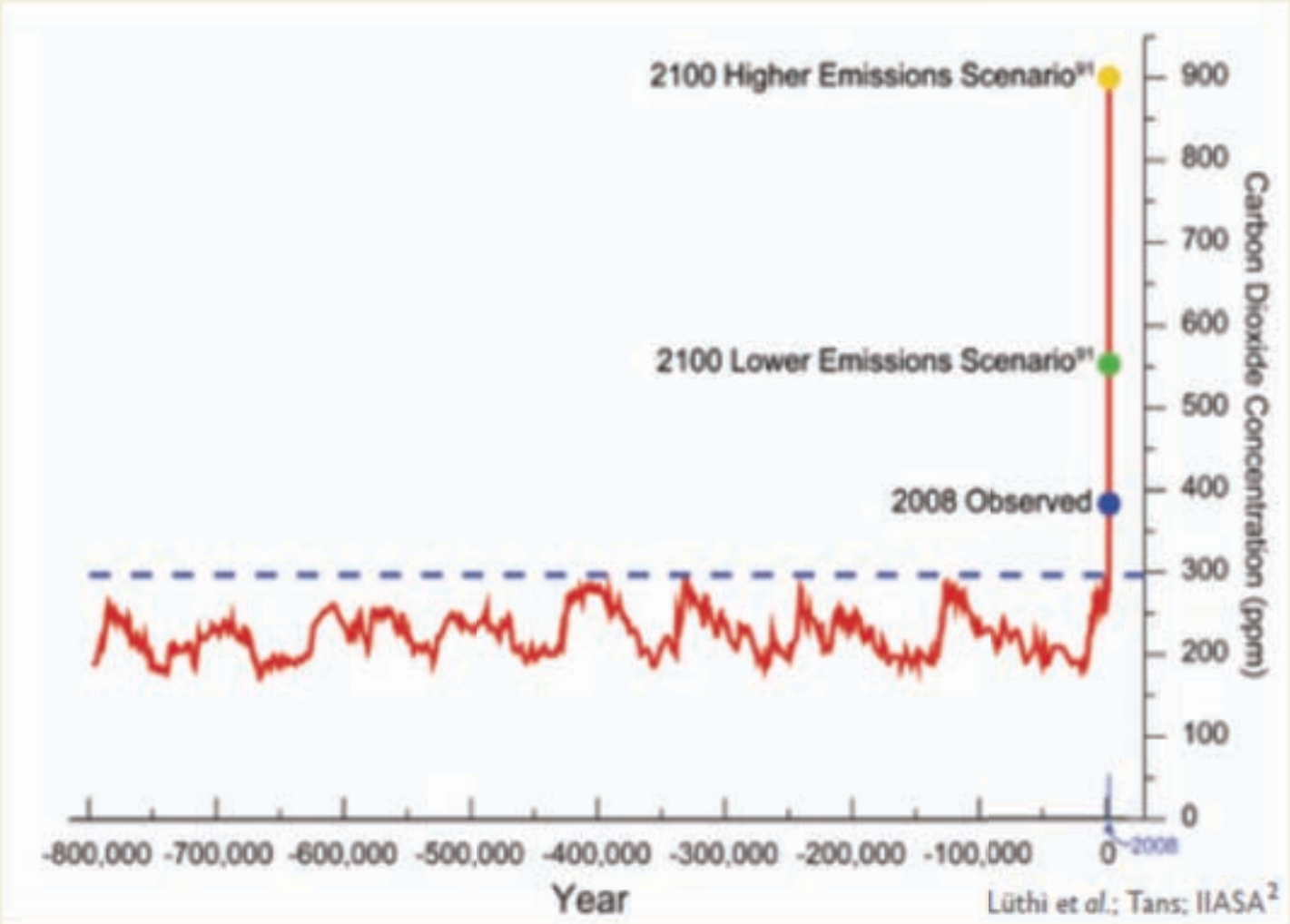
….AND THIS HAS A VERY SIGNIFICANT IMPACT ON THE HEALTH, SAFETY AND WEALTH OF THE NATION AND ITS CITIZENS .

Global CO2 Emissions from Fossil-Fuel Burning, Cement Manufacture, and Gas Flaring: 1752-2006



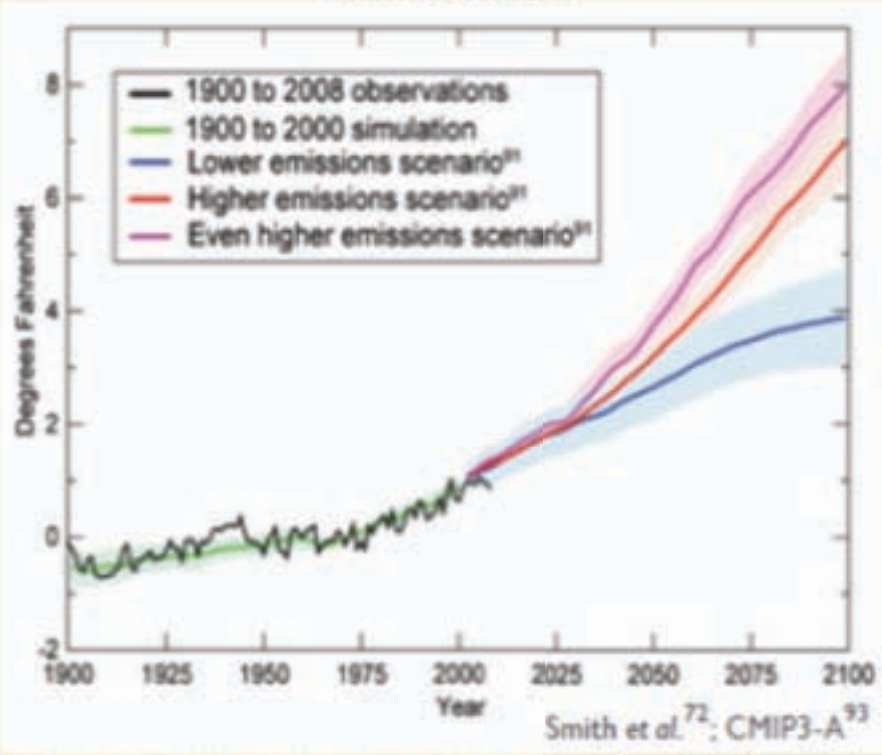
Reference: Carbon Dioxide Information Analysis Center

800,000 Year Record of Carbon Dioxide Concentration



Source: U.S. Global Change Research Program, 2009 Report
www.globalchange.gov/usimpacts

Global Average Temperature
1900 to 2100



Observed and projected changes in the global average temperature under three IPCC no-policy emissions scenarios. The shaded areas show the likely ranges while the lines show the central projections from a set of climate models. A wider range of model types shows outcomes from 2 to 11.5°F.[90] Changes are relative to the 1960-1979 average.

Source: U.S. Global Change Research Program, 2009 Report
www.globalchange.gov/usimpacts

CLIMATE CHANGE

Why does it matter?

The biosphere must be able to adapt to the rate of change!

Example:
Sea level rise

USGS

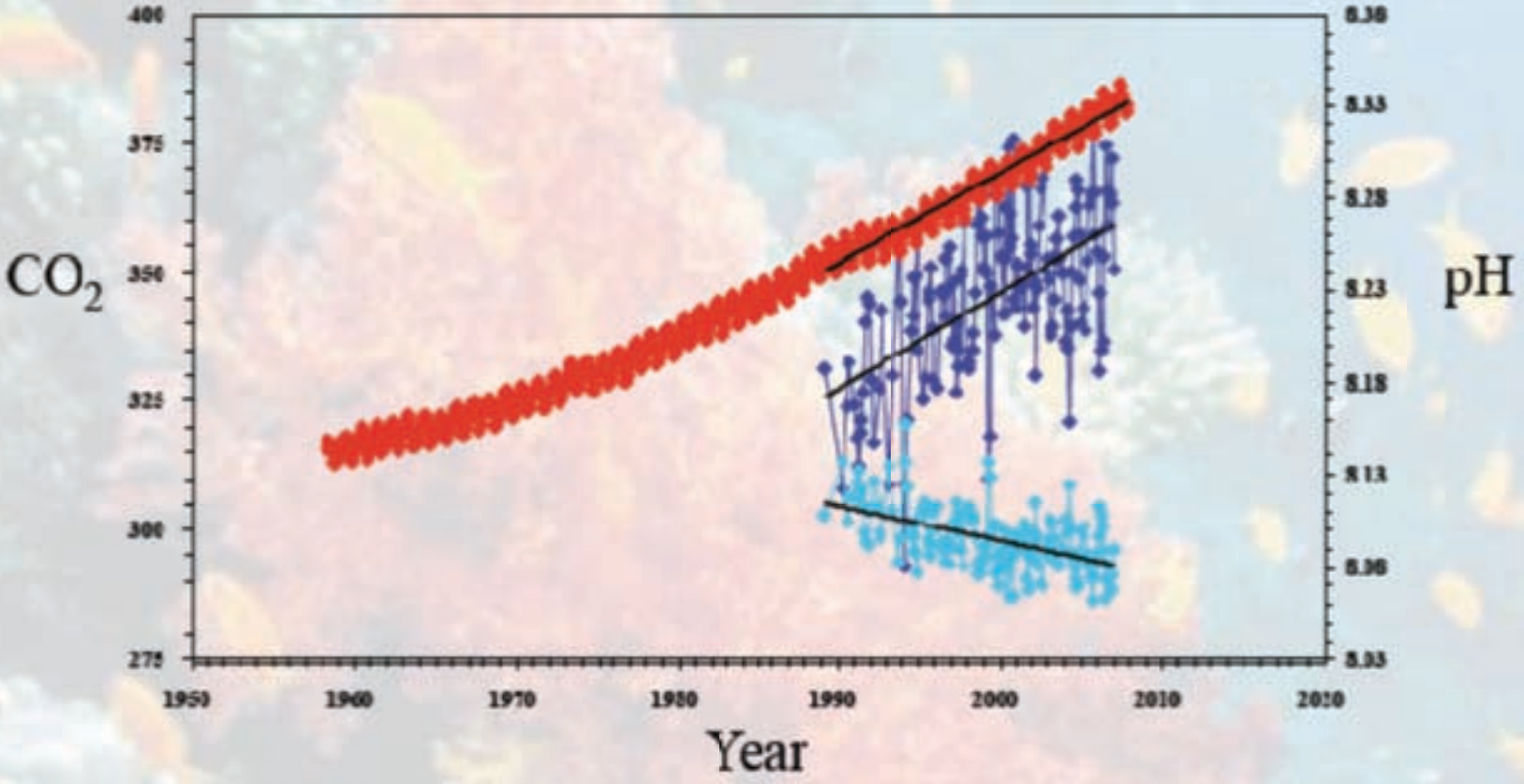
Key issues in climate adaptation: Water availability

USGS

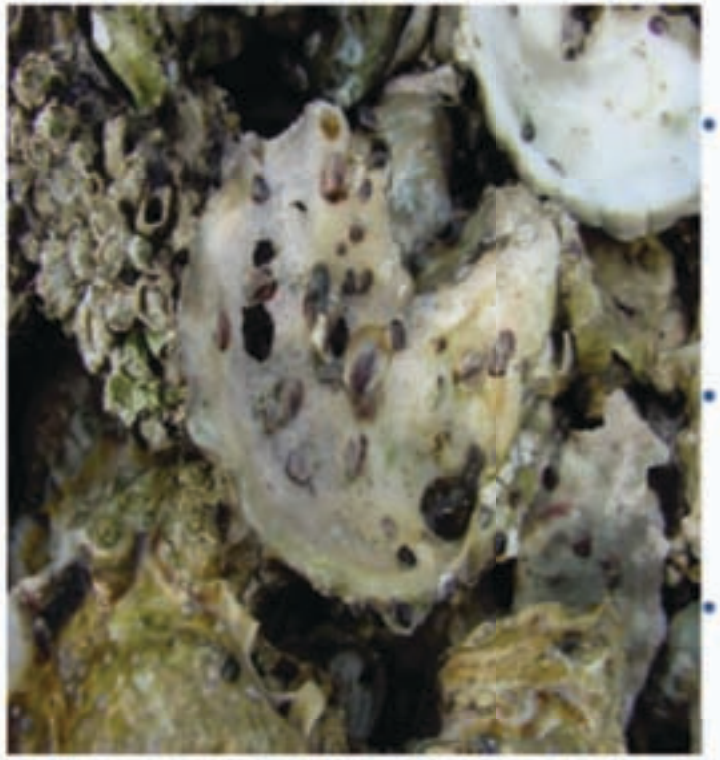
Ocean Acidification: The Other CO_2 Problem
Council of Scientific Society Presidents
2 May 2010

Richard A. Feely
NOAA/Pacific Marine Environmental Laboratory

With special thanks to: Chris Sabine, Simone Alin, and Sylvia Musielewicz

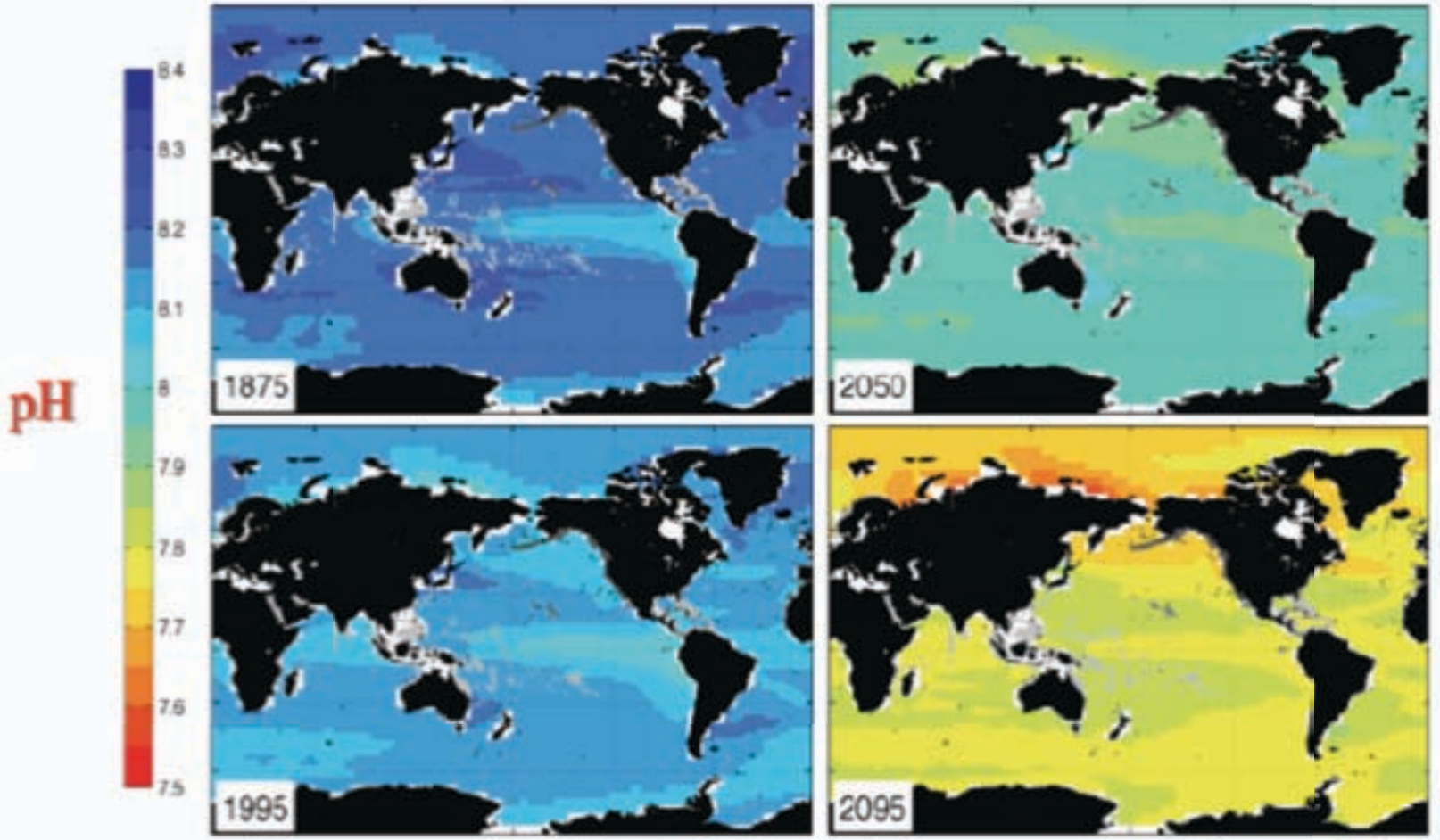


Pacific Northwest Oyster Emergency
Willapa Bay Seed Crisis



- Failure of larval oyster recruitments in recent years
- Commercial oyster hatchery failures threatens $100M industry (3000 Jobs)
- Low pH "upwelled" waters a possible leading factor in failures
- Larval oyster may be "canary in goldmine" for near-shore acidification?

pH distribution in surface waters from the NCAR CCSM3 model projections using the IPCC A2 CO_2 Emission Scenarios



Light gray = warm water corals
Dark gray = deep water corals

Feely, Doney and Cooley, Oceanography (2009)

ENERGY POLICY RHETORIC

vs.

OBAMA ENERGY POLICY

- Prudent development of North American oil and gas resources.
- Reduce GHG emissions.
- Protect the environment.
- Sustain economic growth and competitiveness.
- Promote energy security.

But…… what is actually happening?

OBAMA ADMINISTRATION POLICY INITIATIVES WHICH WILL LIKELY REDUCE DOMESTIC ENERGY SUPPLY

- Elimination of oil industry tax benefits
- Increase taxes on oil industry
- Increase Oil and gas royalties on federal lands.
- Cancellation and delays of lease sales.
- Delays in review and issuance of environmental permits.
- Gulf of Mexico actual and defacto drilling moratorium.
- Energy business expertise appears to be a disqualification for appointment to federal energy commissions.

ENERGY INDEPENDENCE?

Obama 2011 Budget Proposal for Oil Industry Tax Preferences

- Repeal enhanced oil recovery credit
- Repeal credit for oil produced from marginal wells
- Repeal expensing of intangible drilling costs
- Repeal deduction for tertiary injectants
- Repeal exception to passive loss limitations for WI owners
- Repeal percentage depletion
- Repeal domestic manufacturing tax deduction
- Increase G&G amoritization period to 7 years
- Reduction of foreign tax credits

CURRENT POLICY DISINCENTIVES TO REDUCING FOREIGN OIL:

- *Vilify the oil (and coal) industry.*
- *Deny Exploration Access.*
- *End Tax Preferences.*
- *Raise the regulatory hurdles.*
- *Endless environmental litigation.*

REALITY CHECK #3

The Public and our Political Leadership simply don't understand energy and climate change.

They are in denial about both.

Climate change is currently a "toxic" subject for politicians.

.

EDUCATING THE PUBLIC

Ending the Addiction to Cheap Energy

This is a huge challenge!

(Americans scream at gasoline prices over $4.00/gal - Europeans live with it.)

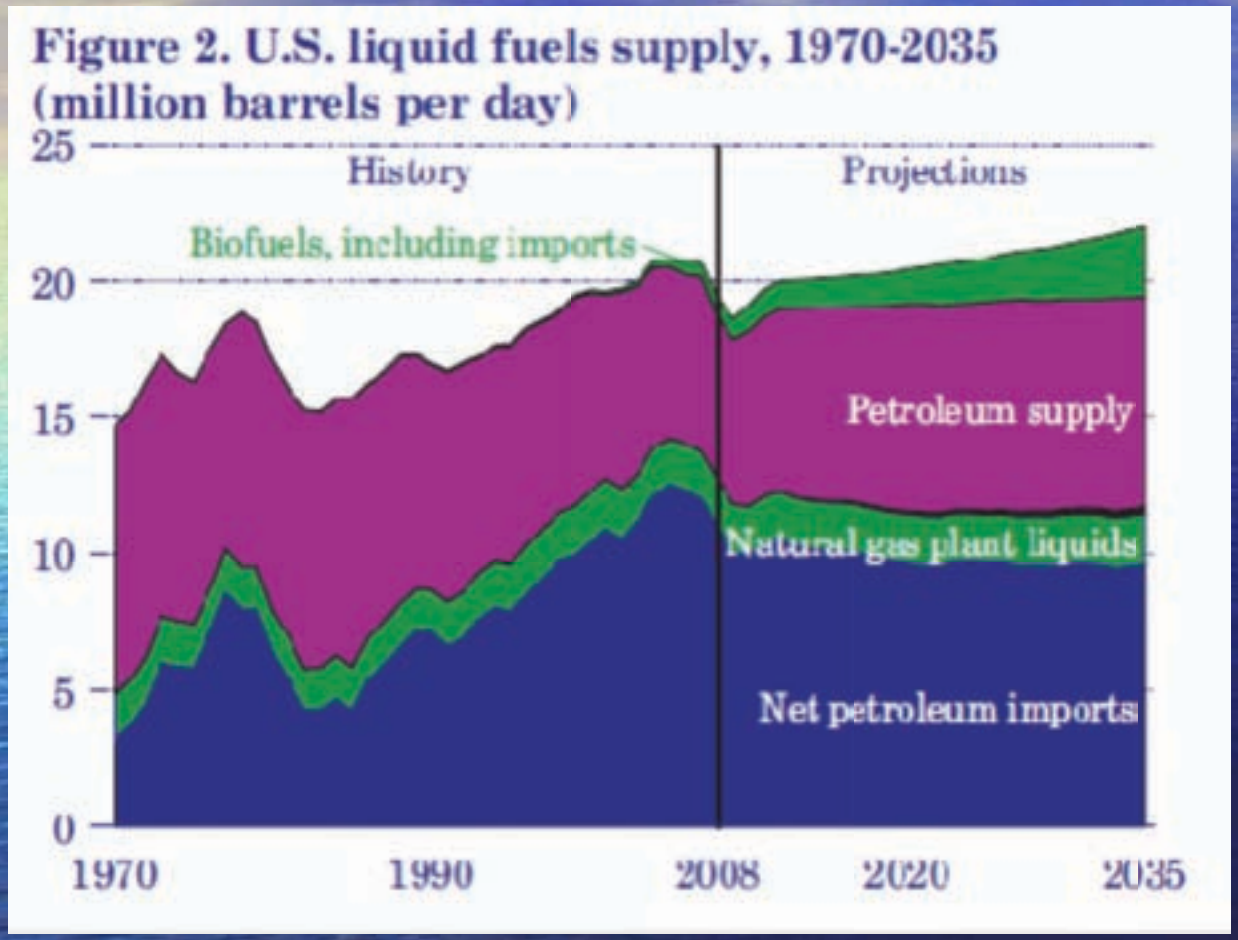
CURRENT POLITICAL MANTRA IN USA……..

"End Our Dependence on Foreign Oil!"

2009 imports = 51% of demand

(2008 Imports = 57% of Demand)

…Not for a long time!



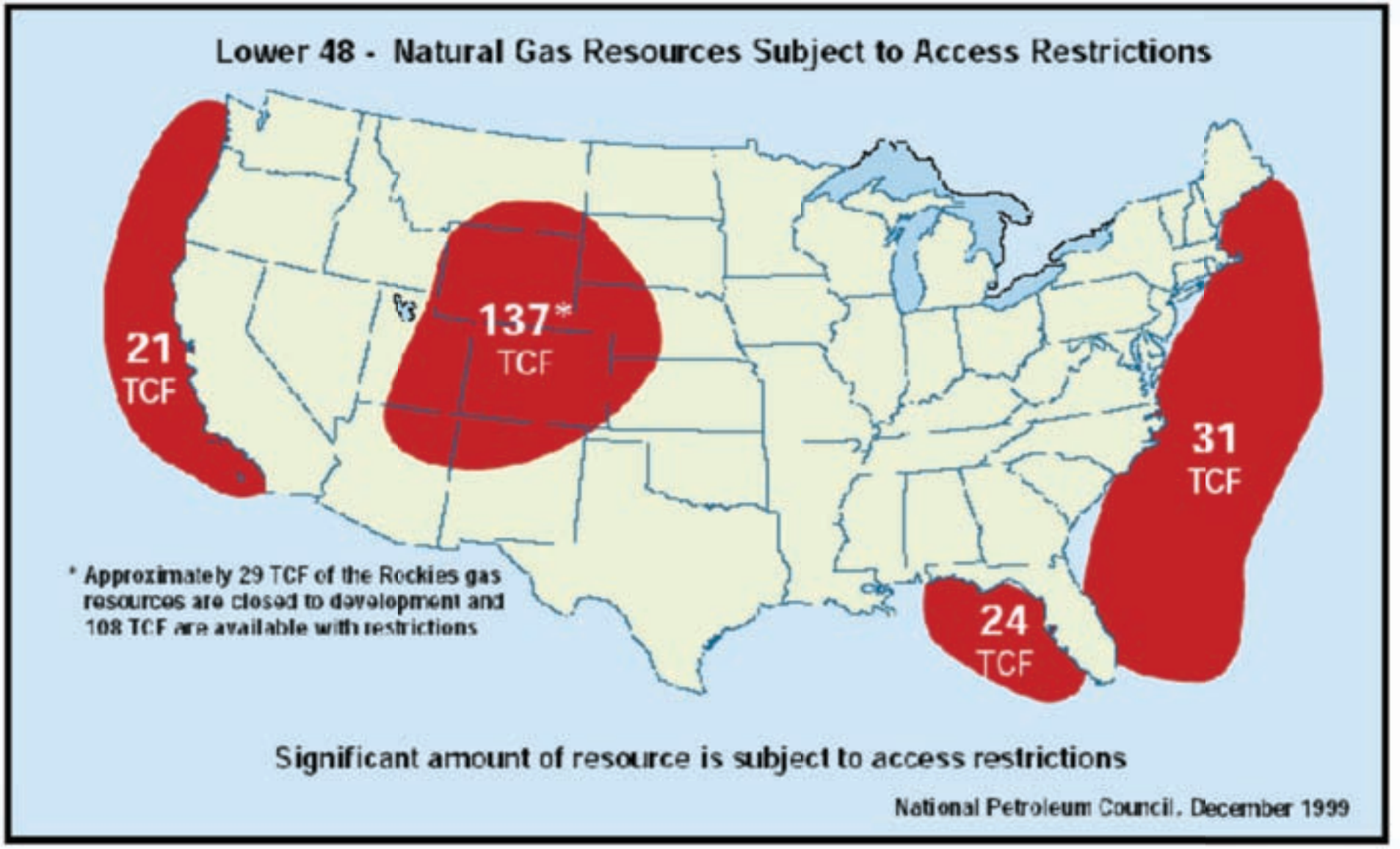
45% Imports by 2035 if renewables replace fossil fuels

Source: EIA Annual Energy Outlook 2010

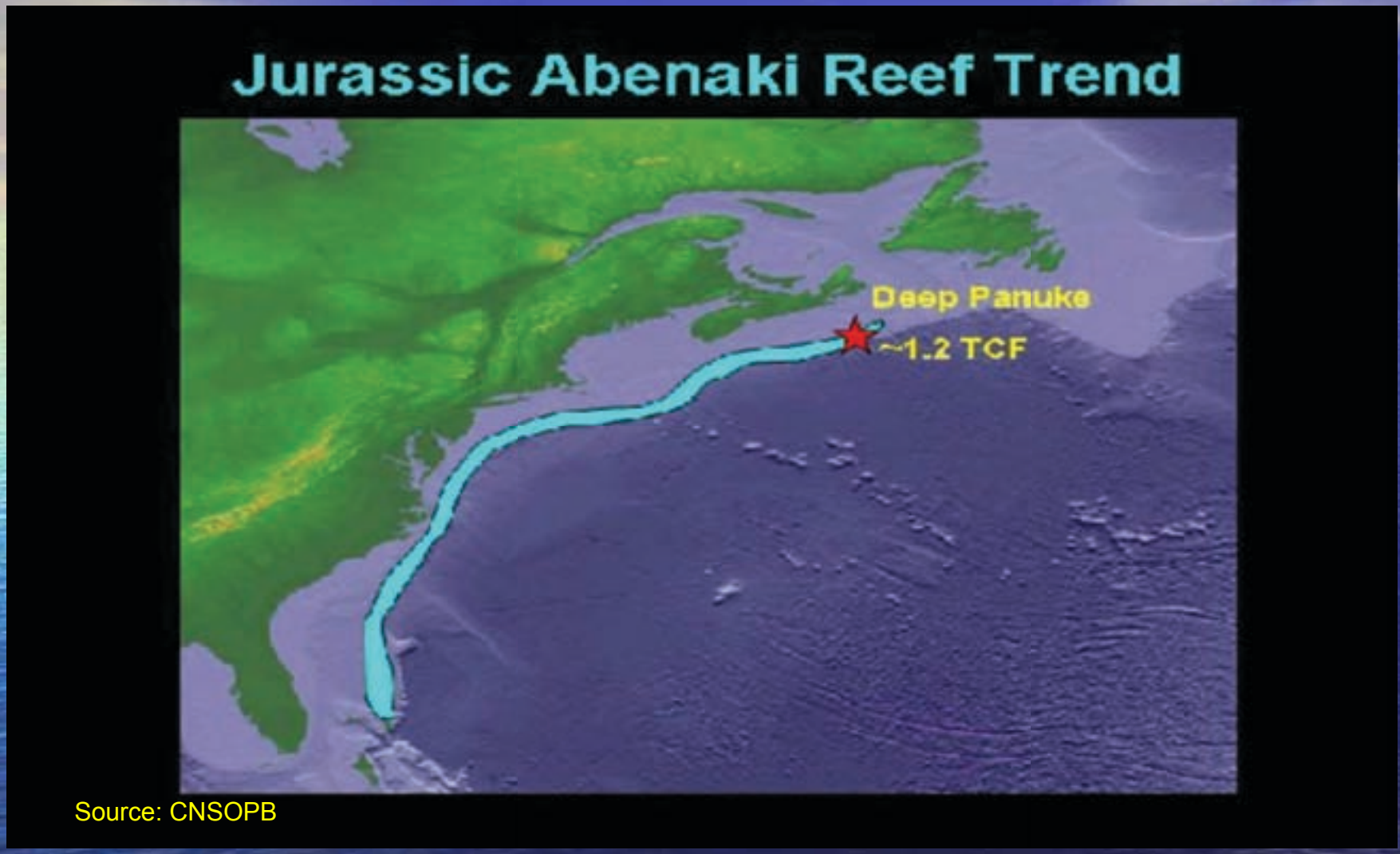
ACCESS TO ONSHORE AND OFFSHORE PETROLEUM LANDS

…This has also been an issue under previous administrations

CAN'T EXPLORE HERE!



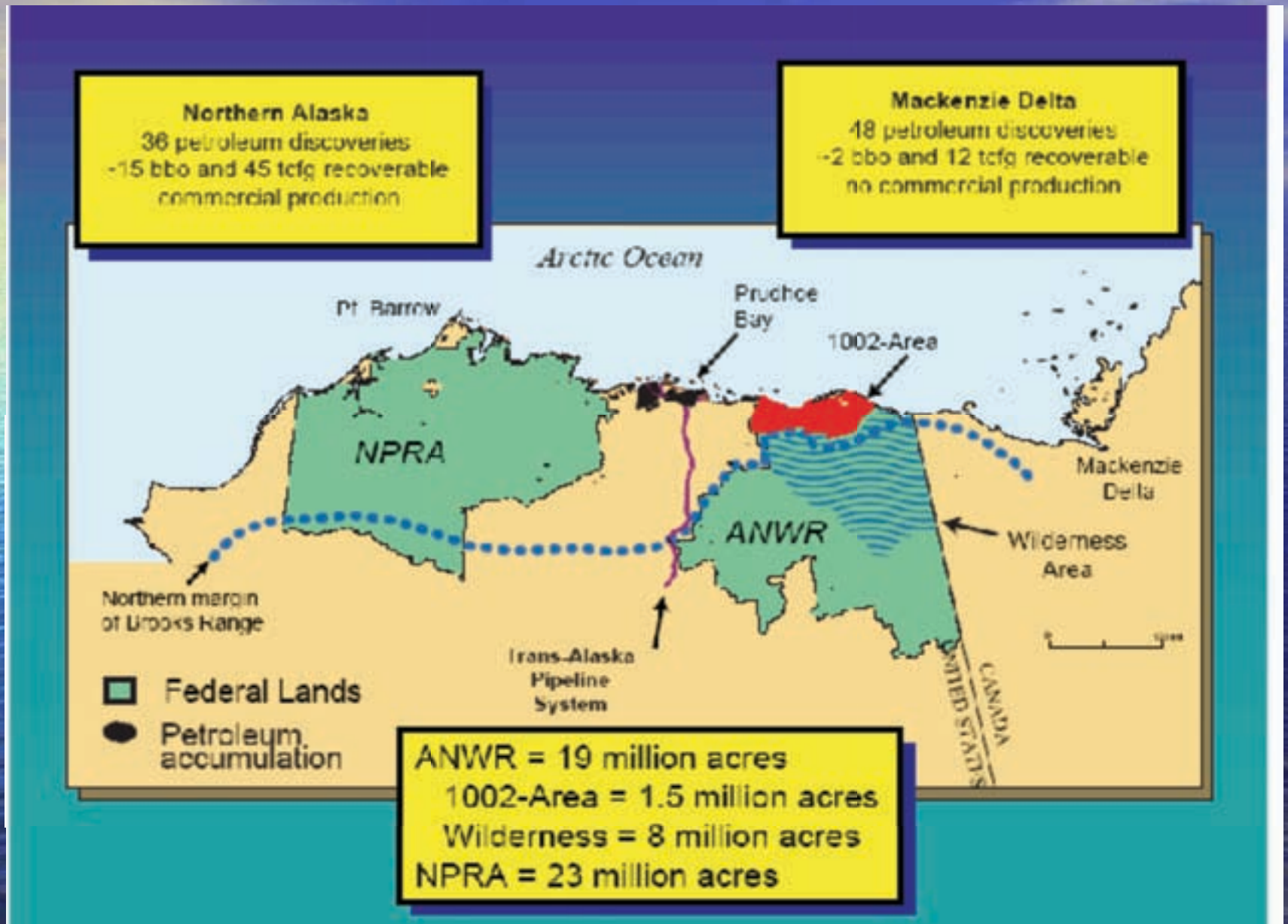
Where Else Can We Explore for Conventional Resources?



Source: CNSOPB

BUT……OUT OF BOUNDS IN THE USA!

Forget About It!



Source: U.S.G.S. 1999

THE CHALLENGE OF ACCESS

Government and Environmental activists
Making access for all natural resources very difficult…

How Resolved?

Competing interests vs. "Greater Public Good"
(does best financed and loudest voice win?)

Legal limits to activist appeals?

ACCESS ISSUES MUST BE ADDRESSED
AS WE DEBATE POLICY

DRILL BABY DRILL!

(Atlantic & Pacific OCS, Offshore Florida
ANWR, Rockies, and more)

Vs.

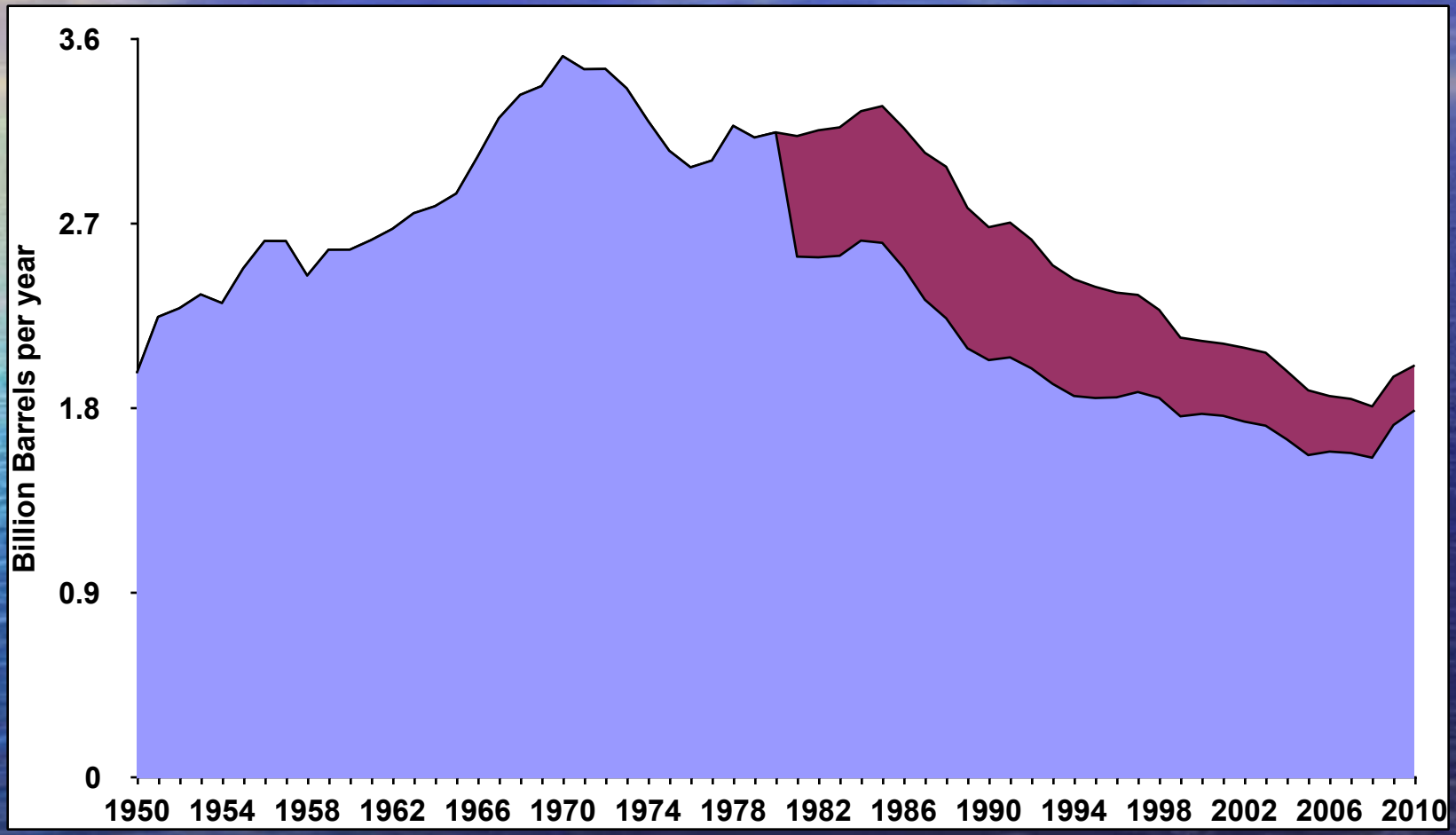
The Green Revolution- Now!

End Fossil Fuels

Can the USA drill its way to self oil sufficiency?

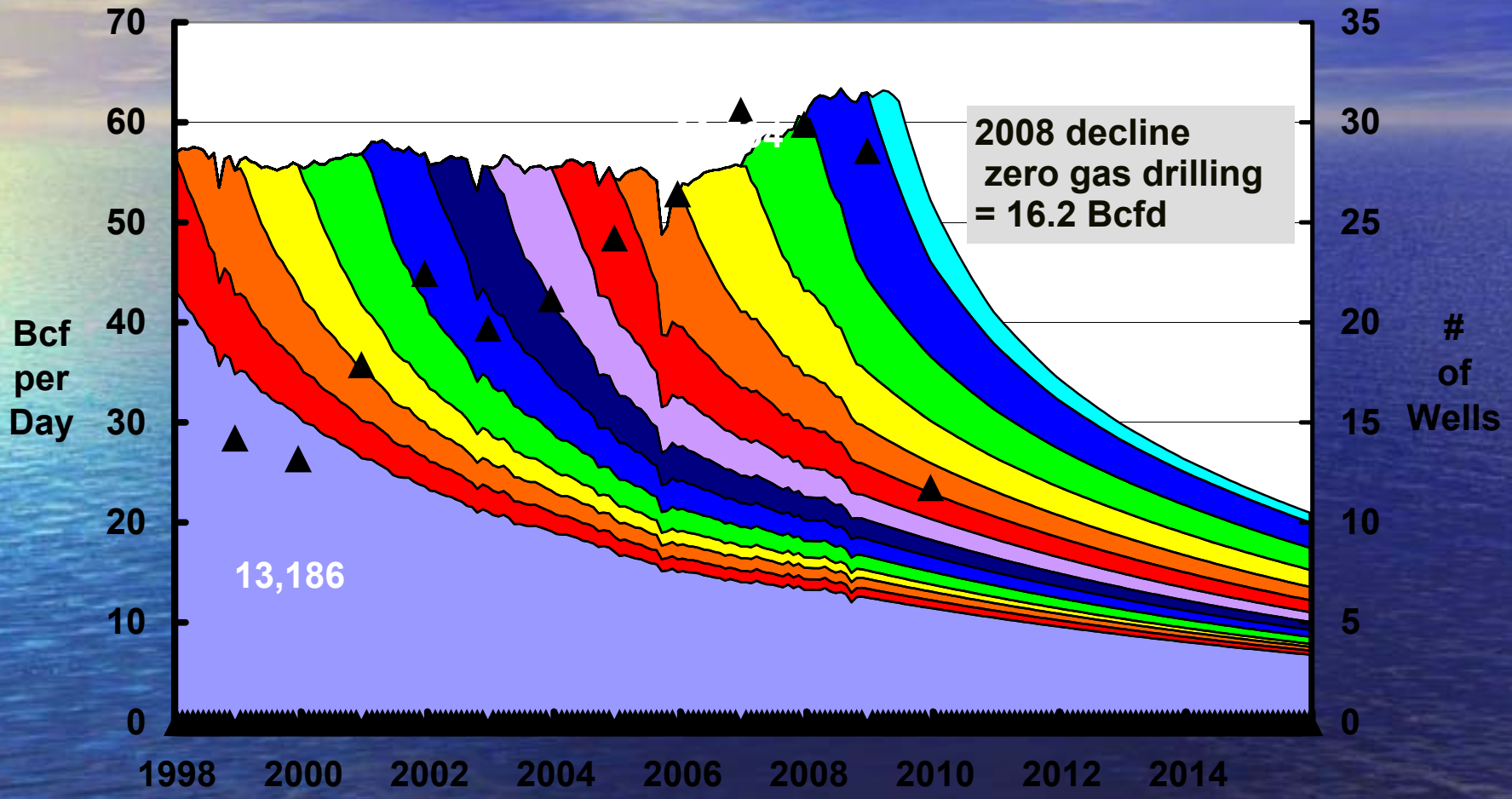
@ 20 MMBO/day consumption, unlikely

USA CRUDE PRODUCTION 1950-2010



Source: EIA 2011

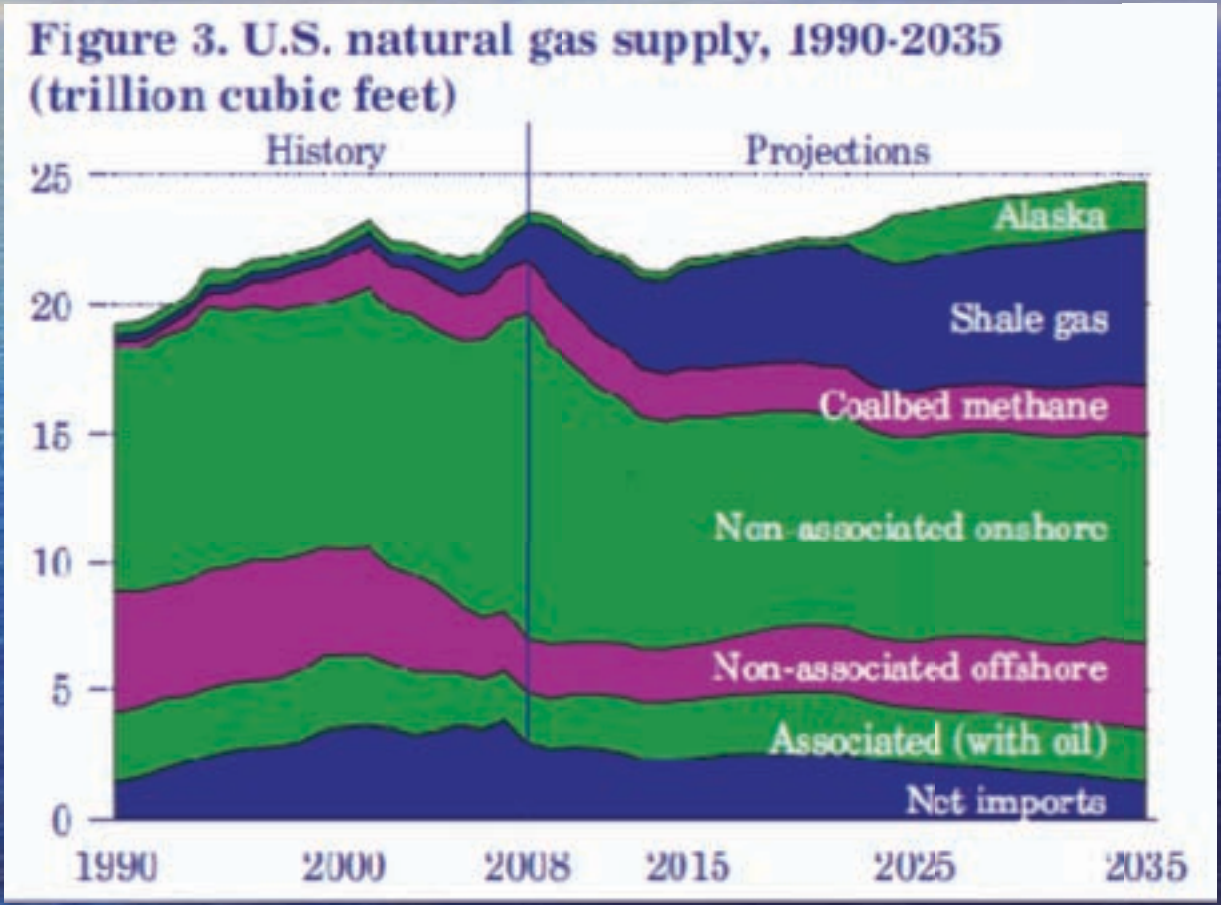
DECLINE RATES ARE A MAJOR CHALLENGE FOR USA GAS SUPPLY!



U.S Vintaged Gas Production
2007: Transformation to the Shale Gas Era

Source: HIS CERA 9-09

We have abundant natural gas, and must make better use of it.



Source: EIA Annual Energy Outlook 2010

SHALE GAS RESOURCES

A significant reduction in imported oil (Cost =$1 B/day), and reduction in CO_2 by switching to a natural gas economy.

But……

It will not happen unless the public understands and accepts hydrofracking.

(Moratorium in New York, Quebec, France…….)

CANADIAN OIL SANDS

170 Billion Barrels Recoverable Reserves

A Secure Oil Supply for America

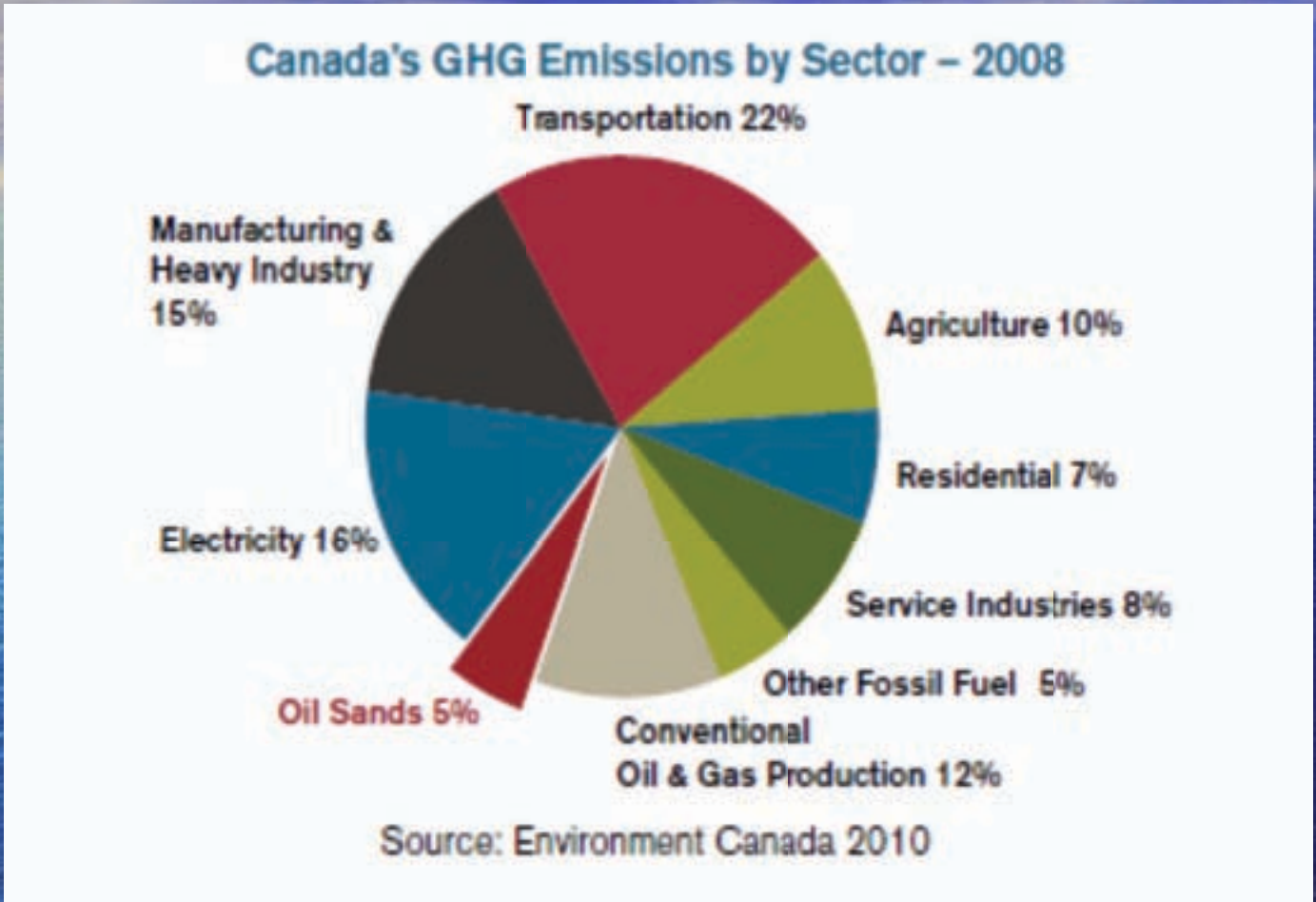
When completed, the $12 Billion Keystone Pipeline Project will transport 1.1 MM bbls/day to USA.

But……

Obama Administration is delaying permit for 1661 mile Keystone XL Pipeline expansion to bring "secure" Canadian heavy oil to Gulf Coast refineries on environmental grounds.

(Yet another example of conflicting agendas!)

REALITY CHECK ON THE OIL SANDS



Oil Sands total GHG emissions in 2008 were 37.2 mega tonnes. This is equivalent to 2% of 2008 USA coal fired power emissions.

Source: Environment Canada, Canadian Association of Petroleum Producers

NEGATIVE PUBLIC PERCEPTION OF THE PETROLEUM INDUSTRY NOT HELPED BY THE BP MACONDO WELL BLOWOUT

A HUMAN AND ENVIRONMENTAL TRAGEDY…..
But not a justification for ending offshore drilling and phasing out fossil fuels.

Photo source: AP Photo/Charlie Riedel, Thursday, June 3, 2010.

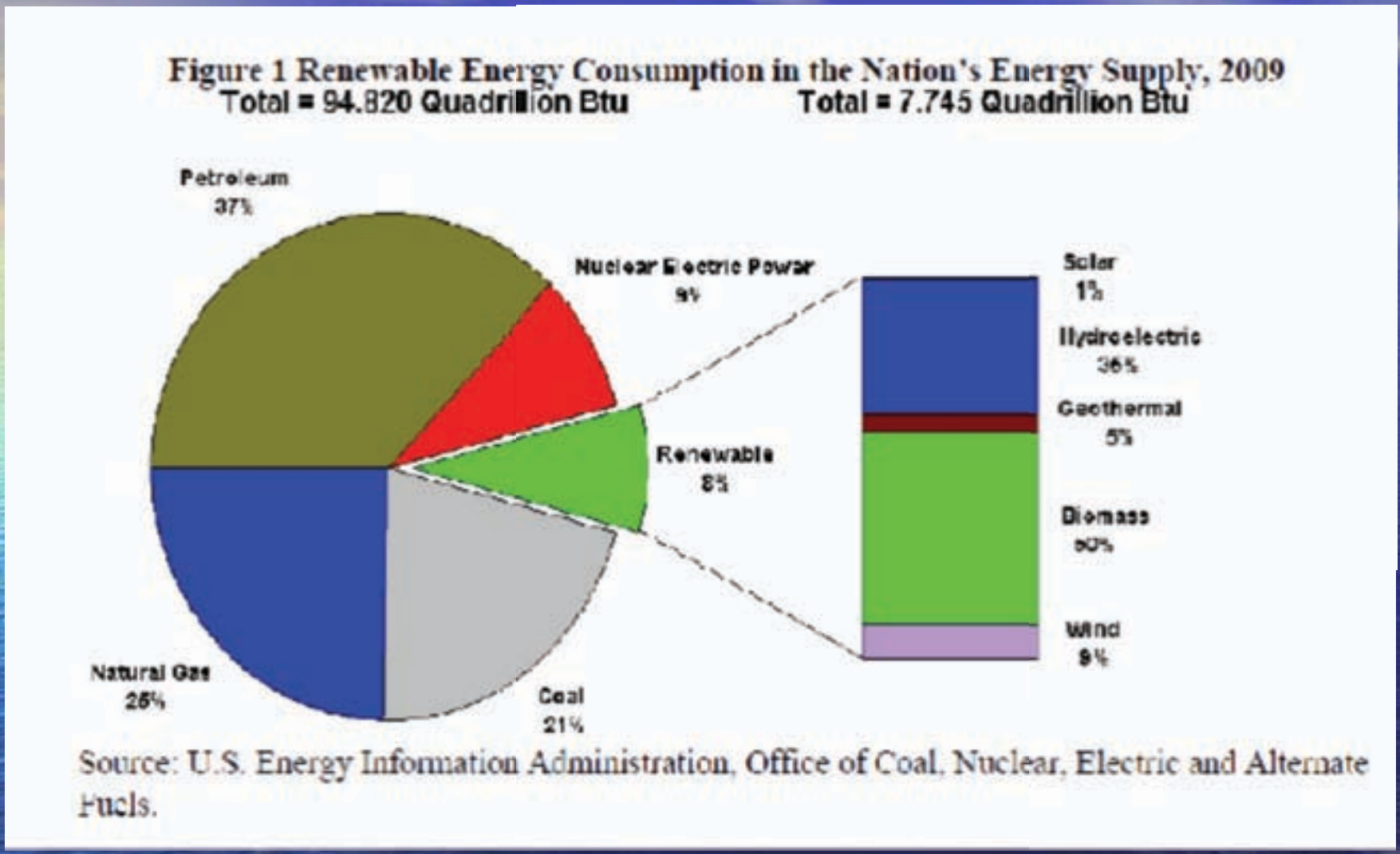
Not exactly a blowout….but even green energy has its problems!

Another Political Myth….

We can run the USA on green energy!

End the use of polluting fossil fuels!

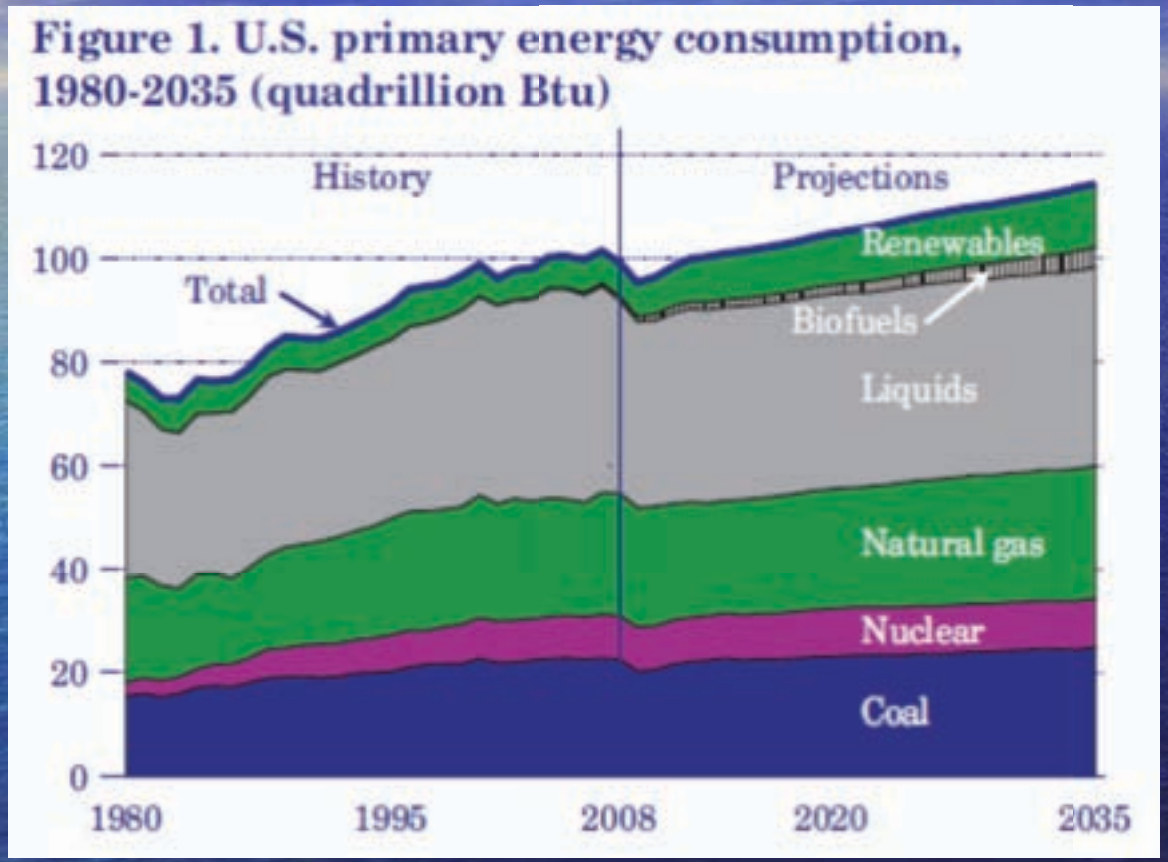
What about renewables?



Some promising technologies, but needs more work

And higher fossil fuel prices!

Politicians Conveniently Ignore this Projection!



Fossil fuels = 84% in 2008, Proj. @ 78% in 2035!

Source: EIA Annual Energy Outlook 2010

ENERGY POLICY CONFLICTS:

Supply, Sustainability, and the Environment

How can stakeholder interests be balanced? What's right?

BIOFUELS - A SOLUTION?

Is ethanol really good for the nation?
(Iowa and Nebraska for sure!)

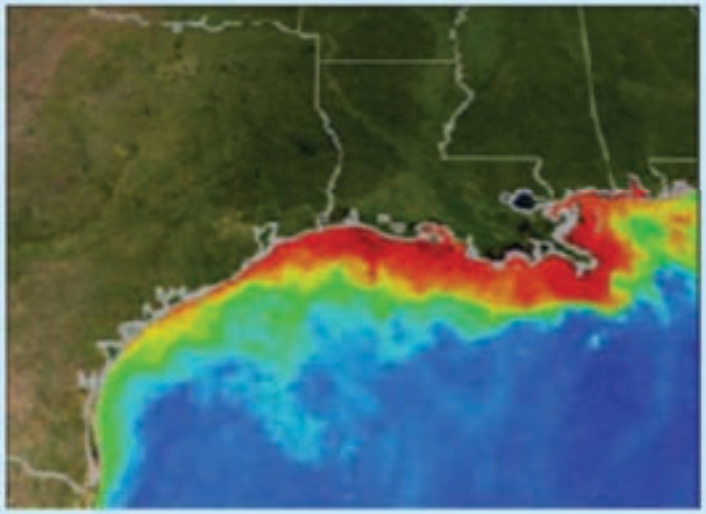
Ref. laws mandating ethanol use.
EPACT05: 7.5 B gal biofuels by 2012
EISA07: 36 B gal biofuels by 2022 (of which 21 B = non-corn starch)
$0.45/gal tax credit

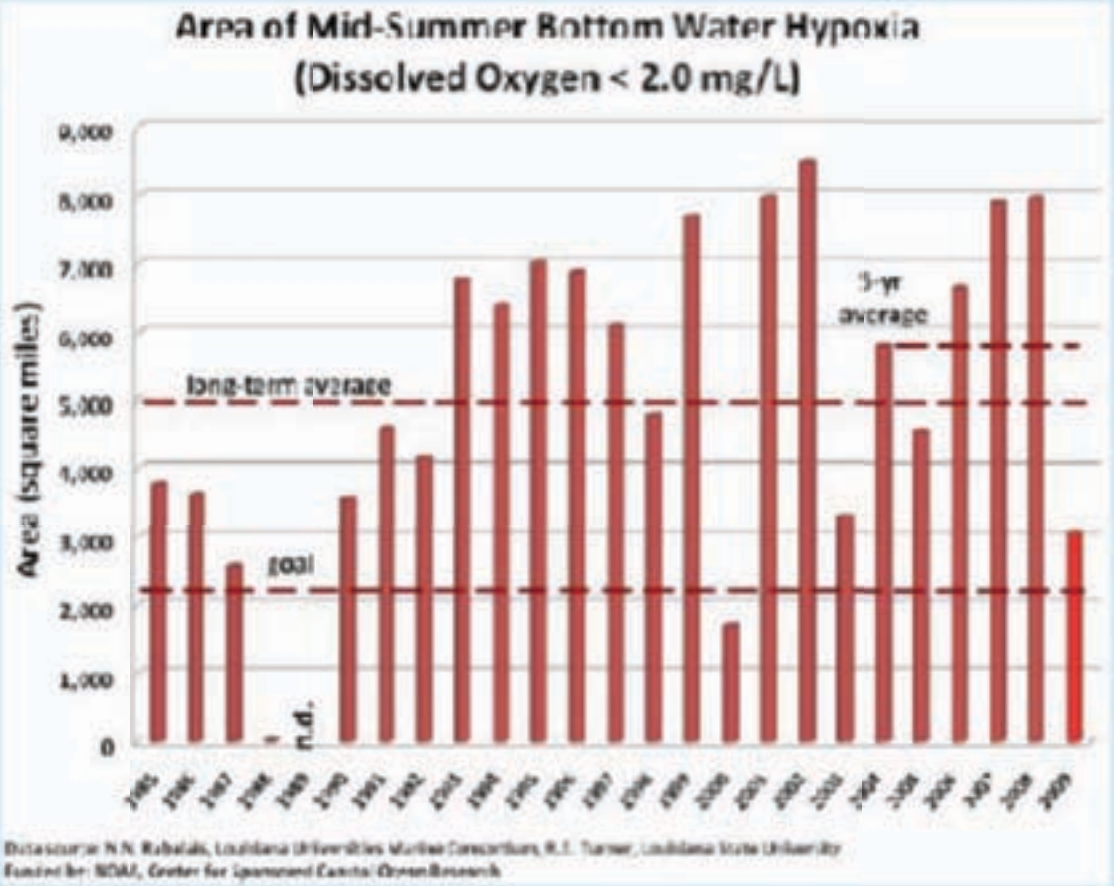
Ethanol…at what cost to:
land use ?
food costs?
water resources?
fertilizer run-off?
Net energy gain?

Oceans – land use issues

NOAA

Gulf of Mexico Hypoxic Zone





BIOFUELS….. YES,

If cellulose waste
And algae


WIND POWER !
Not in Nantucket Sound;
or the Green Mountains
Need to build new
transmission lines
From windy regions to
consumers
(...NIMBY)
What about the birds?

HYDRO POWER

No new dams in the USA.

Hydro-Quebec…….
No new power lines across Vermont

SOLAR

Great idea, but what about the amount of desert required, and the fate of its critters?

SOLAR POWER TAKES A HIT!

Innovative solar panel manufacturer Solyndra,LLC, which received a $535 million loan guarantee from the Energy Department in 2009, filed for bankruptcy protection on Sept. 6, 2011. Company is now subject of an FBI investigation into whether it misrepresented its finances to the Energy Department as part of its loan application.

GREEN ENERGY IS HERE!

Global Renewable Energy Investments in 2010 @ $211 Billion
China #1 @ $48.9 B - USA#2 @ $23.8B

Wind #1 @ $95 B - Solar #2 @ $86B
Biomass #3 @ $11B

Total Energy Investment in 2010 @ $1.2 Trillion
Renewables = 18%

Source: United Nations

Wind Power Is Real!

Total 5,784 MW installed in North America in 2010.

$125 Billion investment expected between 2011-2017

Source: Pike Research 10-25-11

ENERGY POLICY
2010 - 2012

How Should The USA Deal with Energy Policy And Climate Change?

These are "non-starters"
In the current political environment.

WASHINGTON IS PARALYZED
BY
CONFLICTING AGENDAS
AND
AN INABILITY TO COMPROMISE

THE PROBLEM

Shrill voices, Lobby $, and misinformation seem to prevail.

The public is not fully informed, does not feel threatened, and is therefore not engaged.

OBJECTIVE SCIENCE MISSING IN ACTION!

The USA is not alone in resisting the transition to clean energy…..

UK renewable energy subsidies slashed

Posted October 20, 2011
Source: the guardian

Public subsidies for a range of renewable energy technologies are to be cut under plans unveiled by the government on Thursday, as ministers respond to complaints of "green taxes" driving up energy bills.

REALITY CHECK #4

Significant changes will not occur without the certainty of established policy.

SO WHAT TO DO?.....

As geoscientists we must speak up, and get Washington and "Main Street" back on track regarding energy and climate policy.

Policy must be based on science, not emotion!

SKIP'S ENERGY POLICY WISH LIST

- Recognize and promote the development of America's abundant fossil and renewable energy resources in an environmentally and economically responsible manner.

- Reduce American dependence on imported oil, thereby reducing the hundreds of billions of dollars that are presently flowing overseas for crude and refined products. (Conservation, access to OCS and Shale resources, "Green" innovation)

ENERGY POLICY WISH LIST

- Stimulate the transition from fossil to renewable energy resources on a timeline that recognizes the importance of fossil fuels, the immense capital investment in existing fossil fuel infrastructure and employment; and the sheer physical and economic challenges of making the transition. (Tax incentives, green energy innovation)

ENERGY POLICY WISH LIST

- Reduce the nation's greenhouse gas emissions in a manner that does not adversely impact the nation's vital industries. (Tax incentives "carrot", and a carbon tax "stick")
- Make energy conservation a national priority. (55 mpg! Energy efficiency)
- Build the "Smart Grid"
- Innovate!

IMPLEMENTATION OF THESE MEASURES WILL……

- create new domestic jobs.
- strengthen our economy.
- Enhance national security.
- Reduce our carbon footprint
- Improve the quality of life and secure a healthy future.

How do we implement these admirable energy policy objectives?

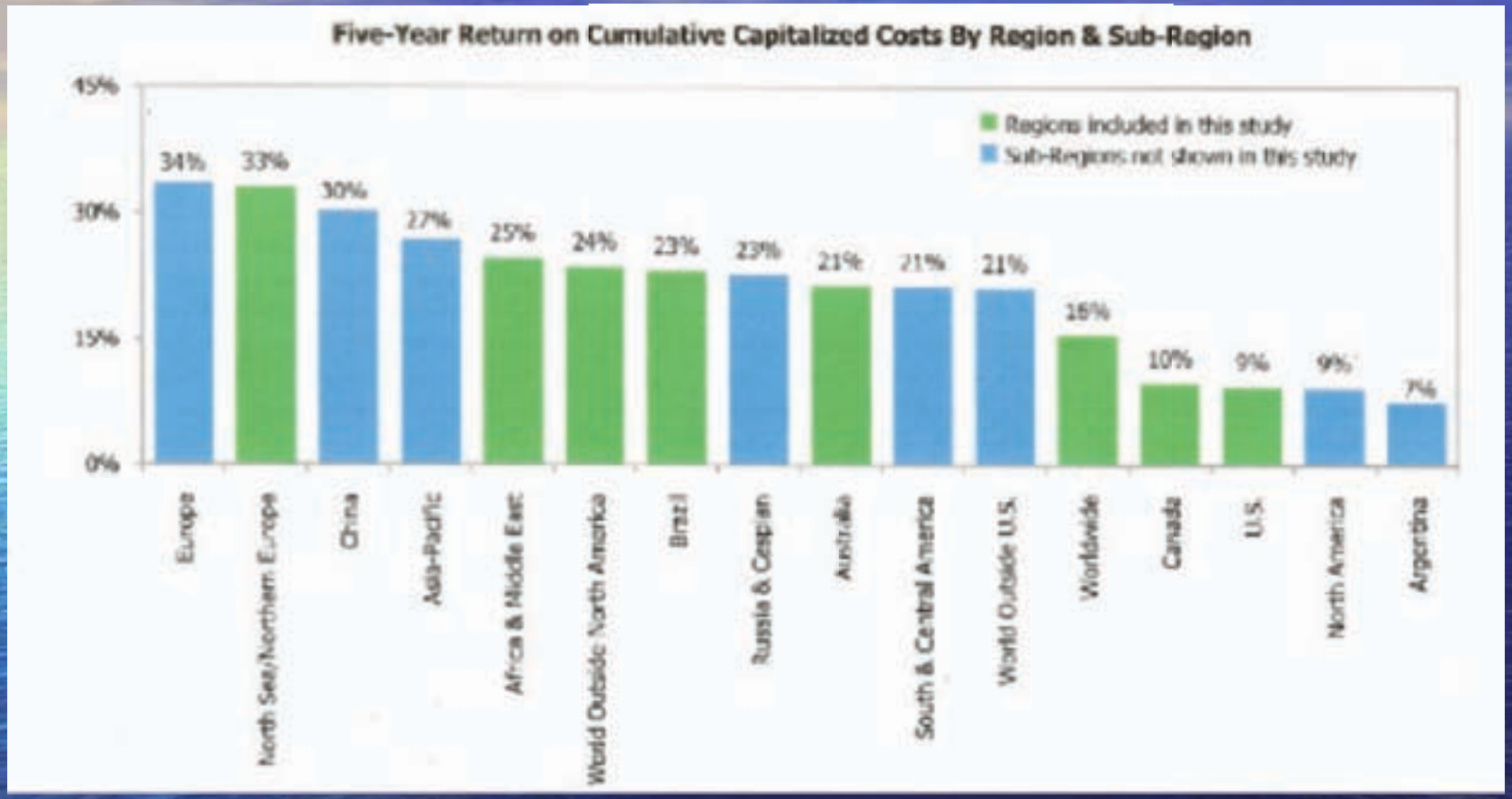
Not with conflicting public policy!

POLICY MUST ASSURE:

ADEQUATE FINANCIAL RETURNS.

CERTAINTY TO PROMOTE INVESTMENT.

CAPITAL WILL GO WHERE THE BEST RETURNS CAN BE ACHIEVED



Policy must not discourage investment!

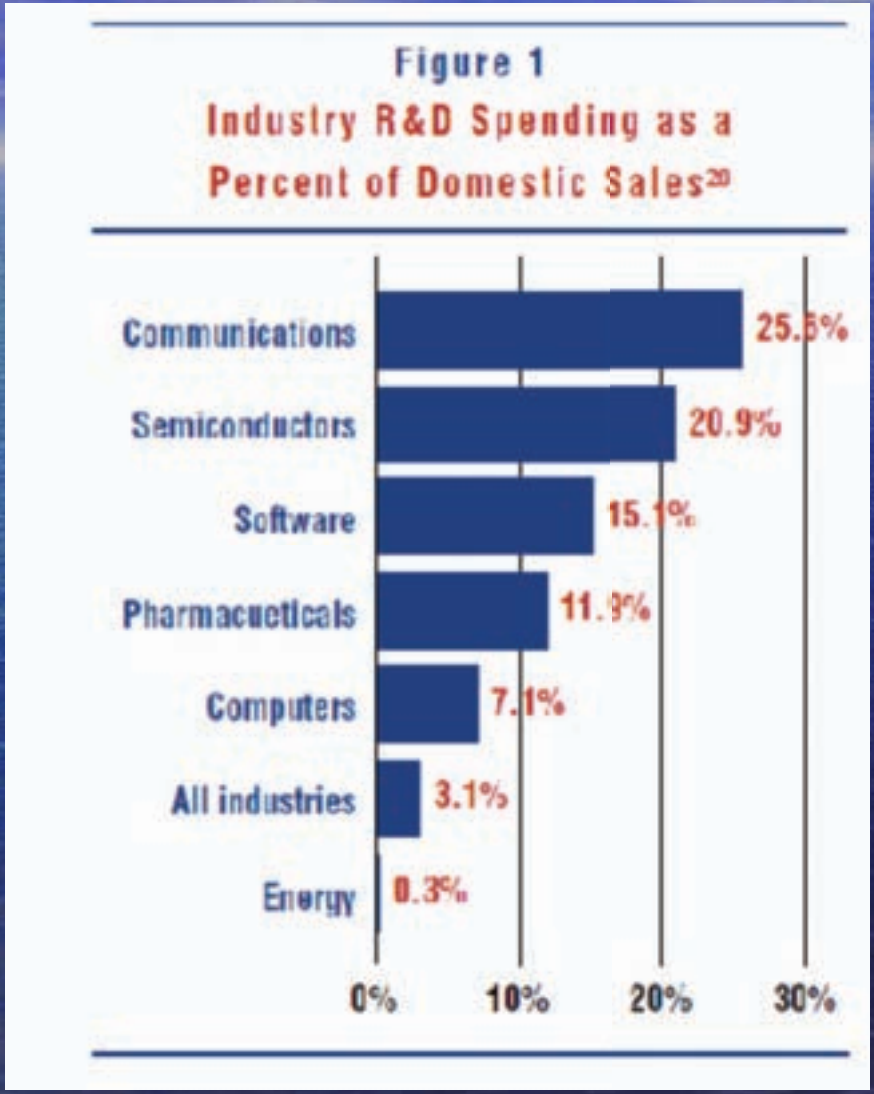
Source: IHS Herold, 2011 Global Upstream Performance Review of 222 public companies

ENERGY POLICY CHALLENGE

Why is the R&D $$$ Appropriation critical?

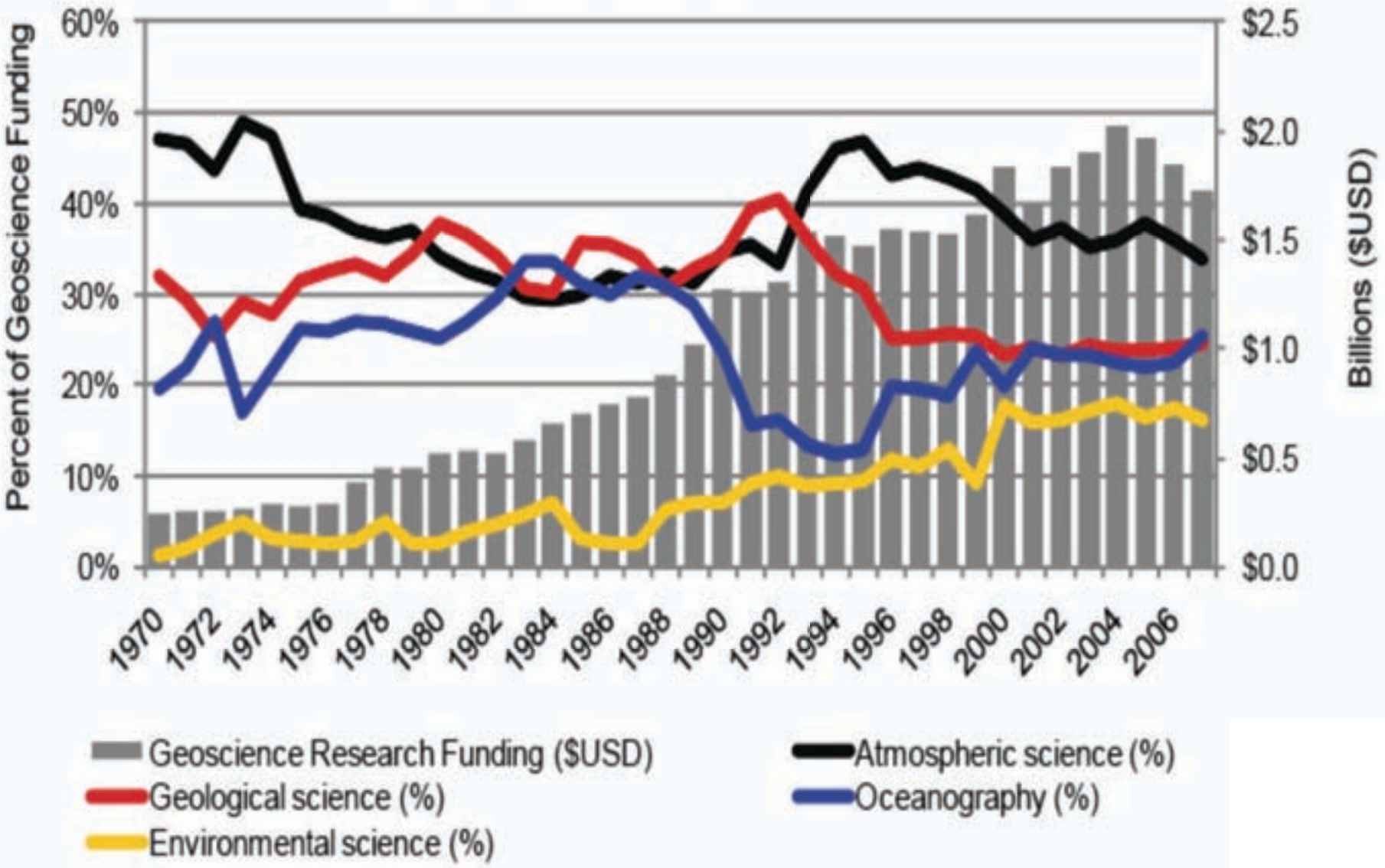
Enhanced O&G recovery technologies
Unconventional hydrocarbons
Gas hydrates
Carbon sequestration
Green energy technologies
…and more

MORE ENERGY R&D REQUIRED!



Source: Hayward et al, Post-Partisan Power, American Enterprise Institute, Oct 2010

Federal Funding of Basic Research in the Geosciences (1970-2007)



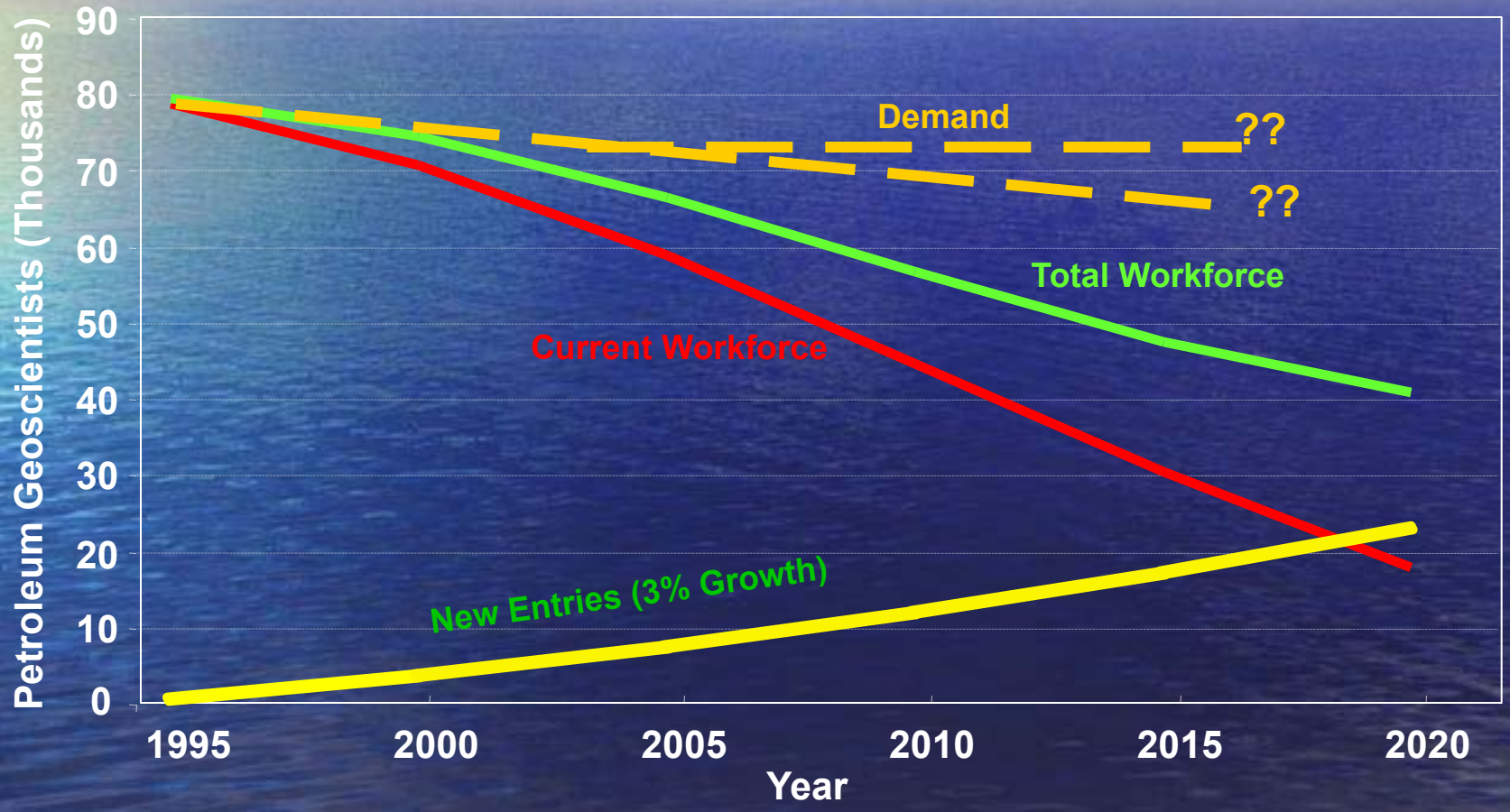
Source: AGI Geoscience Workforce Program, data derived from NSF/SRS *Survey of Federal Funds for Research & Development*

EDUCATION "STIMULUS" REQUIRED

WORKFORCE ISSUES

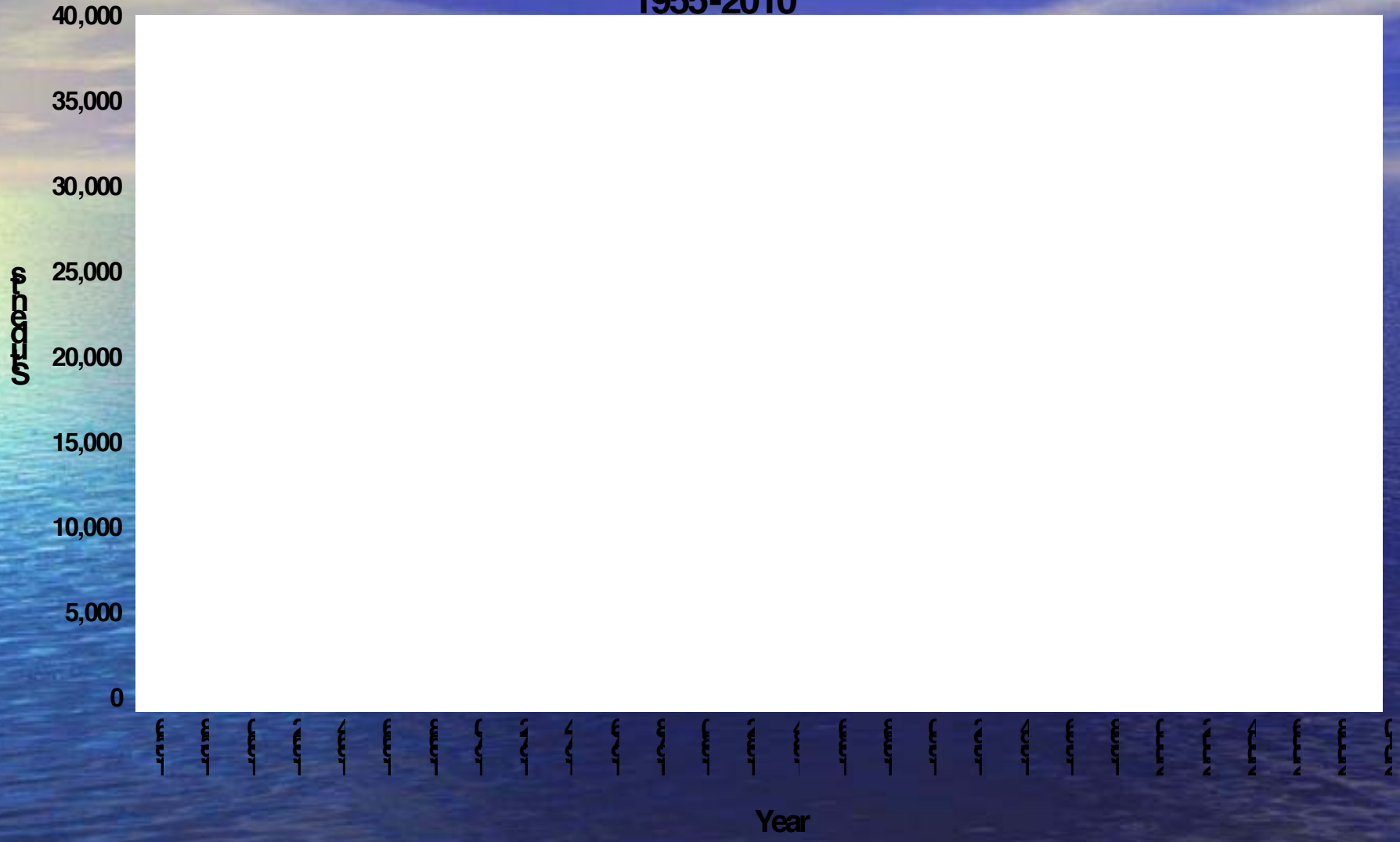
Who will do the science?

Petroleum Geoscientist Demand
Geologists, Geophysicists, and Engineers



Source: AGI Workforce Study

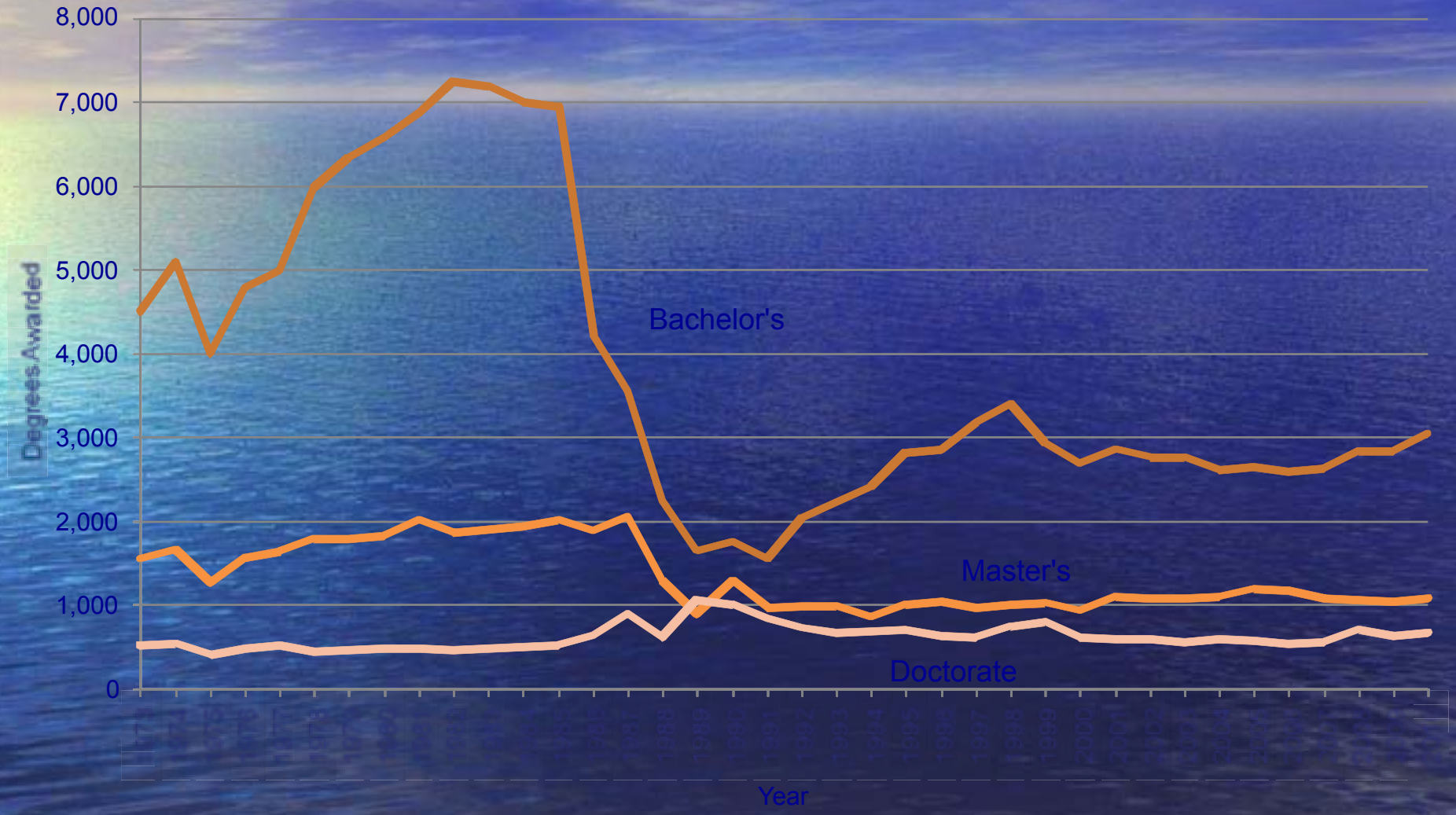
US Geoscience Enrollments
1955-2010



Source: AGI Workforce Study

US Geoscience Degrees Awarded

1973-2010



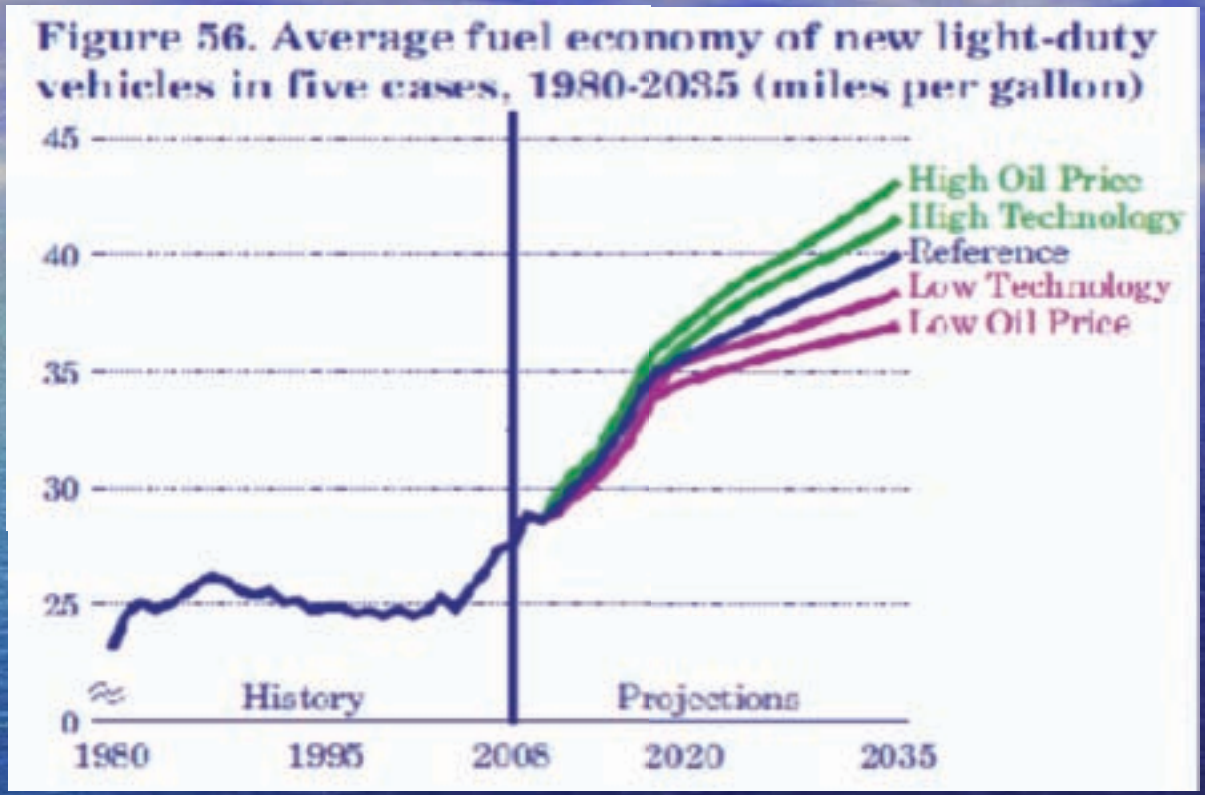
Source: AGI's Directory of Geoscience

Departments

ENERGY POLICY INITIATIVES THAT WILL MAKE A DIFFERENCE

What can be done quickly is practical , and uses existing technology?

FAST-TRACKING OIL CONSERVATION



Gasoline + Diesel = 63.5% of Refined Barrel Crude Oil

Mandate increased mpg fuel efficiencies for all private and commercial automobiles and trucks. CAFE works!

Source: EIA, Annual Energu Outlook 2010

FAST-TRACKING OIL CONSERVATION

- Promote a natural gas economy with tax incentives for CNG infrastructure and vehicles.
- Impose the "Hobbs Gas Tax" as a significant new Federal excise tax on all transportation fuels starting @$0.50/gal and rising to $1.50/gal in three years.
- Improve public transportation, especially inter-city trains and urban light rail.

FAST-TRACKING ENERGY CONSERVATION AND GHG MITIGATION

Put a price on carbon!

Tax vs. Cap & Trade ?

Must be offset by conservation and renewable energy incentives for industry and private end-users.

Must be transparent.

The consumer should pay.

Perhaps implemented like the V.A.T. in Europe where tax paid at every step in the value chain.

(= Politically toxic!)

A PRICE ON CARBON WILL.....

- Significantly modify public and private energy use resulting in enhanced conservation and efficiencies.
- Incentivise utilities to build more renewable energy power plants.
- Increase private "green energy" R&D.
- Help implement carbon capture and sequestration (CCS) technologies.

Without a carbon "cost", none of the green technology initiatives will happen at a scale that makes a difference!

"QUICK" ENERGY SAVINGS

- Improved building and electric. appliance energy efficiencies.
- New transmission corridors.
- Smart Grid.
- Tax incentives for energy conservation.
- National re-cycling programs

FAST-TRACKING ENERGY CONSERVATION AND GHG MITIGATION

- More Nuclear Power!

  Reform permitting process
- National Renewable Energy Standards

  offset by tax incentives

Finding Balance: Advancing Sustainability

POLICY RECONCILIATION ?

UNLIKELY……

- Public does not feel energy "pain"
- Public does not believe climate change is real, or the consequences serious.
- Polarization on issues.
- Environmental lobbies
- Litigation
- Paralysis in Washington
- Historic failure to pass a comprehensive Energy Bill

REQUIRES STRONG PRESIDENTIAL LEADERSHIP AND PUBLIC RELATIONS

WITHOUT RECONCILIATION……..

The USA will muddle along, subject to:

- future supply imbalances/disruptions resulting from global geopolitical issues.
- steadily rising energy costs due to global competition.
- cyclical price spikes.

…… AND, continued excessive emissions of greenhouse gases.

CONCLUSIONS

The Earth is endowed with abundant conventional and alternate energy resources…… but we must have the political will, and global cooperation, to address the challenges, and meet demand in an environmentally sustainable manner!

With or Without an Energy Act.....

.....I will continue doing my bit to reduce imported oil!

About the Author

G. Warfield "Skip" Hobbs is a consulting petroleum geologist and Founder and Managing Partner of Ammonite Resources, a firm of international petroleum geotechnical consultants that is headquartered in New Canaan, Connecticut. He holds a B.S. Degree in Geology from Yale College and a M.S. Degree in Petroleum Geology from the Royal School of Mines, Imperial College, London. Prior to forming the Ammonite Corporation in 1980, and Ammonite Resources in 1982, Hobbs worked from 1970-1980 as an international exploration geologist for Texaco and Amerada Hess in Latin America, Europe, Asia, the Middle East, and lastly in New York City. Hobbs is a licensed professional geologist in Texas, Pennsylvania and Florida.

Skip is a past national Secretary (1993-1995) of the 33,000 member American Association of Petroleum Geologists, and was President of the AAPG Division of Professional Affairs in 2000-2001. He is currently the Past-President of the American Geological Institute, a federation of 50 geoscience societies representing over 250,000 members. Hobbs writes and lectures frequently on energy economics and energy policy.

Hobbs may be contacted via e-mail at <skiphobbs@ammoniteresources.com>