

OIL SUPPLY & PRICE ENVIRONMENT



***MiddleTENNESSEEMayors
CAUCUS***

NISSAN Smyrna Plant

November 9, 2011

Kerry Perkinson

V.P., Tennessee Bank & Trust

Transit Alliance - Board Member

A person in dark clothing stands on the edge of a grassy cliff, looking out over a vast landscape. The cliff face is dark and rocky, contrasting with the green grass on top. The sky is blue with scattered white clouds.

**How CONFIDENT
are you
regarding
the
*WORLD
OIL PRICE?***

Did you know there are two BENCHMARK PRICES?



West Texas Intermediate – **\$94.07**



Brent Light Crude* – **\$111.02**

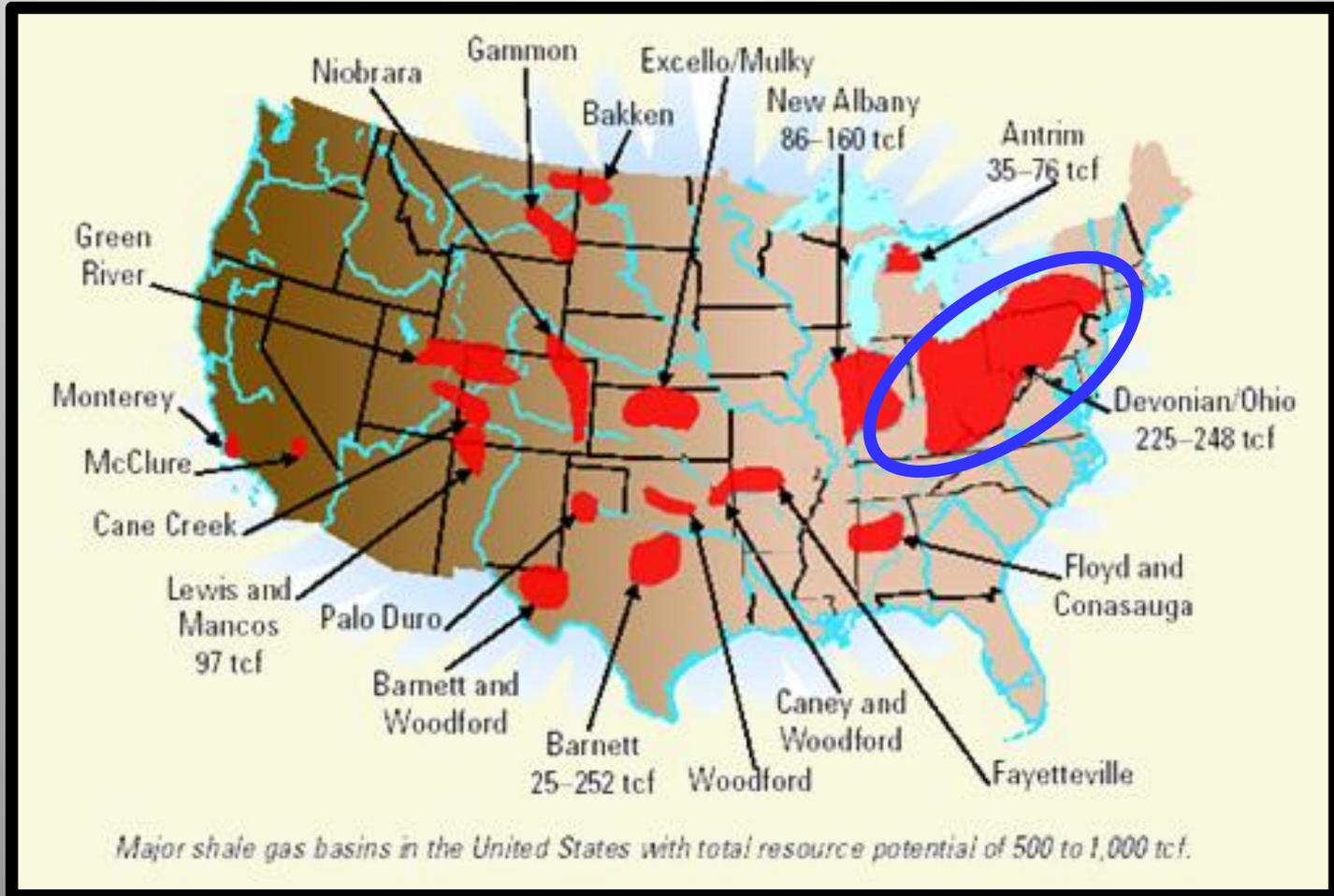
** Used by Europe, Asia,
and much of the world*

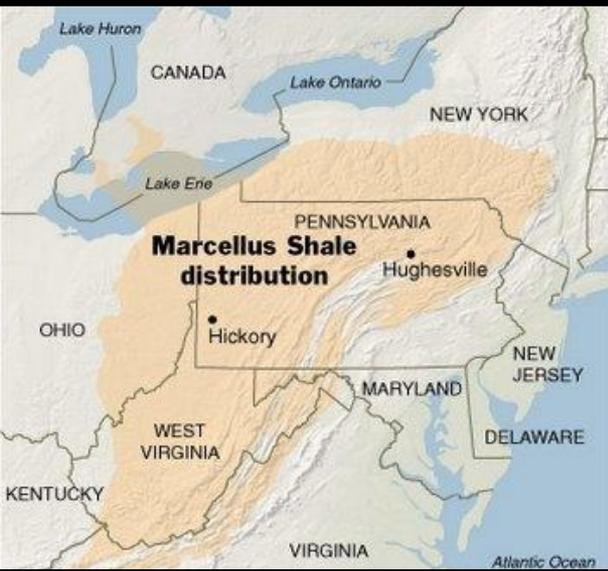
– \$17.00 spread

**Do you feel
CONFIDENT
regarding
*U.S. SHALE GAS?***



Marcellus Shale – largest shale gas basin in the U.S.

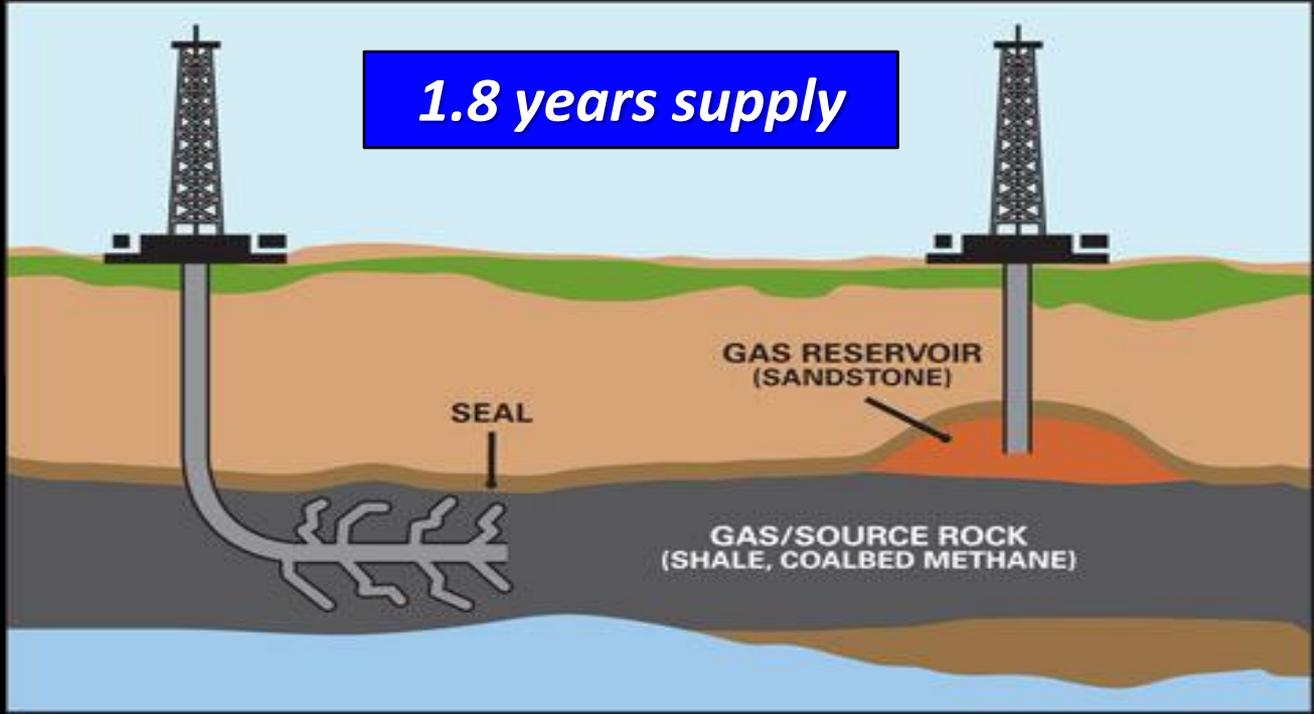




Marcellus Shale Recoverable Gas Reserves:

(U.S. 2010 use – 24 TCF; 2002 use – 23 TCF)

Entity	TCF Gas	Date
U.S. Geol. Survey	2	2002
Penn State Geologist	50	2008
D.O.E.	410	2011
Nat'l Energy Laboratory	262	2011
U.S. Geol. Survey (50%)	84	AUG '11
U.S. Geol. Survey (95%)	43	AUG '11



A person is standing on the edge of a grassy cliff, looking out over a vast landscape. The cliff is covered in green grass and has a dark, rocky base. The sky is blue with white clouds. The text is overlaid on the right side of the image.

**How much
CONFIDENCE
do you have
in
*OIL SHALE?***

(reported reserves –
larger than middle east)



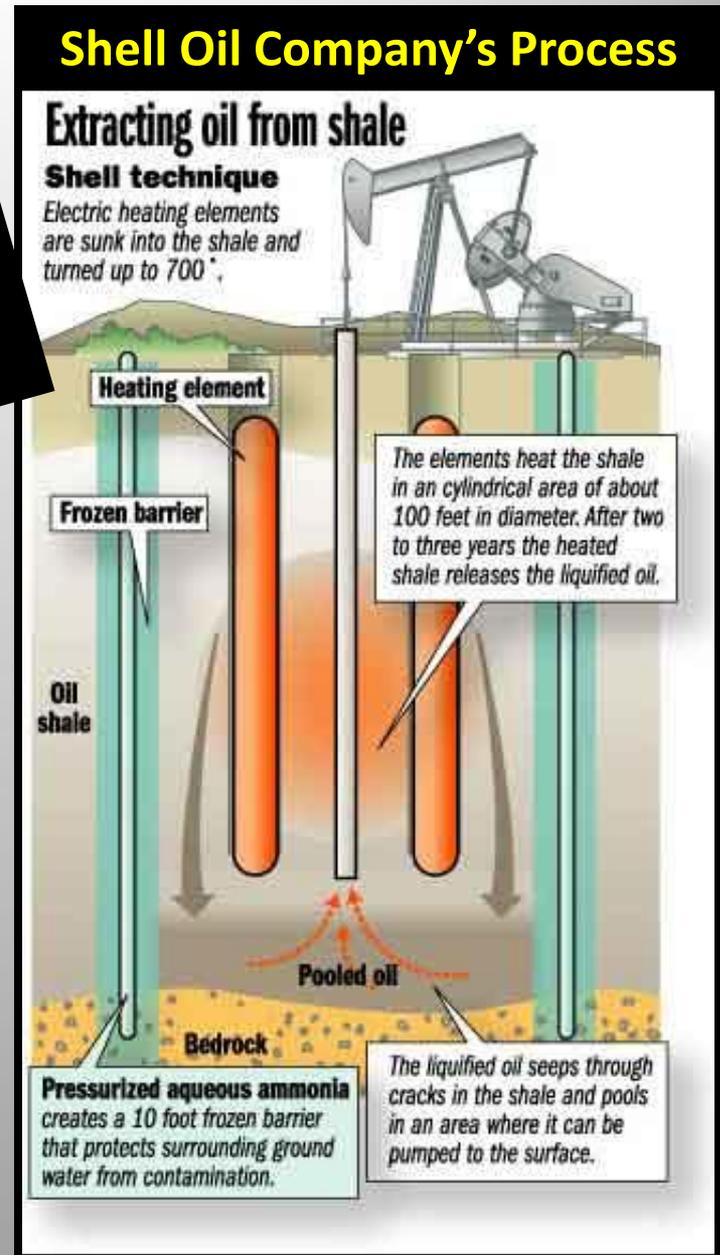
KEROGEN requires 700 degrees heat for 2-3 years in order to become a liquid. Then a FROST barrier is required to protect the ground water

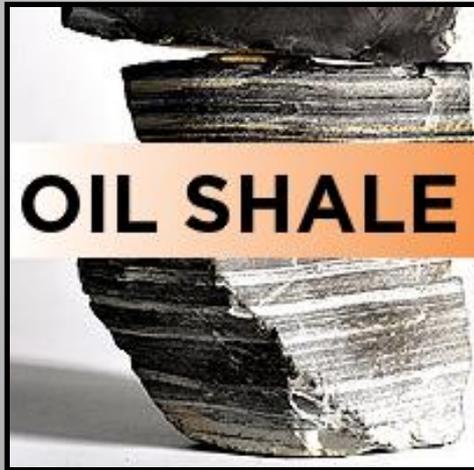
❑ *The hype is incredible*

❑ The harsh truths are:

- Rocks do contain hydrocarbons
- Enormous amounts of energy & water needed (3-5 bbls. water = 1 bbl. of oil)
- Water aquifer damage is the principal concern

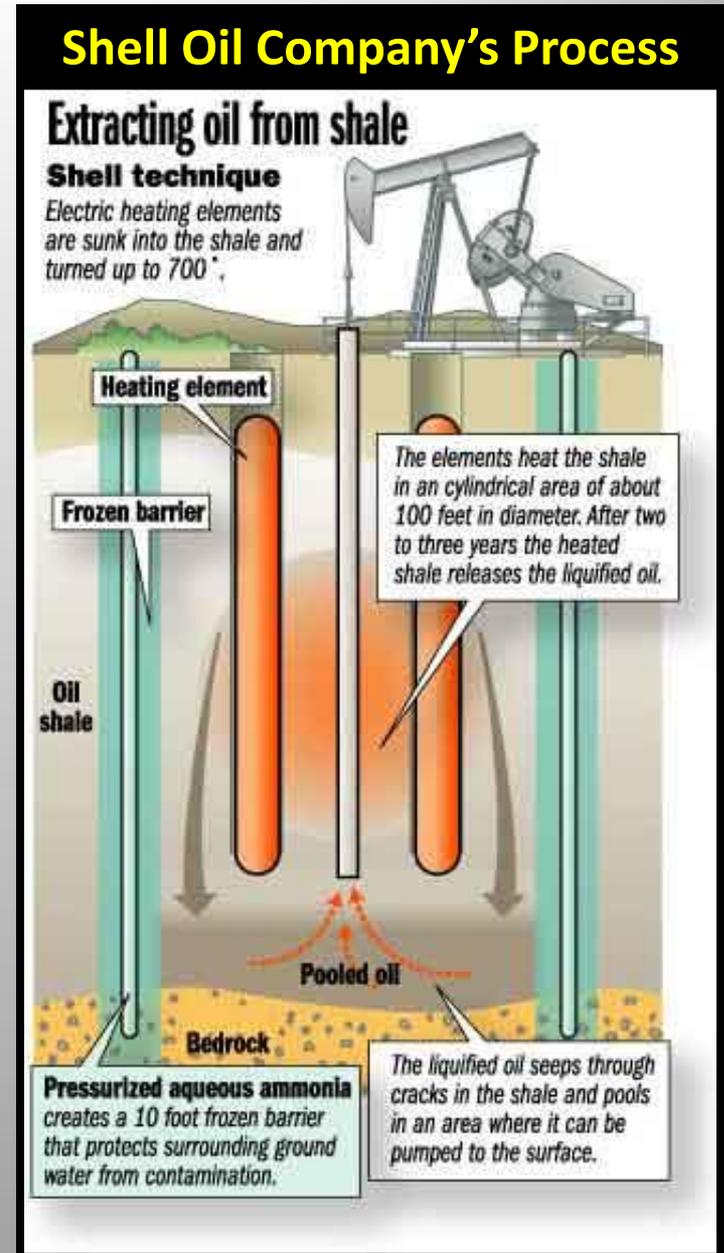
KEROGEN
(not oil)





700°
2-3 Yrs
Freeze
Barrier

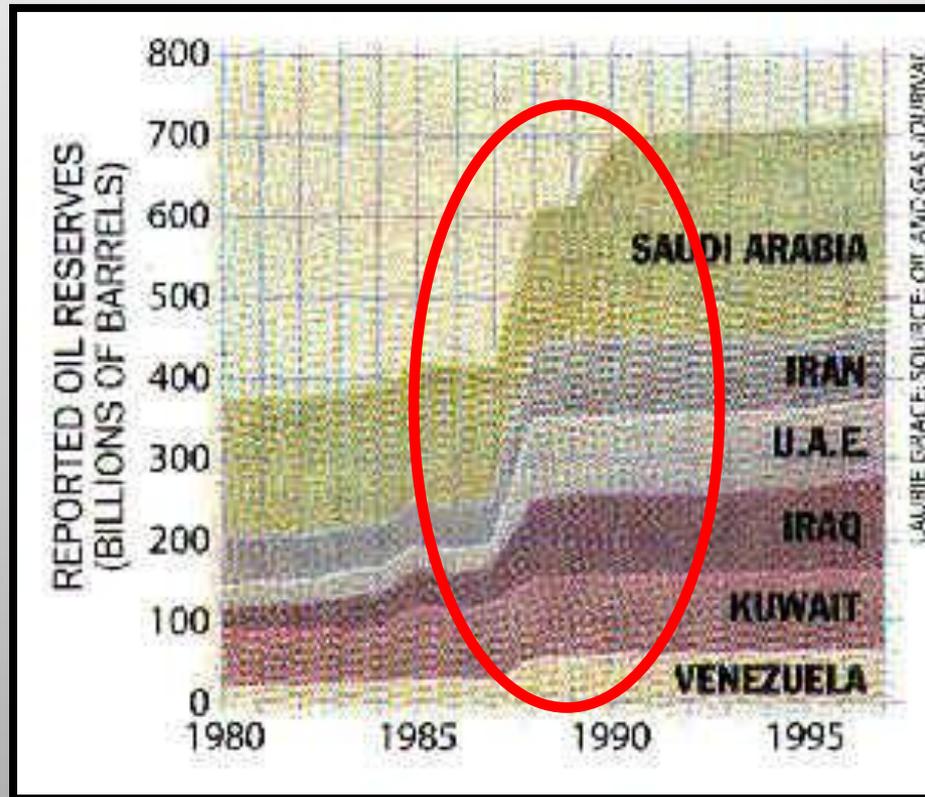
- ❑ *The hype is incredible*
- ❑ **The harsh truths are:**
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 - Enormous amounts of energy & water needed (3-5 bbls. water = 1 bbl. of oil)
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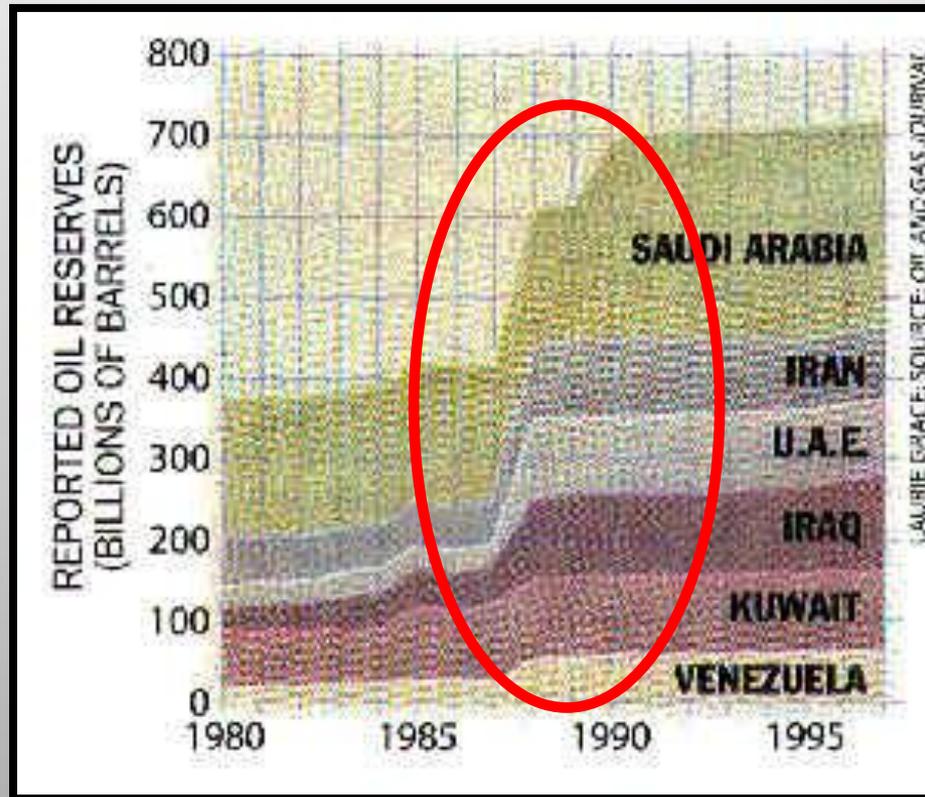
Last point:
What about
the
World's Oil
Reserves?

How accurate are world oil reserves?



SUSPICIOUS JUMP in reserves reported by 6 OPEC nations
300 BILLION BBLs. OF Oil ADDED to their reserves
following ***NO MAJOR DISCOVERIES***

How accurate are world oil reserves?



**75% Increase
1987-1990**

300 BBO – following NO MAJOR DISCOVERIES

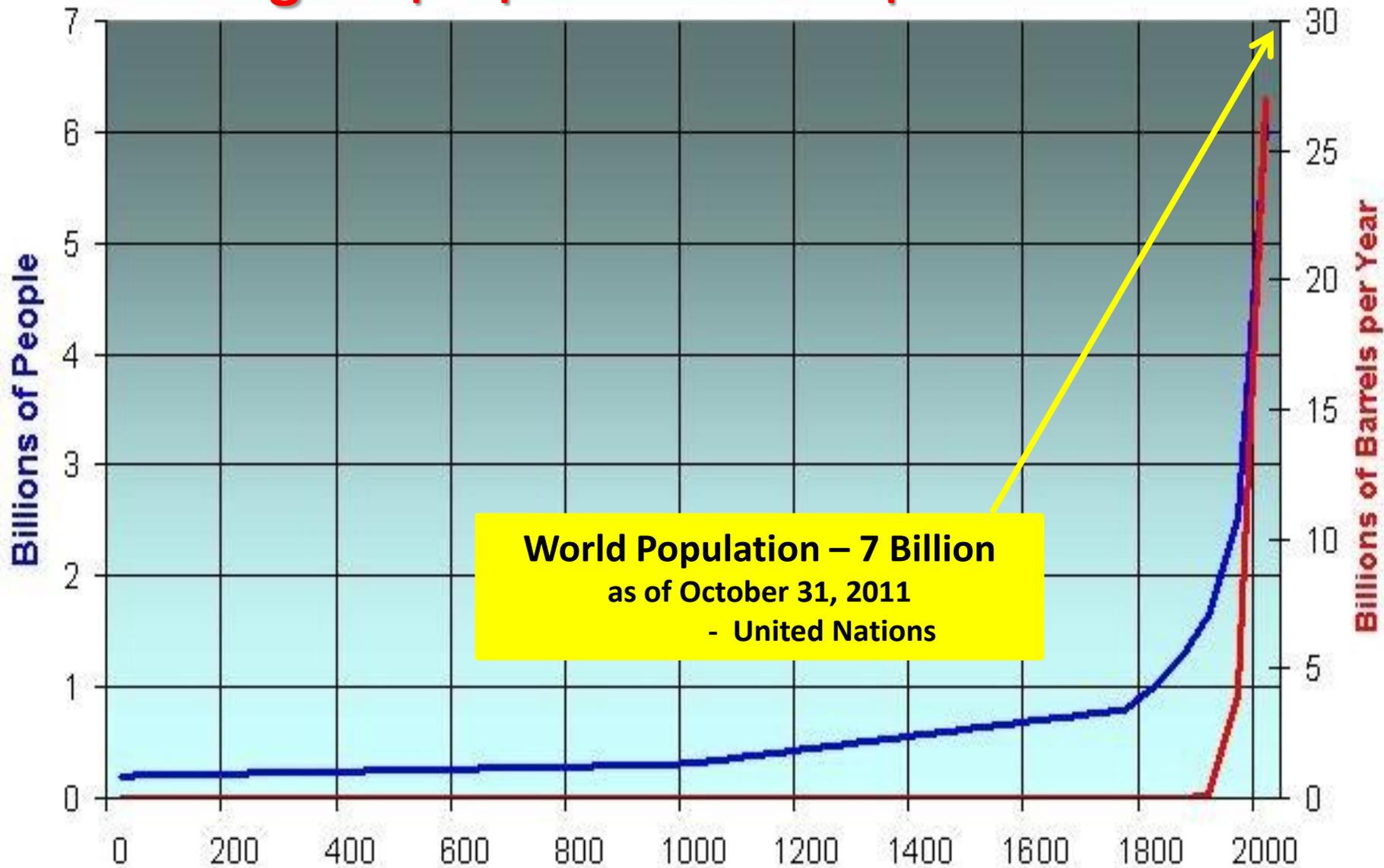
Additions – Greater than all U.S. Oil Reserves + 40%

**So how do
people and oil
get along?**



World Population and Oil Production

Oil Age helped power a **500%** Population Growth





David J. O'Reilly

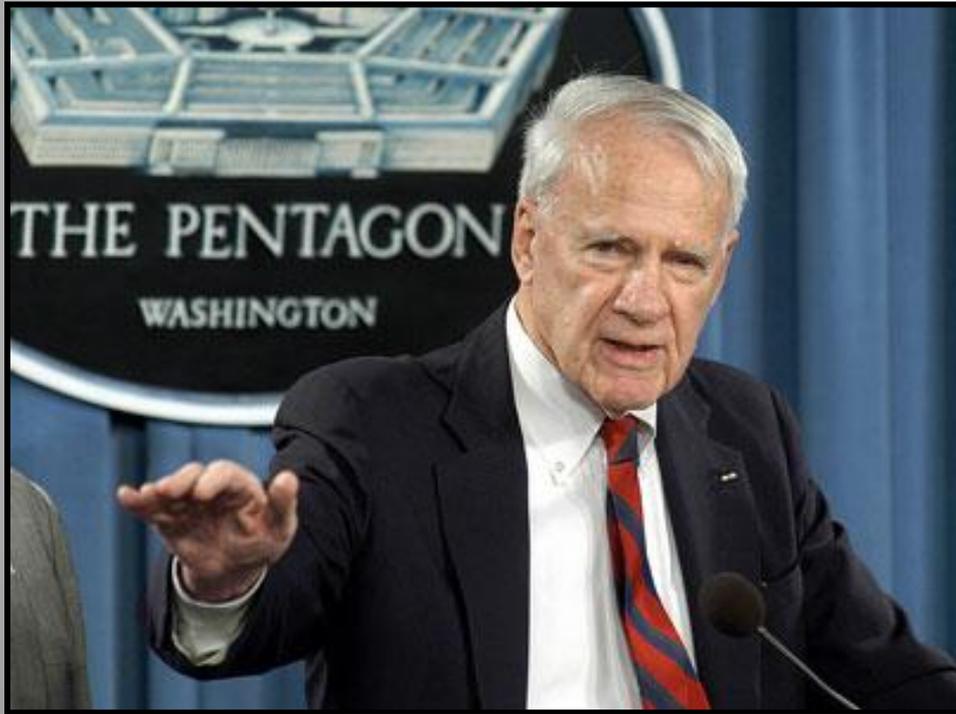
Chairman & CEO

Chevron Corporation

Vice Chairman – National Petroleum Council

“One thing is clear – **the era of easy oil is over**”

“It took us 125 years to use the first trillion barrels of oil...we'll use the next trillion in 30.”



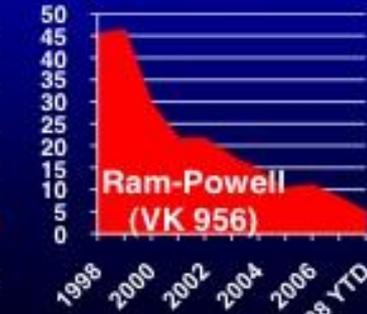
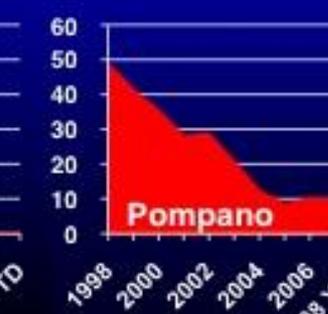
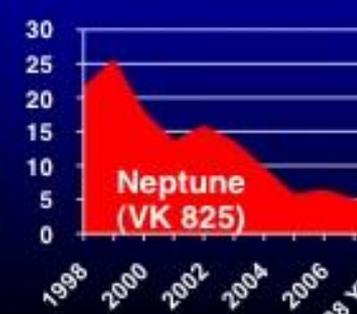
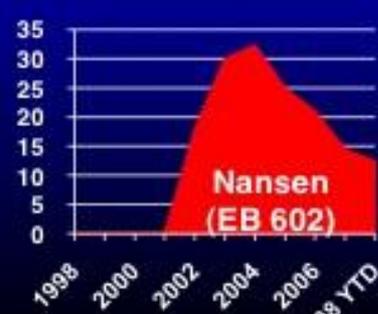
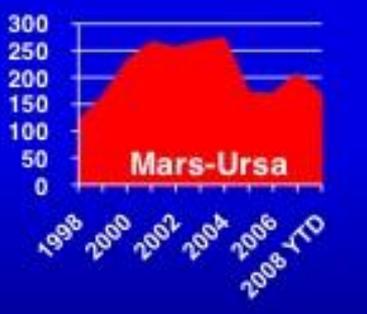
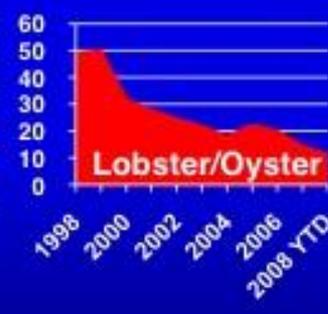
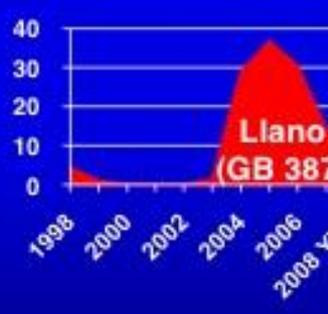
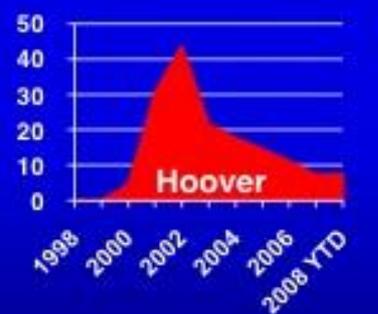
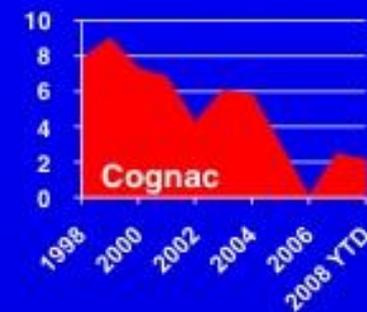
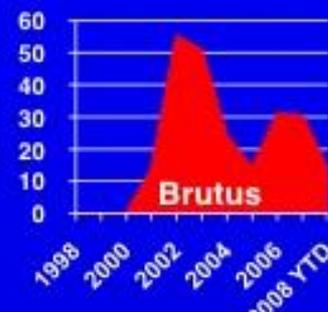
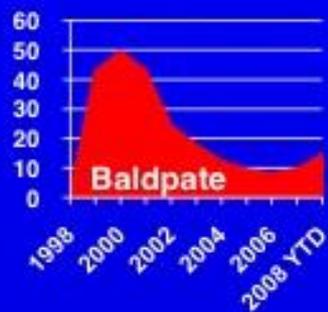
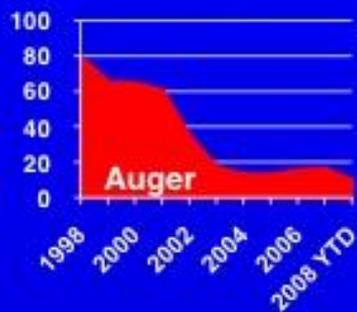
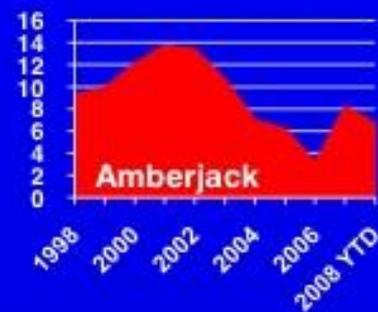
Dr. James Schlesinger

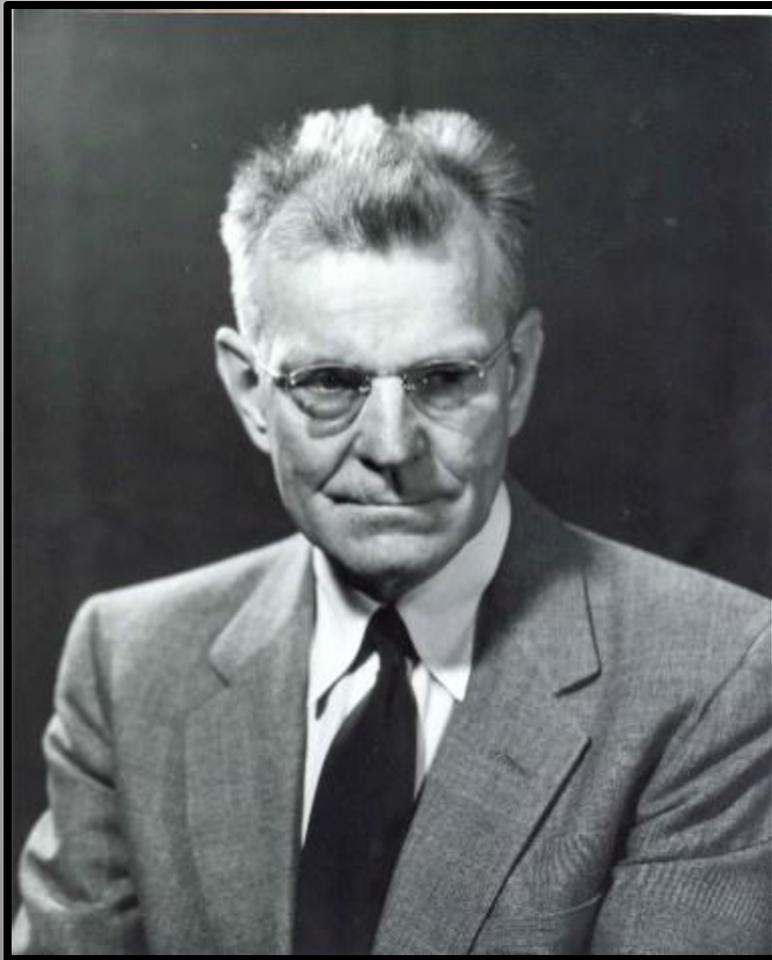
U.S. Secretary of Energy (1977-79)
U.S. Secretary of Defense
Director of Central Intelligence
Chairman U.S. Atomic Energy Commission

November 1, 2010, ASPO-USA Oil Conference, Washington, DC

*“...given projected world **decline curves**, running from 4% to 6%, and the projected increase in demand during the next quarter century, we shall require the new capacity equivalents of five Saudi Arabias.”*

Field Decline Curves – U.S. Gulf of Mexico





M. King Hubbert

October 5th, 1903 -- October 11th, 1989

The World's most well know
Geophysicist during the 20th Century.

*"Our ignorance is not so
vast as our failure to use
what we know."*

- M. King Hubbert

His prediction in 1956 that U.S.
oil production would **peak** in
about **1970** and decline
thereafter was scoffed at then.

U.S. Energy Information Administration

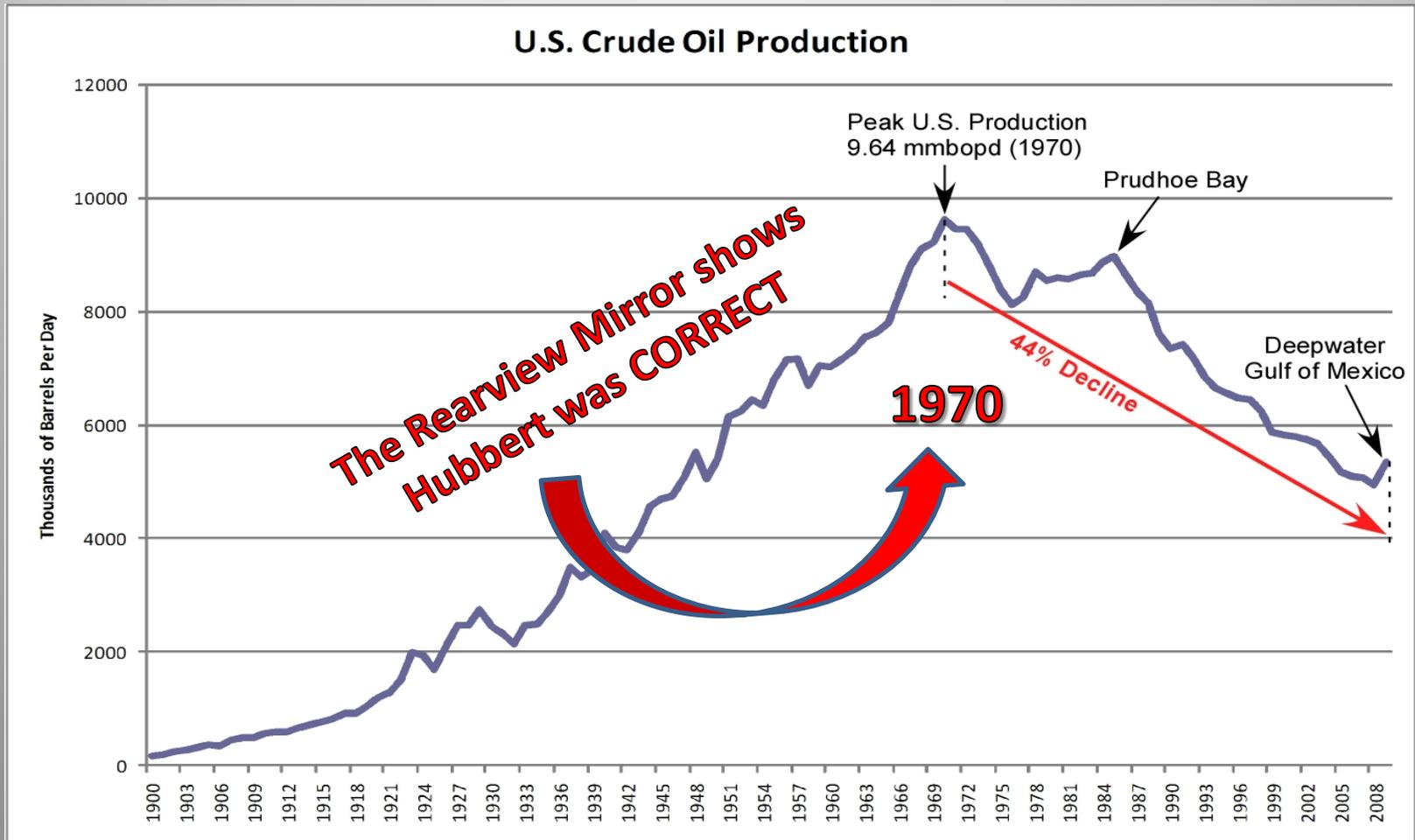
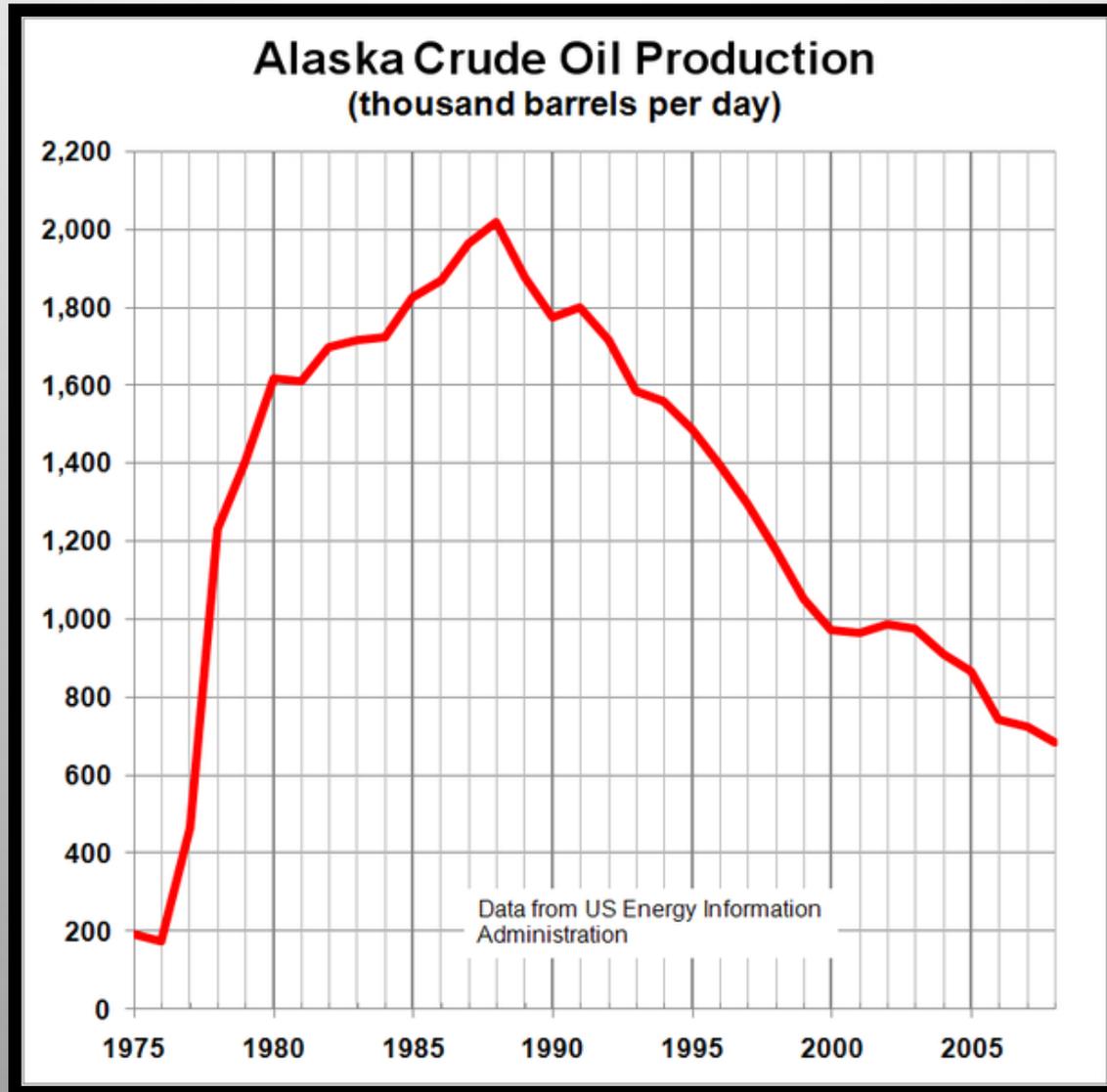
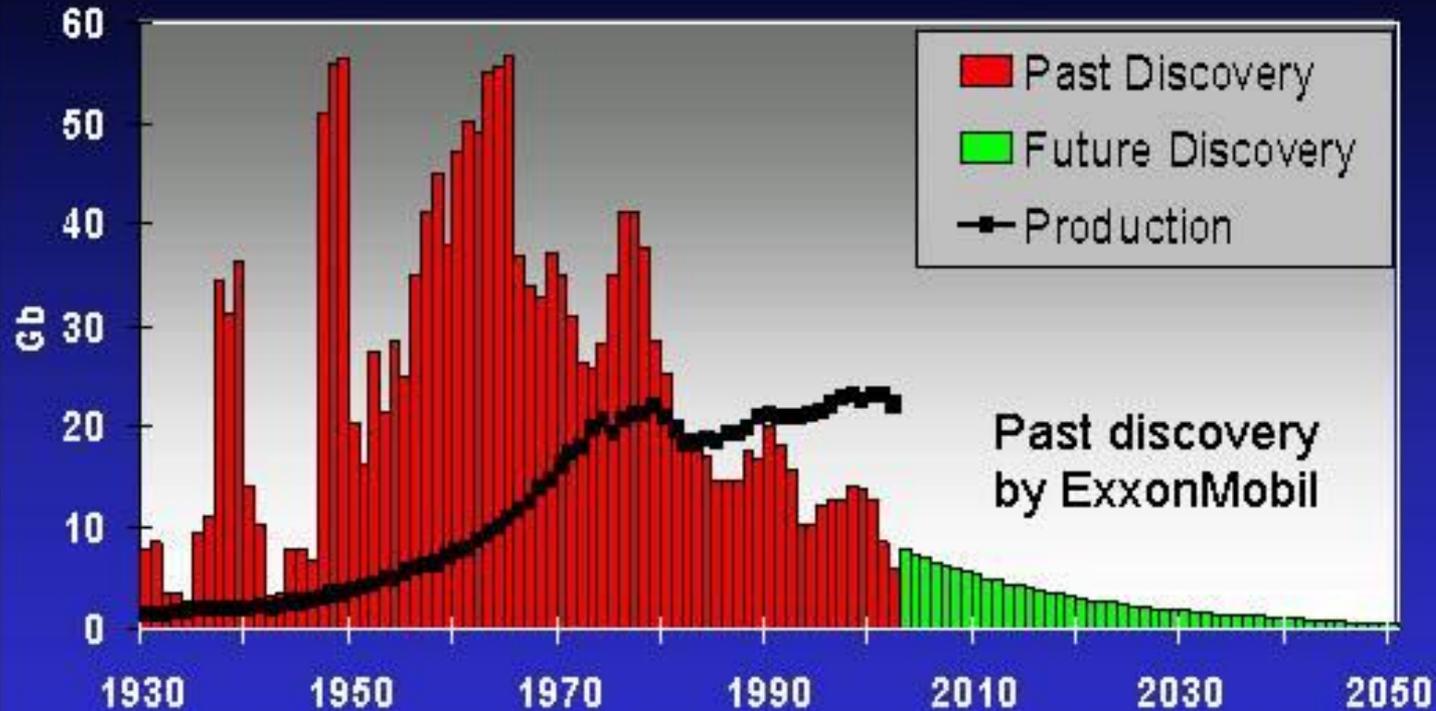


Figure 9. U.S. crude oil production, 1900-2009. Source: EIA.



Alaska's oil production has declined 65% since peaking in 1988.

Real Discovery Trend



Today – Discovering **1** Barrel for every **4** Used

Peak Oil

How Many Countries Are Past Peak?

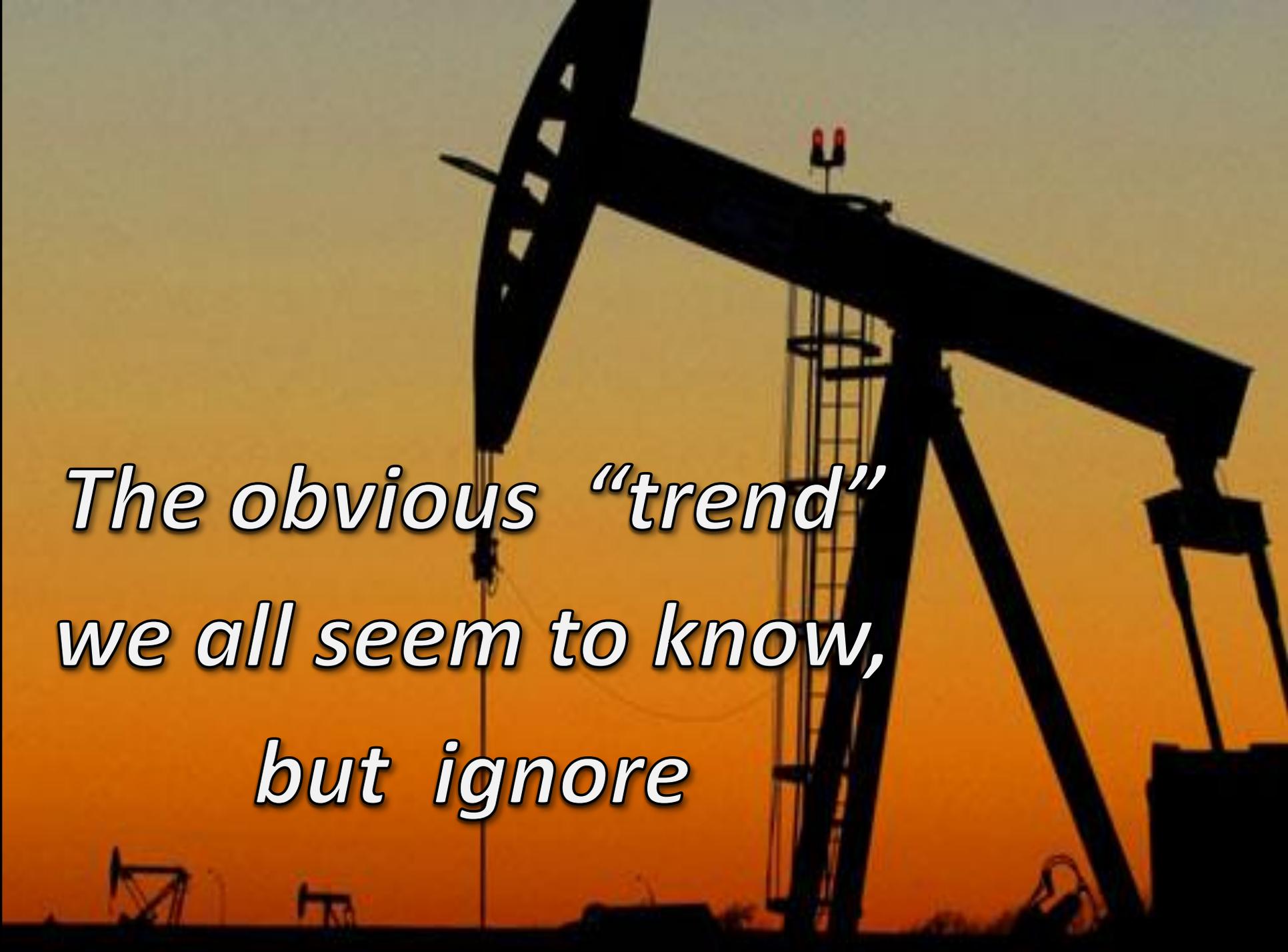
Poland	Myanmar	Spain	Georgia	Syria	UK
Austria	Ghana	Cameroon	Russia	Czech Republic	Oman
Germany	Tunisia	Greece	Tajikistan	Slovakia	South Africa
Bulgaria	Chile	Hungary	Ukraine	Gabon	Denmark
★ USA	Croatia	Benin	France	India	Norway
Bahrain	Bosnia	Netherlands	Senegal	Italy	Bangladesh
Israel/Palestine	Serbia	Taiwan	Turkey	New Zealand	China
Romania	Morocco	Congo Kinshasa	Japan	Argentina	Yemen
Iran	Peru	Jordan	Egypt	Barbados	Australia
Trinidad & Tobago	Albania	Belarus	Papua New Guinea	Uzbekistan	Guatemala
Kyrgyzstan	Colombia	Surinam	Mexico		

USA and 63 others



“All the easy oil and gas in the world has pretty much been found. *Now comes the harder work – finding and producing oil from more challenging environments and areas.*”

— William J. Cummings,
Exxon-Mobil company spokesman,
December 2005

The image shows a large oil pumpjack in silhouette against a bright orange and yellow sunset sky. The pumpjack is the central focus, with its long walking beam and counterweight clearly visible. In the background, other smaller pumpjacks are visible on the horizon. The overall mood is one of industrial activity during the end of the day.

*The obvious “trend”
we all seem to know,
but ignore*

THE BEAUMONT JOURNAL.

VOL. 3.

BEAUMONT, TEXAS, THURSDAY, JANUARY 10, 1901.

No. 204.

Roos Bros.

IF YOU WANT TO BE UP-TO-DATE WEAR A

ROOS BROS. SPECIAL HAT!

They are of the latest styles and quality of the best at

\$2.50 AND \$3.50

EVERYTHING OF THE LATEST AND BEST.

Roos Bros.

The Reliable Clothiers and Furnishers.

IT PAYS TO BUY THE BEST.

Special Sale of Ladies' Muslin Underwear.

E. DEUTSER,

AN OIL GEYSER.

Lubricating Fluid Spurts Over 100 Feet Into the Air.

REMARKABLE PHENOMENA SOUTH OF BEAUMONT.

Gas Blows Pipe from a Well and a Flow of Oil Equalled No Where Else on Earth.

At noon today a report reached the city that oil was flowing from the well recently sunk three miles south of the city by Mr. A. F. Lucas in torrents. Mr. W. R. J. Stralford brought the report. He says he was out on the Sabine and East Texas railway this morning watching from a distance the oil operators when suddenly he saw a string of pipe shoot high into the air. A terrific report followed and then there

BUTTERICK'S PATTERNS

and Publications in February and later. Fashion Plates Free.

NEW ARRIVALS OF

House Furnishing Goods at NATHAN'S

Complete Assortment. Reasonable Prices. Read Prices Carefully and Note the Savings.

Large and beautiful...
Butterick's...
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A party...
Nathan's...
A party...
Nathan's...

IT PAYS TO BUY AT...

NATHAN'S

Now For Business.

it will be a long time until another Christmas and

Spindletop Field

Discovered at reservoir depth of 1,132'



BP Macondo Well

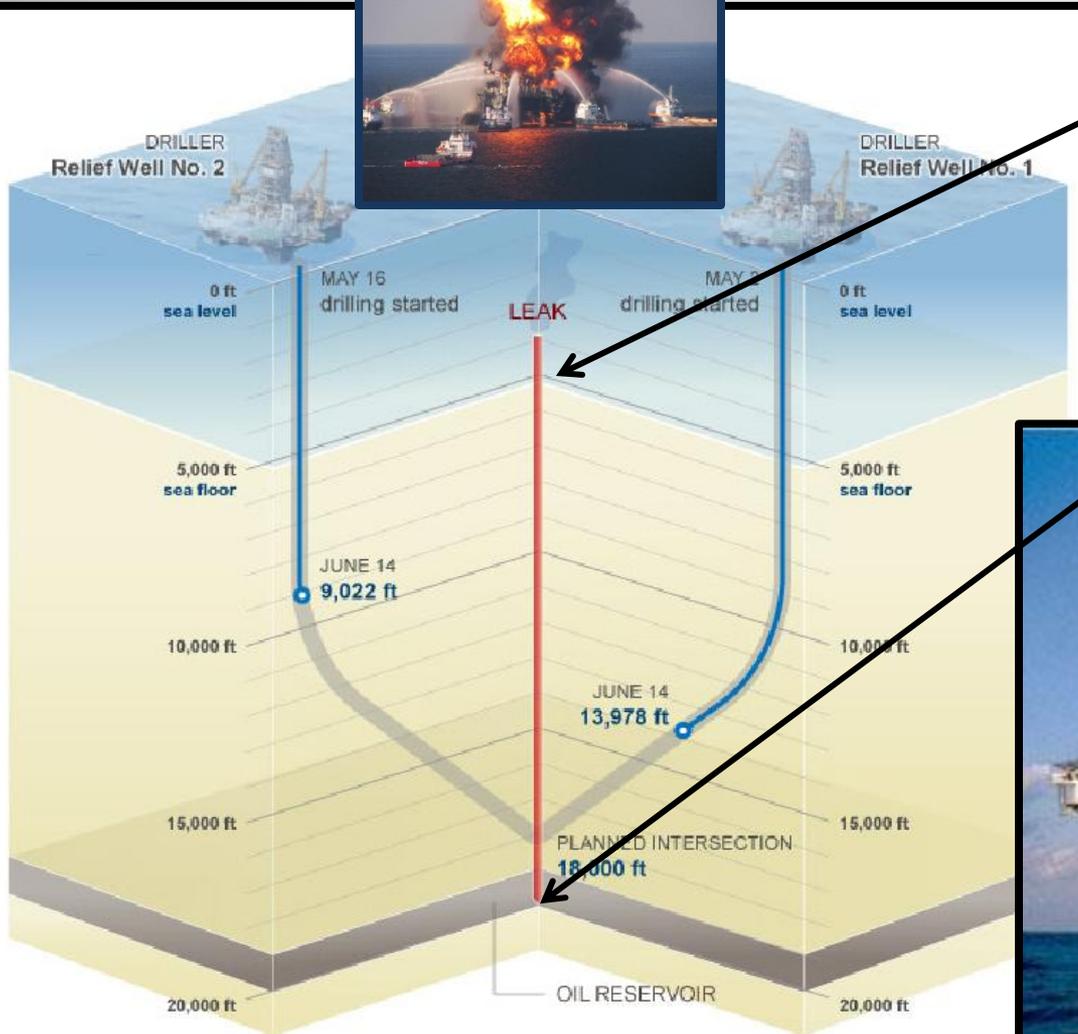
Gulf of Mexico

Water Depth
(to Ocean Floor)

5,000'

Well Depth
(Floor to Oil)

18,000'



Spindletop Discovery - 109 years - BP Macondo

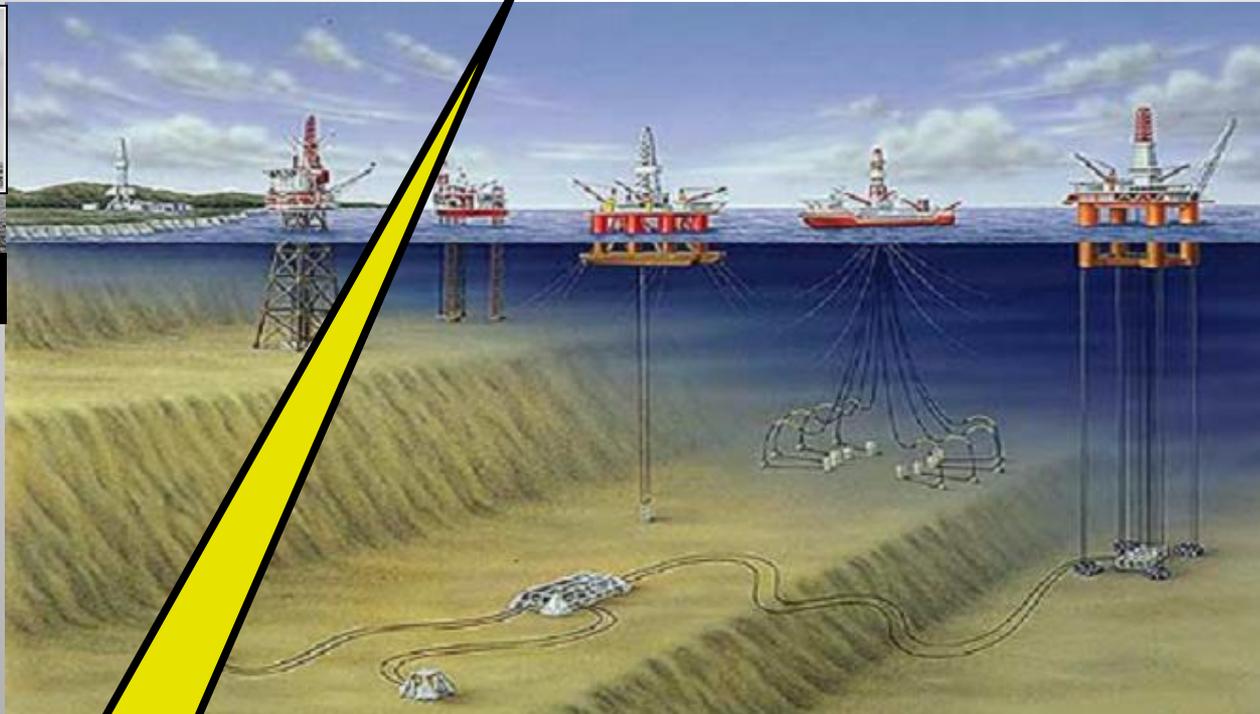


1901

OIL
RESERVOIR

1,132'

Total
Depth



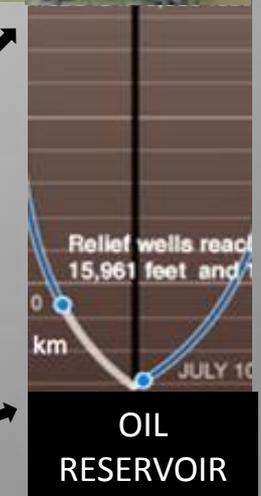
2010



Can you see a trend?

5,000' to Sea Floor

18,000' Sea Floor to Oil Reservoir



Once it was cheaper and easier...

Now, its harder and far more costly



Regarding Oil Supply



“ It is pretty clear that there is not much chance of finding any significant quantity of new cheap oil. **Any new or unconventional oil is going to be expensive.**”

— Lord Ron Oxburgh,
Former Chairman of Shell,
October 2008

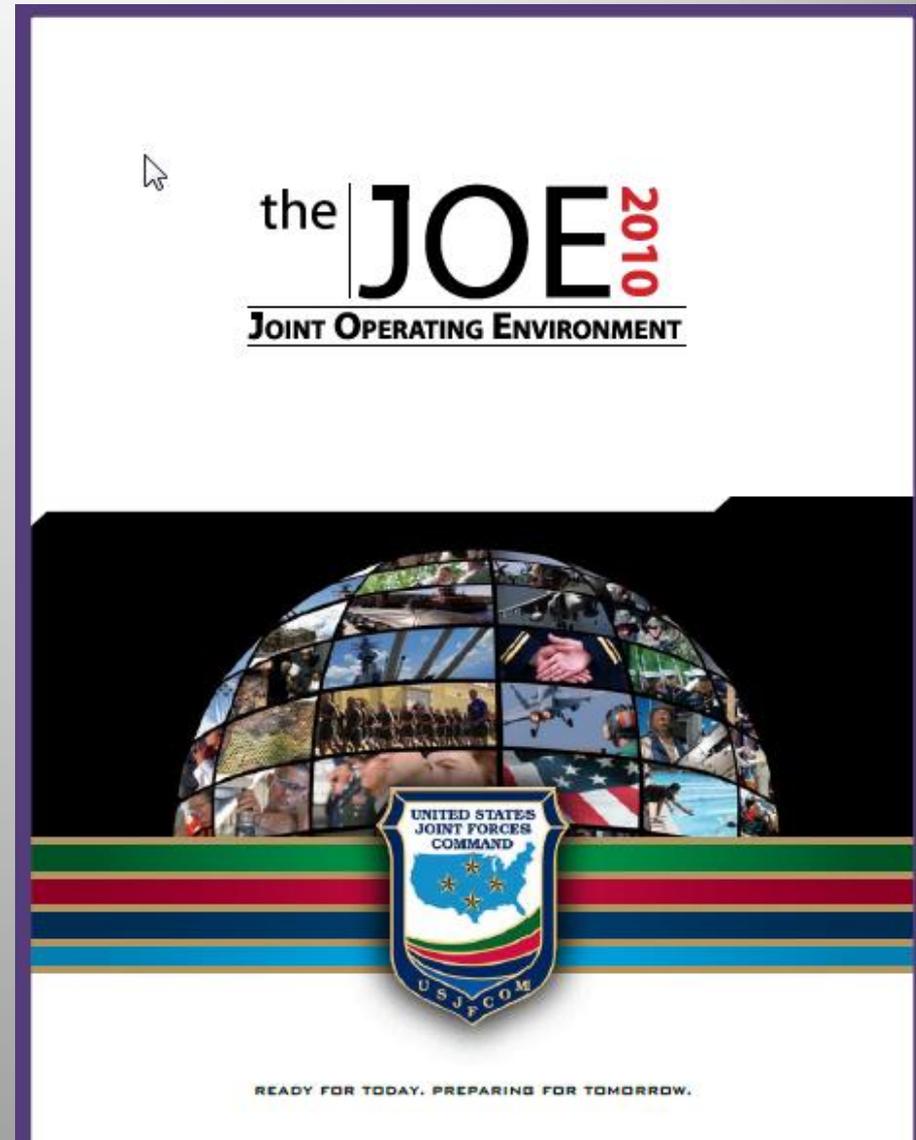
U.S. MILITARY JOINT FORCES COMMAND

2010 JOE Report

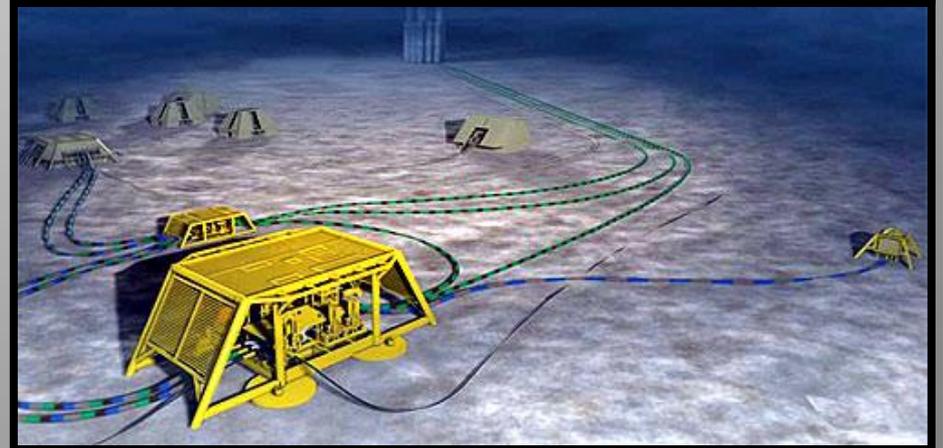
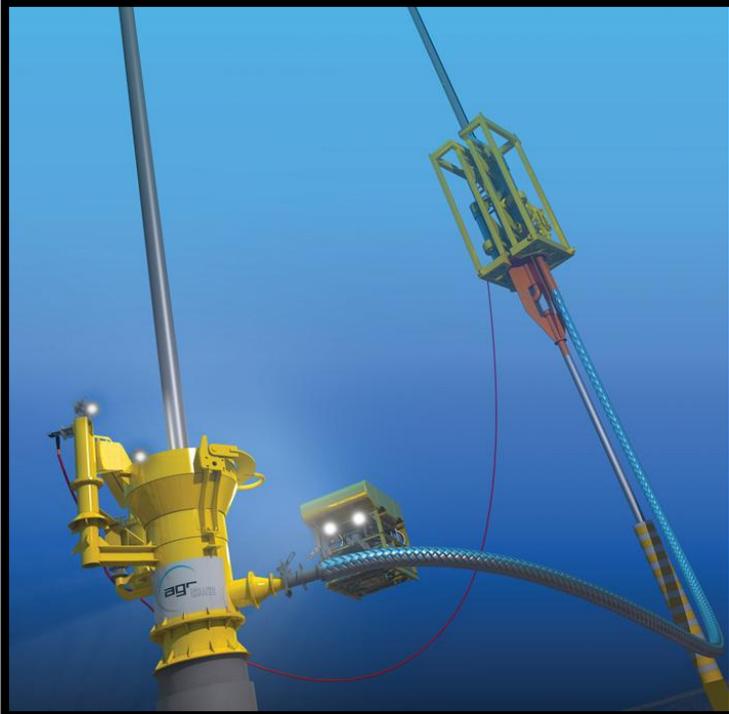
Joint Operating Environment

February 18, 2010

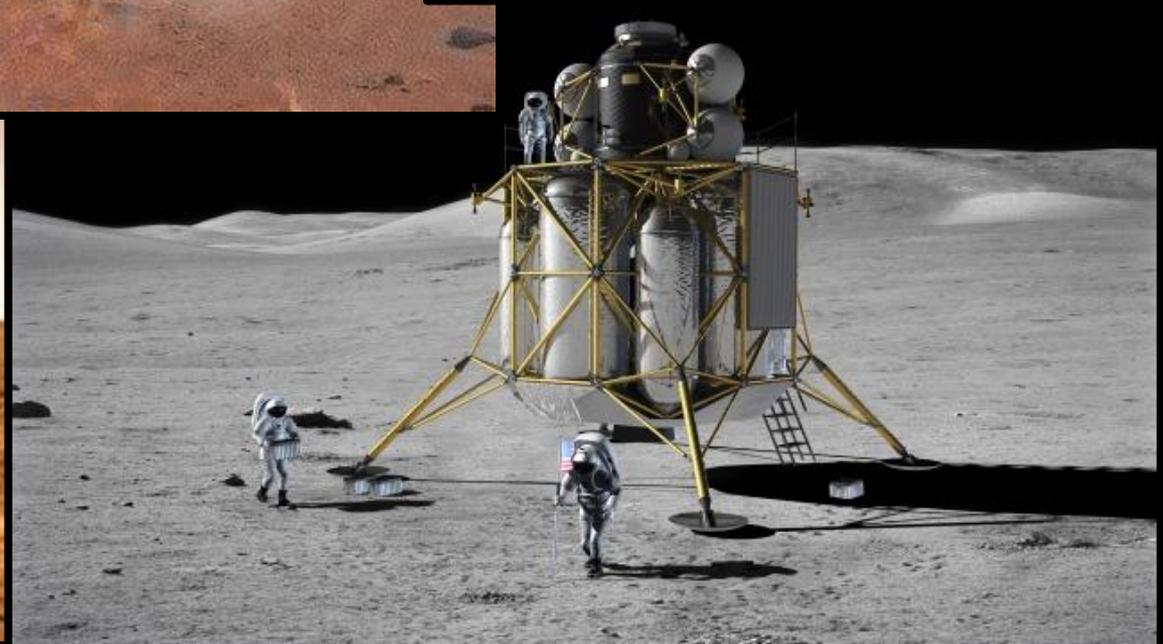
“The discovery rate of new petroleum & gas fields over the past two decades provides little reason for optimism that future efforts will find major new fields.”



To find and replace ***OIL TODAY*** requires tolerances and investment ...



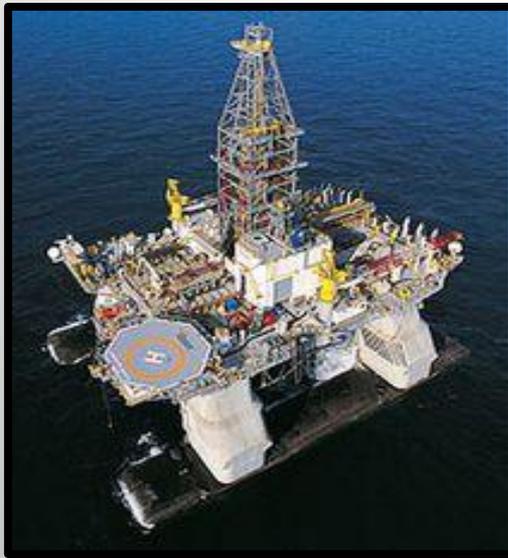
...akin to what's needed for the ***SPACE PROGRAM***





COMPLACENCY

A feeling of quiet security, often while unaware of some potential danger.



“COMPLACENCY HAPPENS” The ***DRILLING CREW*** on the DEEPWATER HORIZEN RIG had become complacent...
...deafened by 3 great successes.

- 1. DEEPEST OIL WELL EVER DRILLED IN U.S. (35,050 Ft.)**
- 2. SET DEEP WATER DRILLING RECORD BY SEMI-SUBMERSIBLE (9,576 Ft. Water)**
- 3. CELEBRATING AN INCREDIBLE 7½ YRS OF INCIDENT FREE OPERATIONS. (Avg. is 1 Yr)**



© Reuters



2010

Macondo Well Blowout

The largest **ENVIRONMENTAL DISASTER** in U.S. History



Who do we
BLAME for
high gas prices?

- ✓ Congress and/or the President for not keeping prices in check.
- ✓ Saudi Arabia and OPEC members for not producing enough oil.
- ✓ Oil companies for making record profits.
- ✓ Wall Street Speculators who bet on higher oil prices.
- ✓ Some small groups blame the American driver's thirst for gasoline.

Summary

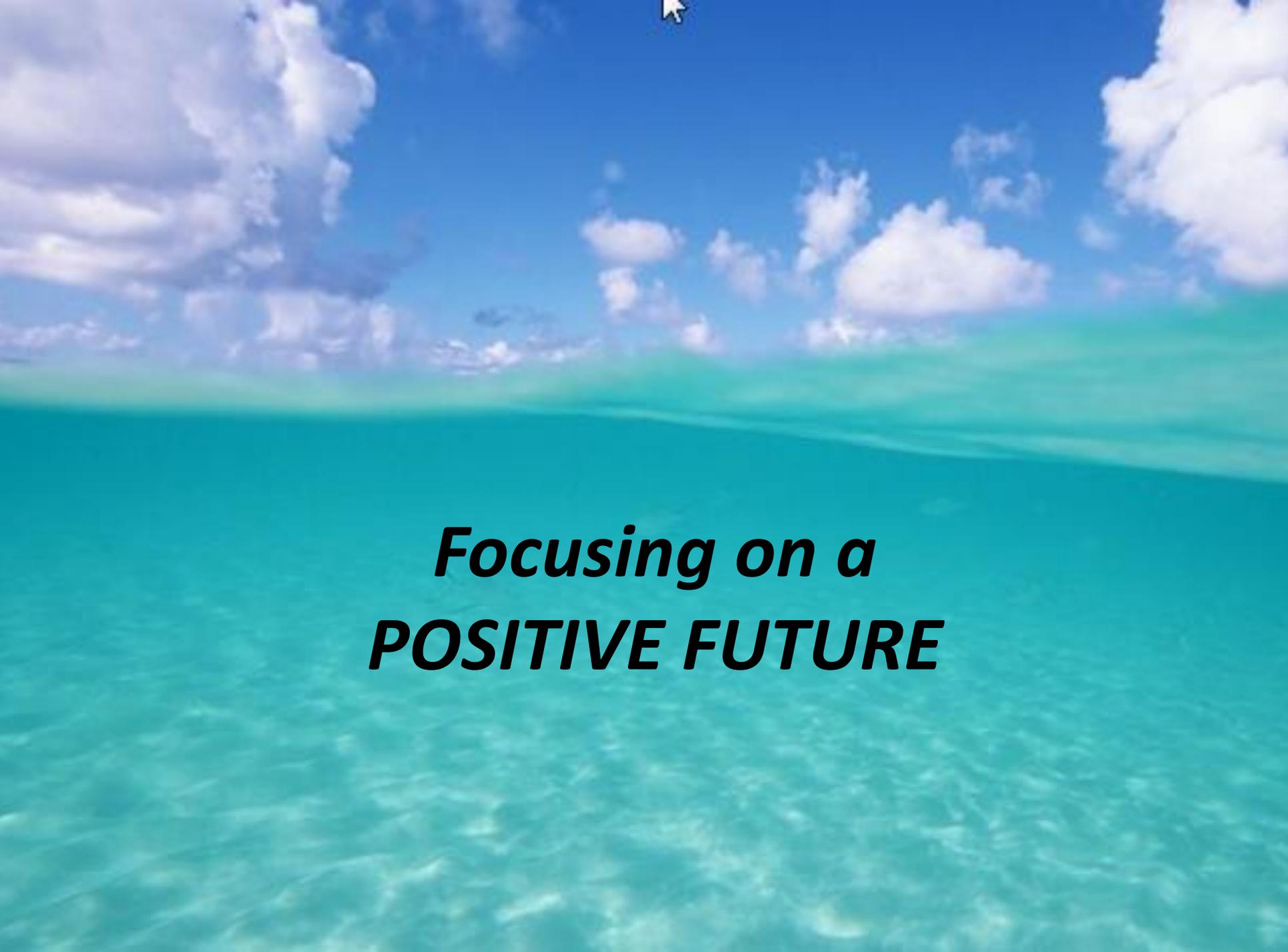
Supply

- Crude Oil Supply peaked in 2005
- World is declining at $\pm 5\%$ per year
- Easy (cheap) oil is gone, expensive oil is coming!

Price

- Gas & diesel account for **80%** of all U.S. Transportation
- Price of gasoline must rise as we ***take more risks***, and ***drill deeper and deeper***
- Expect ***\$5.00 to \$6.00/gallon*** gasoline within 36 months

SEPTEMBER 16 (Singapore): *Goldman Sachs* senior commodities analyst said she expects Brent Crude ***to reach \$130*** within the next year (2012).



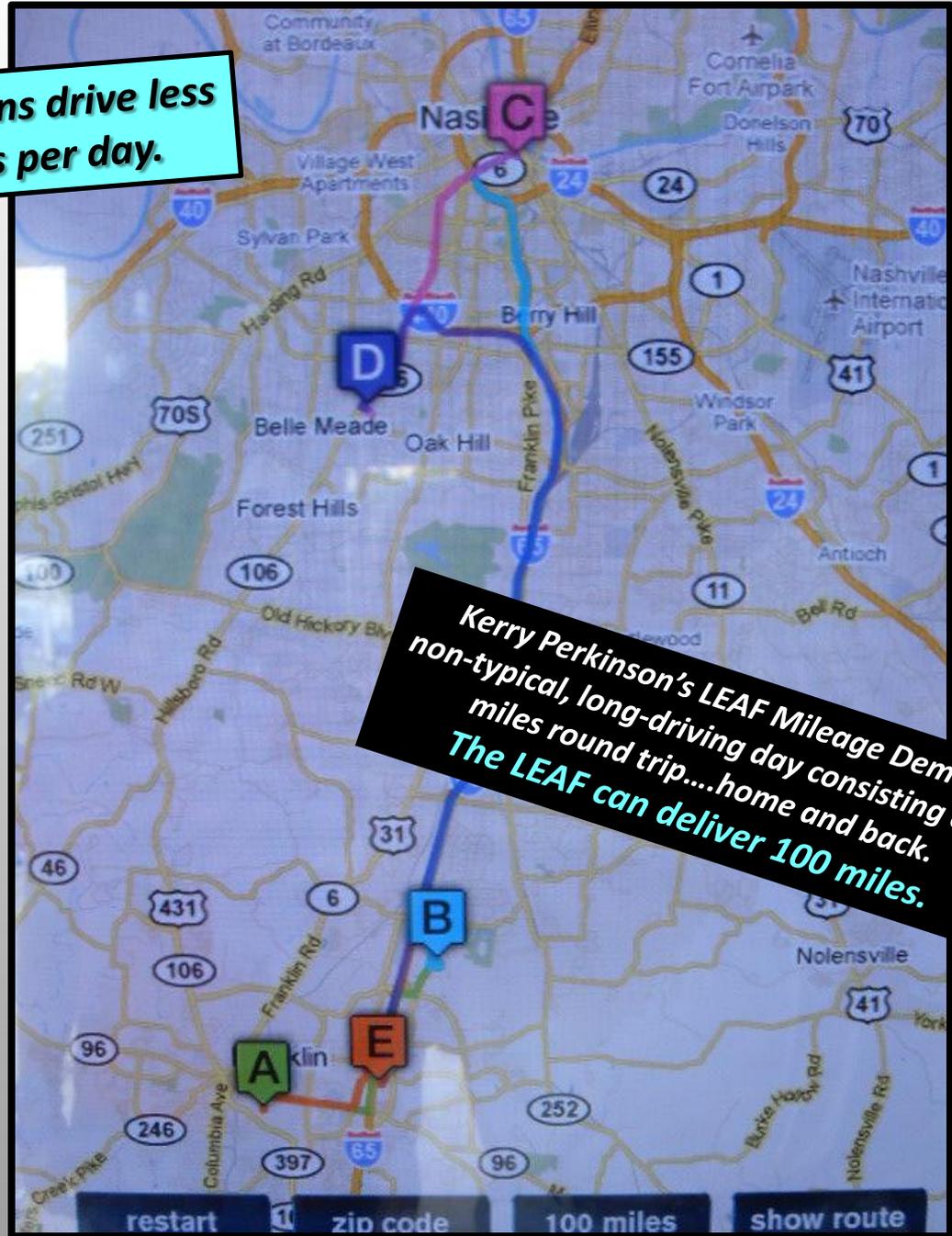
***Focusing on a
POSITIVE FUTURE***



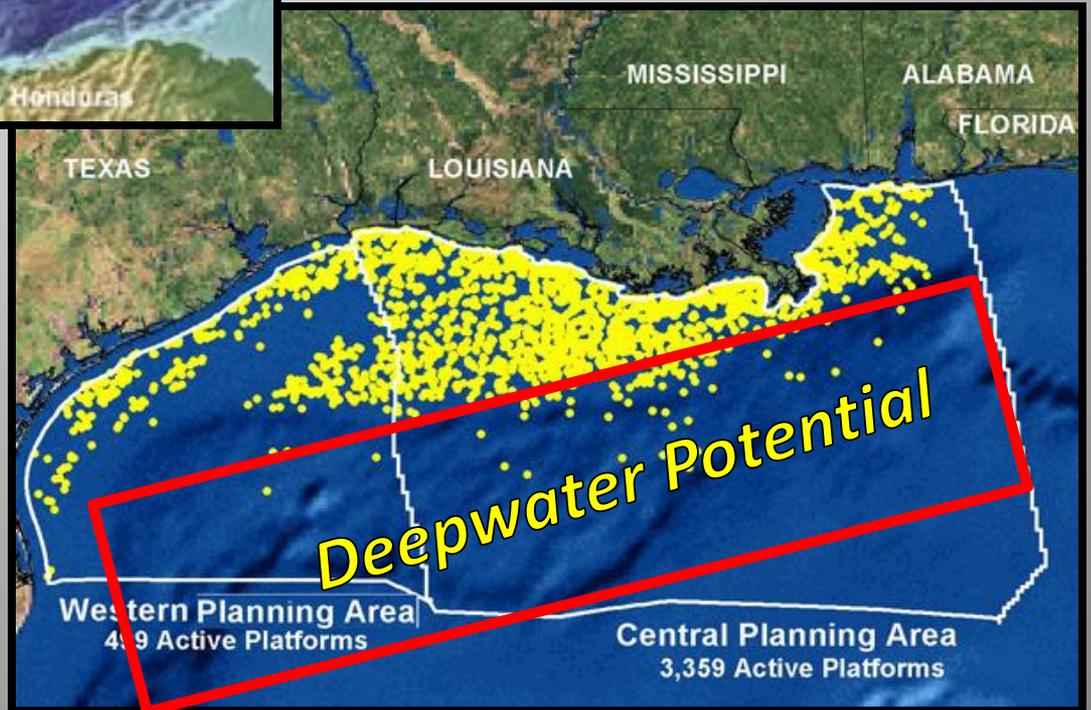
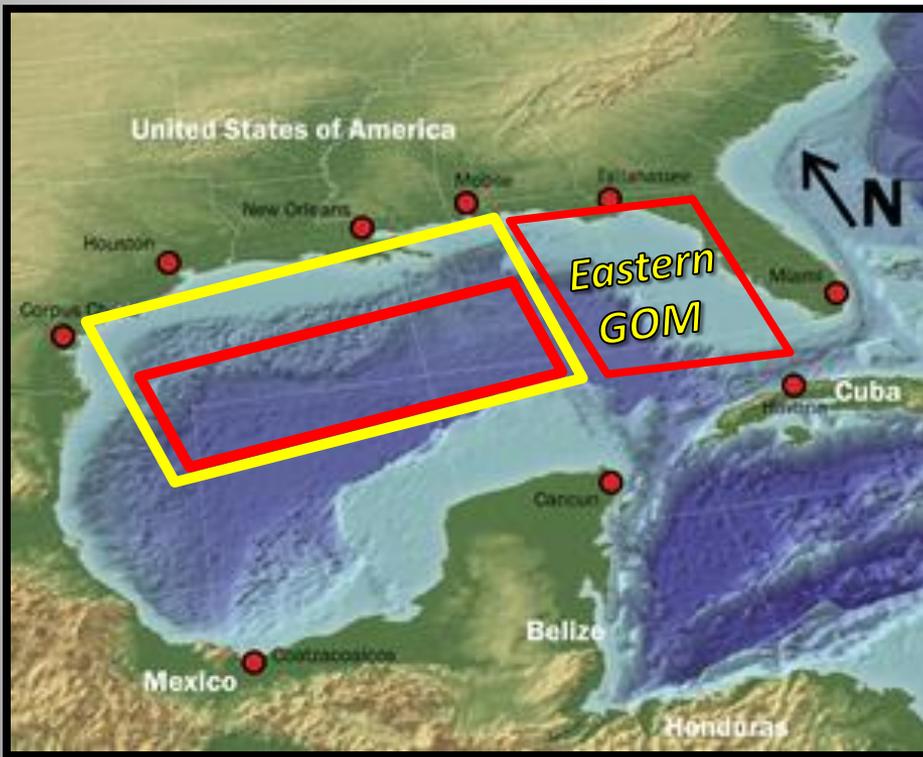
80% of Americans drive less than 40 miles per day.

NISSAN LEAF

Drive Mileage Demo



The Deepwater and Eastern Gulf of Mexico Potential?



SOLAR



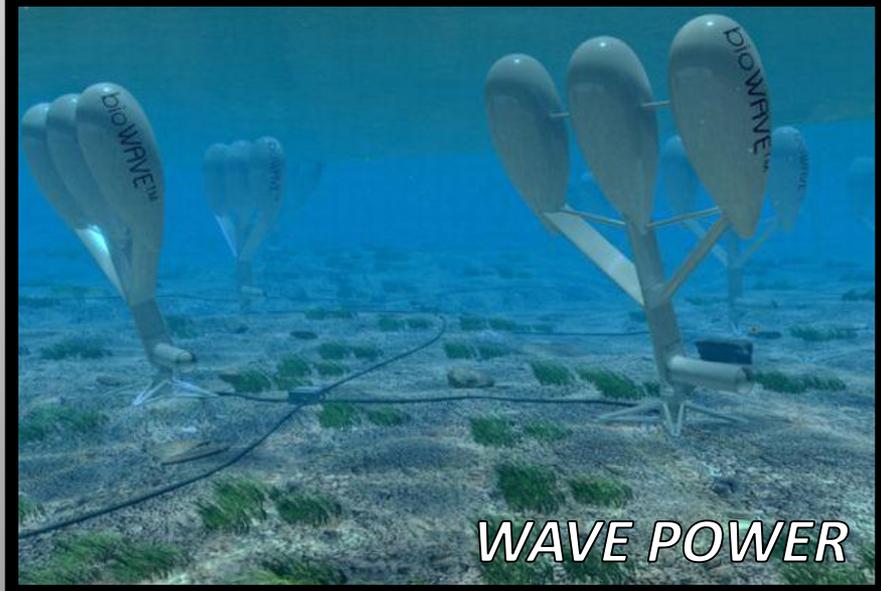
OCEAN ENERGY



WIND



WAVE POWER





Regarding Energy and the Environment...

*Do I Get
a Vote?*



Which is more important –
maintaining our lifestyles, or
securing the **quality of life** for our
children and grand children ?

The Era of Cheap Oil is Over



Down one road lies utter catastrophe...



.. down the other lies
more manageable
outcomes.

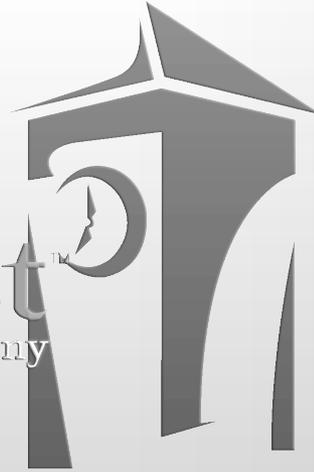


Let us have the *wisdom* to choose wisely

Tennessee
BANK

& Trust

A Division of Farmers Bank & Trust Company



Thank You