

Oil Spills, Ethics, and Society: How they intersect and where the responsibilities reside

W.C. Rusty Riese
AAPG Distinguished Ethics Lecturer
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#1 Gulf War, 1991

- **Location:**

Kuwait

- **Gallons:**

240 to 336 million

- **Cleanup:**

Close wells & pipes

25 miles of boom

21 skimmers

- **Long term damage:**

Little to coral & local fisheries (Unesco)



#2 Ixtoc 1 Oil Well, 1979

- **Location:**
Bay of Campeche, Mexico
- **Gallons:**
140 million
- **Cause:**
Pressure, explosion, well blowout
- **Cleanup:**
Junk shot, dispersants, burning



#3 Atlantic Empress, 1979

- **Location:**
Trinidad and Tobago, West Indies
- **Gallons:**
88.3 million
- **Cause**
2-tanker collision
- **Cleanup**
Firefighting, dispersants, towing, explosion, sinking

#4 Fergana Valley, 1992

- **Location:**
Uzbekistan
- **Gallons:**
87.7 million
- **Cause:**
Well failure (largest inland ever reported)
- **Cleanup:**
Soaked into ground leaving nothing for crews

#5 Nowruk Oil Field, 1983

- Location:
Persian Gulf
- Gallons:
80 million
- Cause
Tanker collision with
platform during war, left for
7 months
- Cleanup:
Booms and skimmers

#6 ABT Summer, 1991

- Location:
Off the coast of Angola
- Gallons:
80 million
- Cause
Shipboard explosion
- Cleanup
Sinking after burning
- Impact
None known due to sinking,
burning and dispersion by
high seas



#7 Castillo de Bellver, 1983

- Location:
Off Saldanha Bay,
South Africa
- Gallons:
78.5 million
- Cause:
Shipboard fire
- Cleanup:
Breakup and sinking;
minimal dispersants; 1500
birds, no fisheries impact



#8 Amoco Cadiz, 1978

- Location:
Off Brittany, France
- Gallons:
68.7 million
- Cause:
Steering failure in storm,
ran aground
- Cleanup:
Some dispersants, vacuum
trucks, by hand

#9 Odyssey Oil Spill, 1988

- Location:
700 miles off
Nova Scotia, Canada
- Gallons:
43 million
- Cause:
Ship broke up, sank
- Cleanup:
Natural dispersion

#10 M/T Haven Tanker, 1991

- Location:
Genoa, Italy
- Gallons:
42 million
- Cause:
Poor maintenance and explosion
- Cleanup:
Attempt to tow to shore, sank (largest shipwreck in the world); barriers and vacuums



None of these spills has had
long term, lasting impact

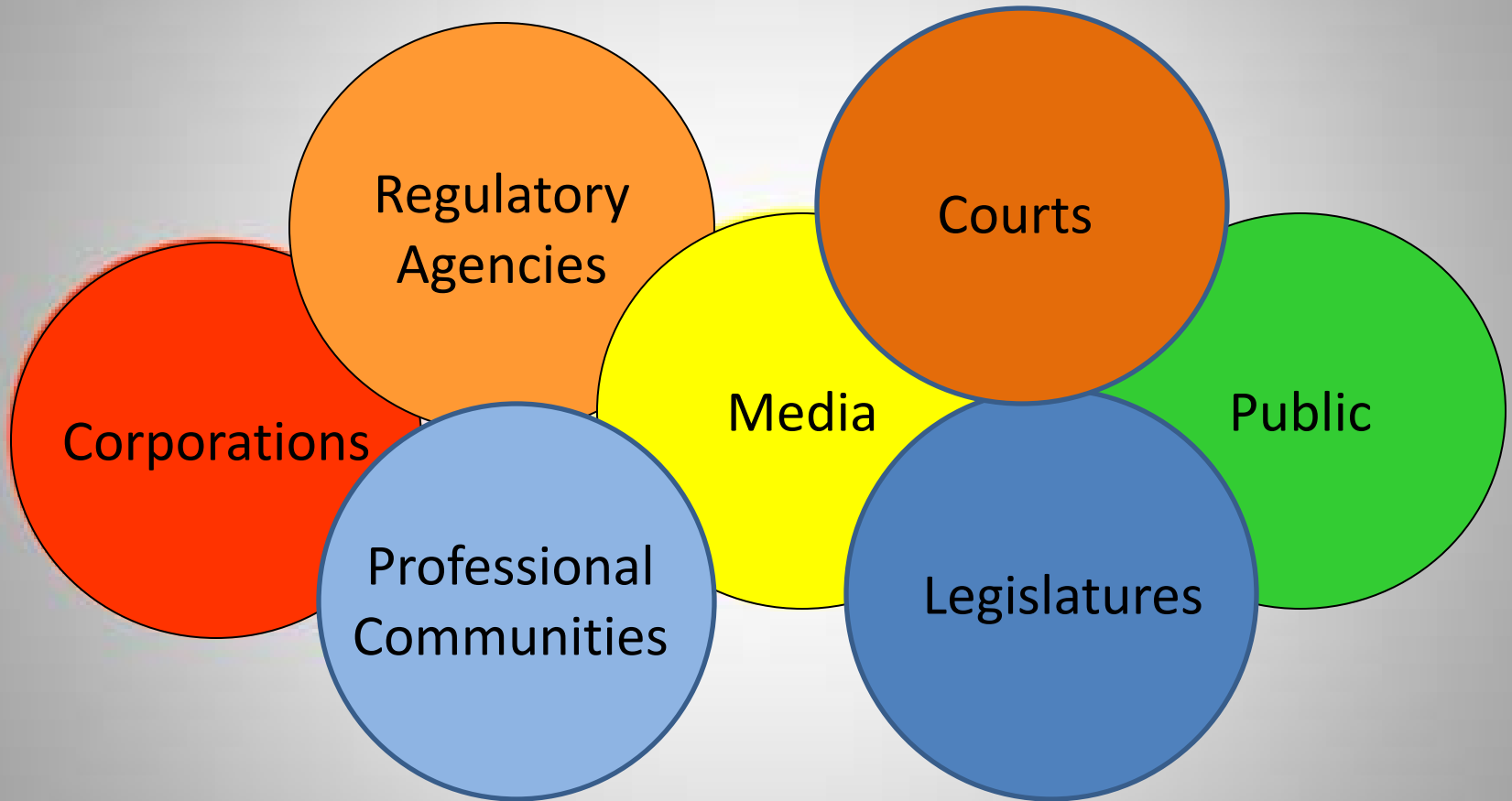
Deepwater Horizon, 2010

- Location:
Gulf of Mexico
- Gallons:
185 million
- Cause:
Blowout, fire
- Cleanup:
Dispersants, skimmers,
burnoff, barriers, by hand,
cap well

22 17:00

The *Deepwater Horizon* oil spill
will have had no lasting environmental impact:
“Ultimately mother nature will handle it...”
(Edward B Overton, Professor Emeritus, LSU, 2011)

Constituencies...

















Corporations

When a spill occurs

Provide protection to people

Clean up and restore the environment

Investigate and fix the cause

Maintain a transparent flow of information



Lamar McKay
100 America

Steven L. Newman
American Ltd

Tim P.
Halt





Corporations

Before a spill

Train and maintain skills

Maintain equipment

Establish clear management systems





"While the oil companies are **turning the American consumer upside down at the pump, shaking out every last cent**, the White House is defending **unnecessary giveaways and tax breaks to big oil**," Representative Edward Markey, a Massachusetts Democrat who heads the House Select Committee on Energy Independence and Global Warming, said in an e-mailed statement.

"...if we are going to allow giant oil companies like BP to deplete our ocean energy resources, we will take a small sliver of their massive profits and deposit it into a conservation fund..."





Legislatures

Investigate when appropriate
Listen to testimony
Minimize sensationalism
Formulate laws thoughtfully







Regulatory
Agencies

Perform oversight diligently
Investigate thoroughly
Modify regulations appropriately
Restore operations timely

JOU

JOURNALISTIC
ETHICS

TIC

*Moral Responsibility
in the Media*



DALE JACQUETTE

BASIC ETHICS IN ACTION

M

ty

Was **Anderson Cooper** digging too deep while reporting on the BP oil spill?

According to a government report on the Deepwater Horizon Oil Spill: Yes.

It may or may not come as a shock that the commission,... identifies a new ~~scapegoat~~ culprit: the media.

In particular, the report accuses **Anderson Cooper** of intentionally seeking out people that were upset with the government response to the disaster:

“Journalists encouraged state and local officials and residents to display their anger at the federal response, and offered coverage when they did. Anderson Cooper reportedly asked a Parish President to bring an angry, unemployed offshore oil worker on his show. **When the Parish President could not promise the worker would be “angry,” both were disinvited.**”







BP Sand Shark Hunts Tarball Prey On Devastated Gulf Coast Beaches







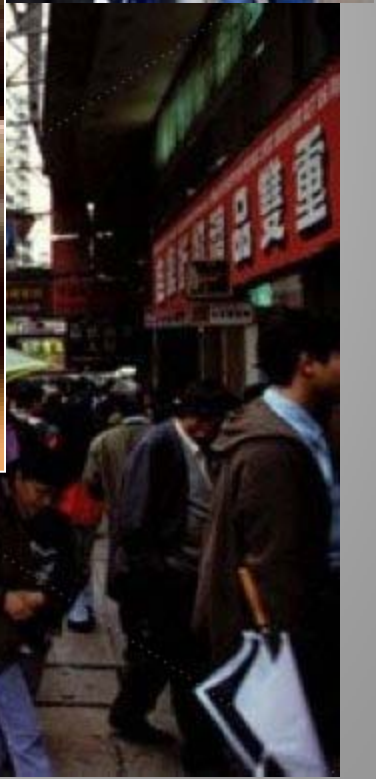
Media

Deliver information

Differentiate opinion and advocacy from reporting

Avoid sensationalism

Avoid worst case scenario focus



Only 25% of Americans were scientifically literate
in a 2008 survey.

(Jon Miller, Professor, Michigan State University)

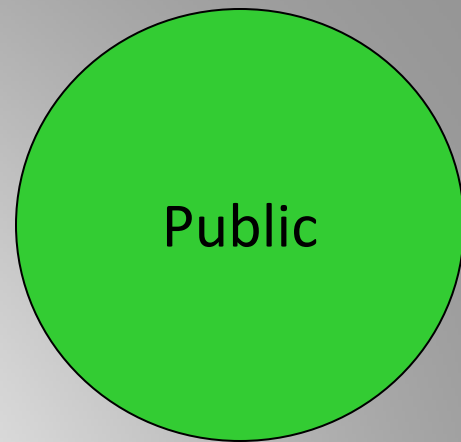
Only 53% of adults know how long it takes for the Earth to revolve around the Sun.

Only 59% of adults know that the earliest humans and dinosaurs did not live at the same time.

Only 47% of adults can roughly approximate the percent of the Earth's surface that is covered with water.*

Only 21% of adults answered all three questions correctly.

(California Academy of Sciences, 2009)



Become educated

Become informed

Question

Understand the full societal context of issues



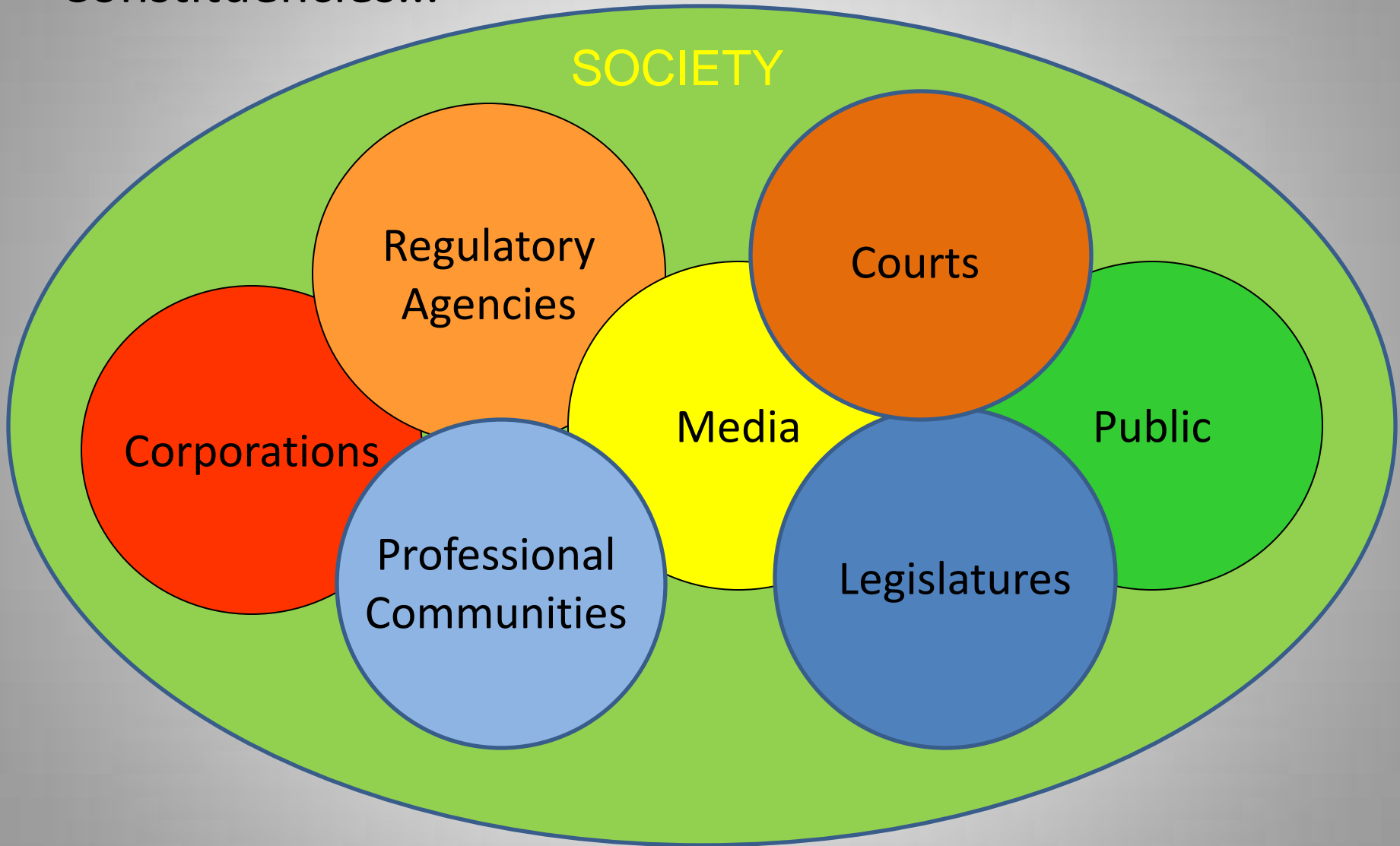
**Professional
Communities**

Perform work diligently
Perform work without prejudice
Identify and point out inaccuracies
Inform those around us
Explain full societal contexts





Constituencies...



The commercial case for clean energy has never been stronger

Rising climate change concerns



Demand growth



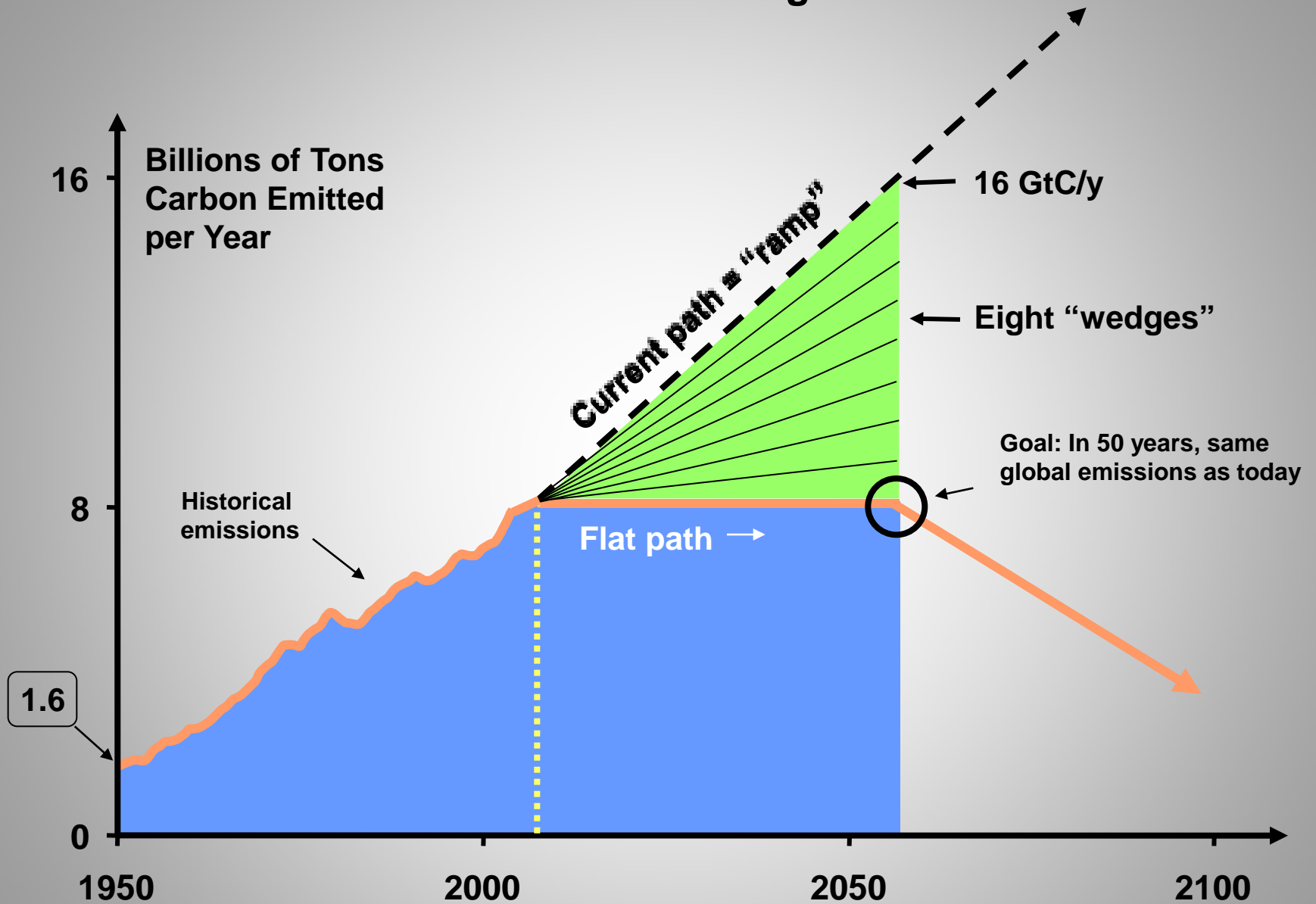
Energy security challenges




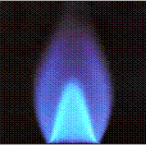
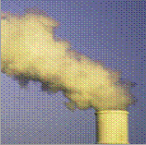




Oil, gas and coal supply constraints



Stabilization Wedges



Examples of stabilisation wedges

Wedges	Detail	Feasibility
 <p>Efficiency</p>	<p>Double fuel efficiency of 2 billion cars from 30 to 60 mpg</p>	<p>There are 600 million cars in the world today, Projection is 2 billion by 2054. 1 wedge ✳ Double the average fuel efficiency of the fleet.</p>
 <p>Fuel Switching</p>	<p>Replace 1400 coal electric plants with natural gas-powered facilities (adding an amount in 2054 almost equal to today's world gas usage)</p>	<p>1 wedge ✳ bringing one Alaska pipeline on line every year for 50 years; or 1 wedge ✳ 50 large LNG tankers docking & discharging / day</p>
 <p>Carbon capture and storage</p>	<p>Capture AND store emissions from 800 coal electric plants</p>	<p>1 wedge ✳ 3500 In Salah developments (each need to last through to 2054)</p>
 <p>Nuclear</p>	<p>Add double the current global nuclear capacity to replace coal-based electricity</p>	<p>400 nuclear plants today, 1 wedge ✳ adding 700 more in the next 50 years</p>
 <p>Wind</p>	<p>Increase wind electricity capacity by 50 times relative to today, for a total of 2 million large windmills</p>	<p>1 wedge ✳ windmills on an area of 372,000 sq mi</p>
 <p>Solar</p>	<p>Use 40,000 square kms of solar panels to produce hydrogen for fuel cell cars</p>	<p>1 wedge ✳ solar panels covering area an area of 230,000 sq mi</p>
 <p>Natural sinks</p>	<p>Eliminate tropical deforestation AND create new plantations on non-forested land to quintuple current plantation area</p>	<p>1 wedge ✳ new plantations with a total area of 2.3 million sq mi</p>

Efficiency

Double fuel efficiency of 2 billion cars
from 30 to 60mpg

600 million cars in the world today
Projection is 2 billion by 2054

1wedge =

Double the average fuel efficiency of the fleet

Fuel Switching



Replace 1400 coal plants with gas facilities
(adding an amount in 2054 equal to
today's gas usage)

1wedge =

**Bring one Alaska pipeline on line for 50 years, *or*
50 large LNG tankers docking and discharging/day**

Carbon capture and storage

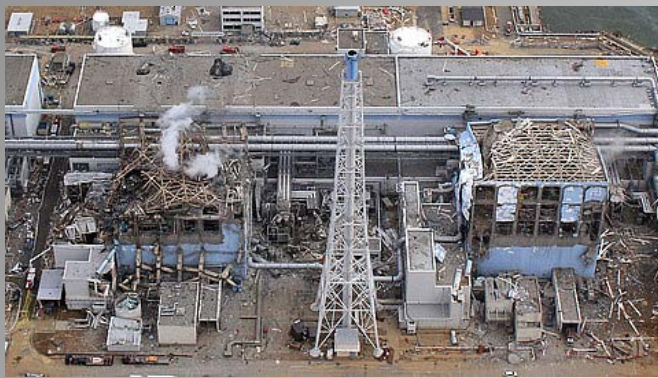
Capture and store emissions from
800 coal electric plants

1wedge =

3500 In Salah developments

(each need to last through 2054)





Nuclear



Add double the current global nuclear capacity
to replace coal-based electricity

400 nuclear plants today

1wedge =

Add 700 more in the next 50 years





Wind



Increase wind electricity capacity by 50 times,
for a total of 2 million large windmills

1wedge =

Windmills on an area of 372,000 sq mi

(Equivalent to all acreage in

North & South Dakota, Nebraska, Kansas, & Oklahoma)

Solar

Use 40,000sq kms of solar panels to produce hydrogen for fuel cell cars

1wedge =

Solar panels covering an area of 230,000 sq mi





Natural sinks



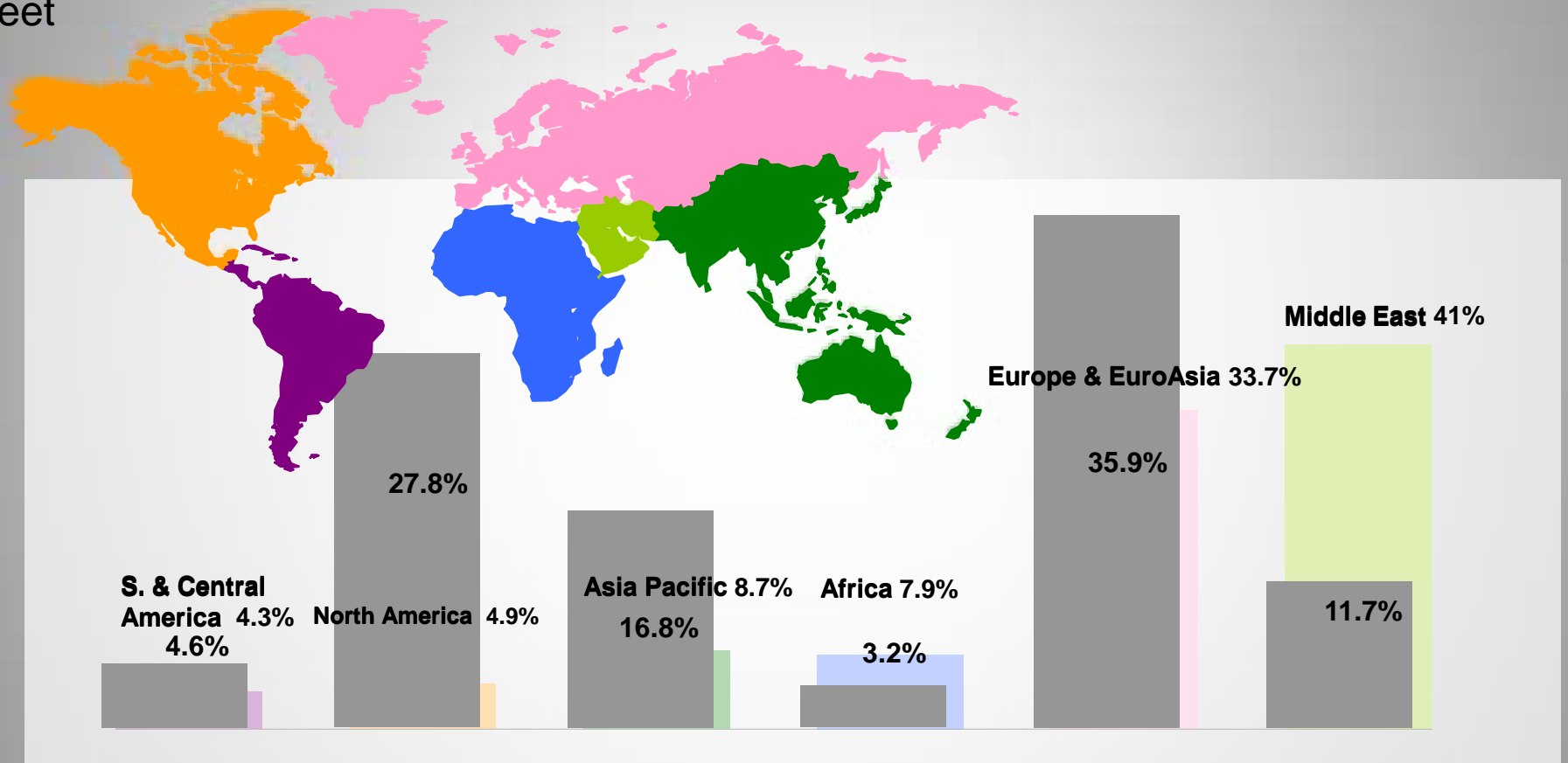
Eliminate tropical deforestation AND
create new plantations on non-forested land to
quintuple current plantation area

1wedge =

**New plantations with a total area of 2.3 million sq mi
(Equivalent to 2/3 of US, Brazil, or Australia)**

World Proved Gas Reserves

Trillion cubic feet



Global Reserves 6,534 Tcf

Global Demand

Source: BP Statistical Review 2010

US demand for hydrocarbons is
projected to continue growing

Saudi Arabian demand for its own production
may reach 50% by 2035

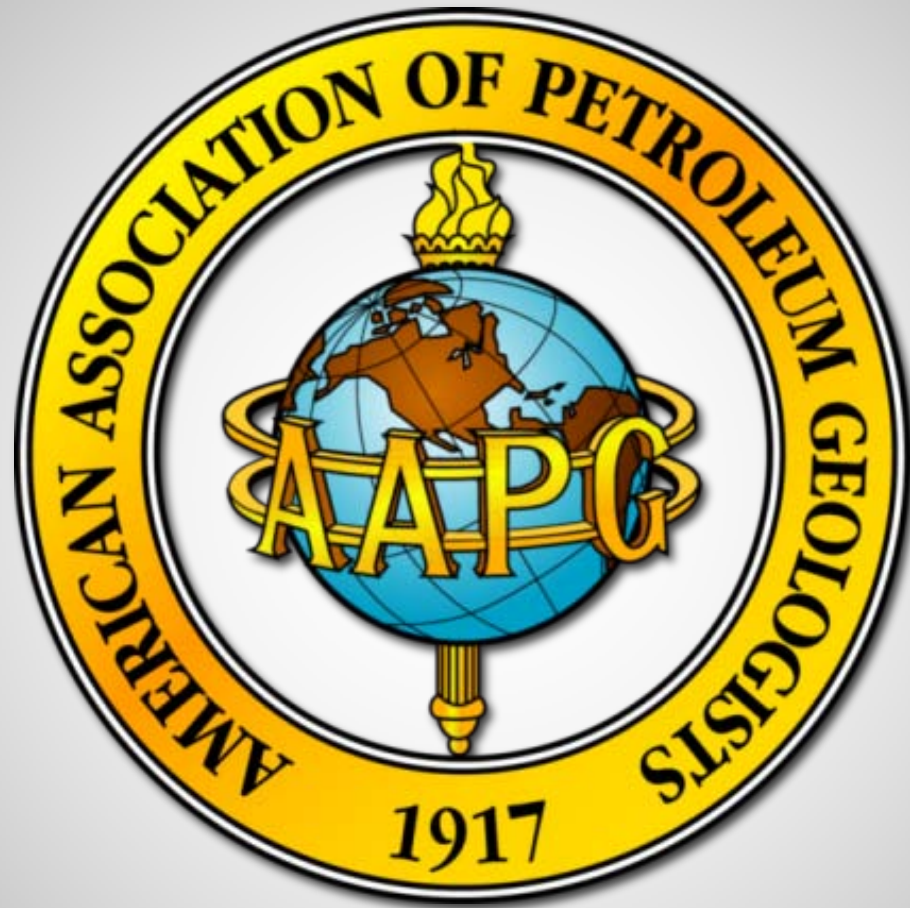
Economic growth in China and India
continues at 7 to 9% per year

Ultimate responsibilities for oil spills lie within
a mix of competing demands and expectations

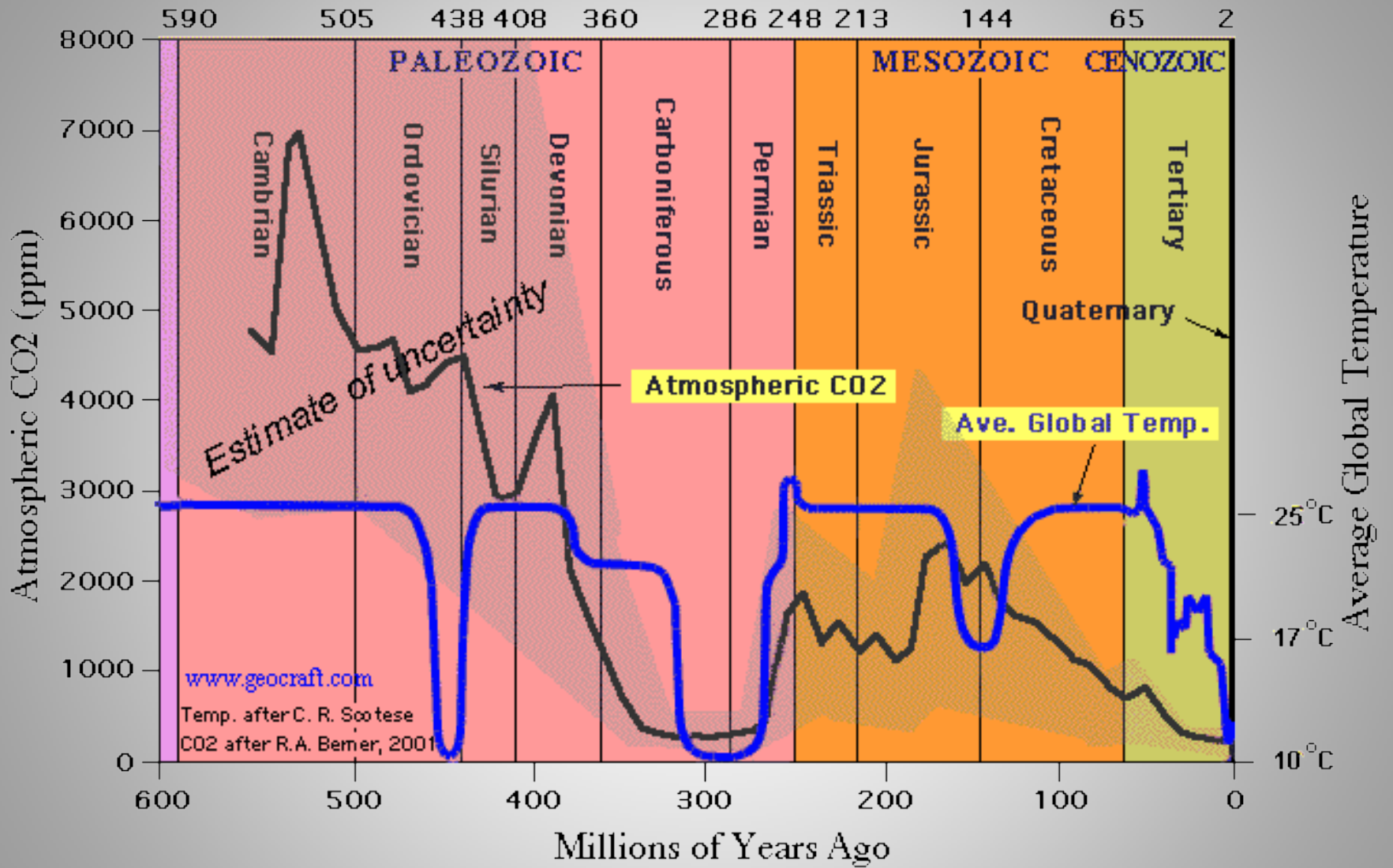
The mix is far more complicated
than most people are aware of or are willing to consider

**All energy consumers have an ethical obligation
to educate ourselves
and those around us
regarding
the consequences of our demands for
cheap energy and a preserved environment**



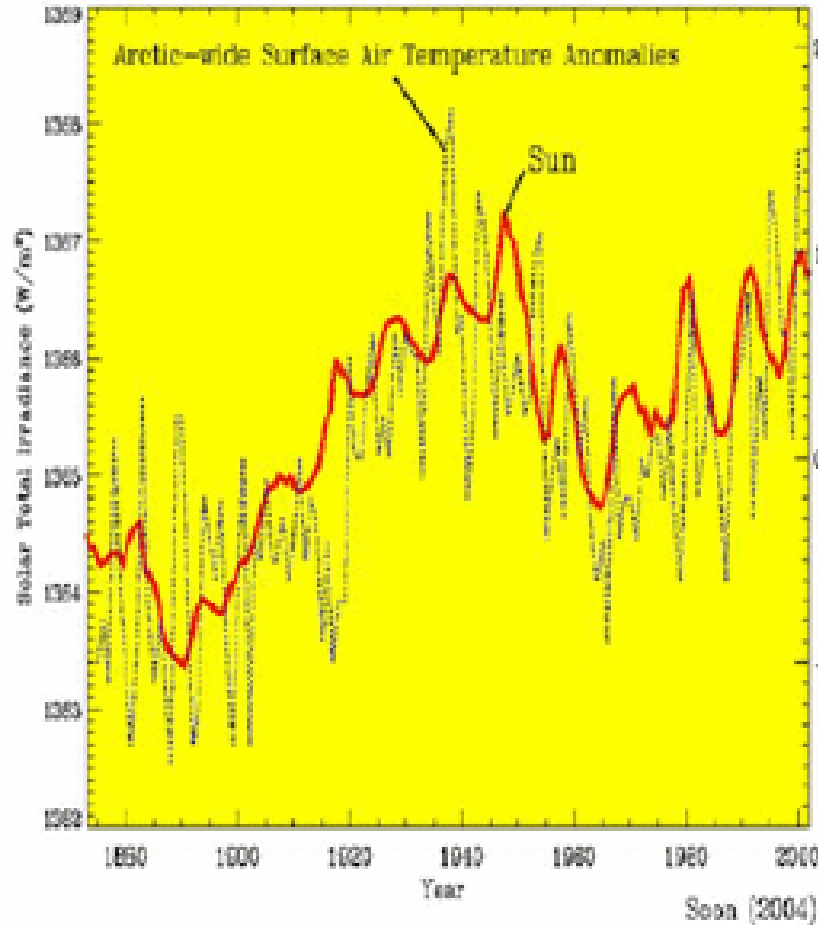




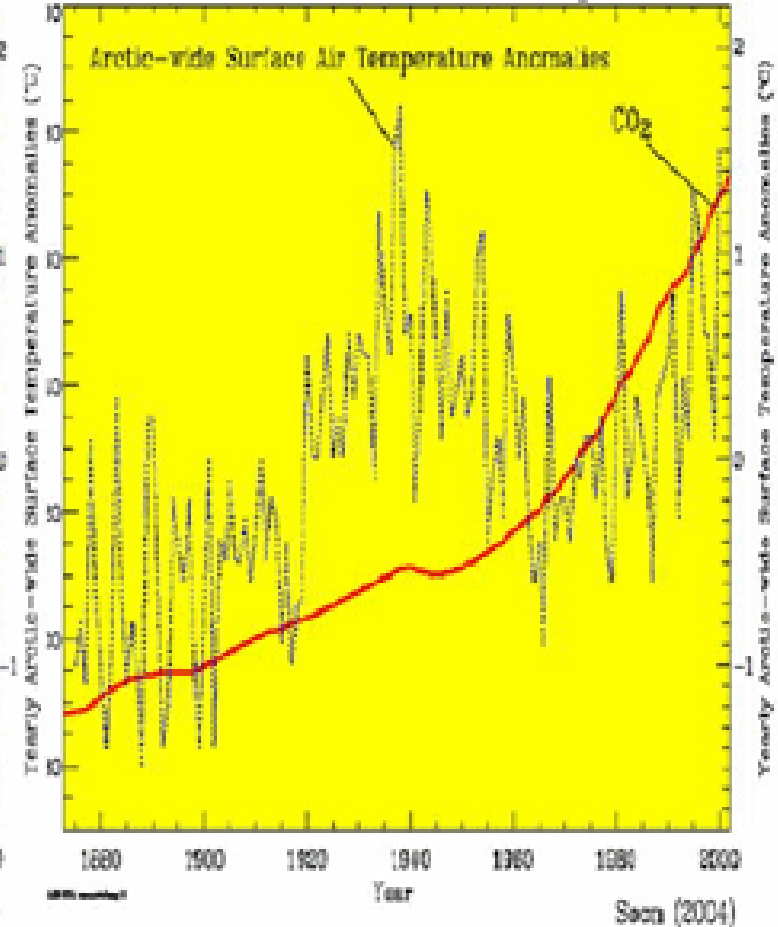


The Sun is a more likely and dominant driver of the recorded Arctic temperature variations

A Sun-Climate Coincidence?



A CO₂-Caused Arctic Warming?



“The following passages are examples of those included in the approved report but deleted from the supposedly peer-reviewed published version:

- ‘None of the studies cited above has shown clear evidence that we can attribute the observed [climate] changes to the specific cause of increases in greenhouse gases.’

-‘No study to date has positively attributed all or part [of the climate changes observed to date] to anthropogenic [man-made] causes.’

-‘Any claims of positive detection of significant climate change are likely to remain controversial until uncertainties in the total Natural variability of the climate system are reduced.’ ...

“...The reviewing scientists used this original language to keep themselves and the IPCC honest. ...

“IPCC reports are often called the ‘consensus’ view. If they lead to carbon taxes and restraints on economic growth, they will have a major and almost certainly destructive impact on the economies of the world. whatever the intent was of those who made these significant changes, ***their effect is to deceive policy makers and the public into believing that the scientific evidence shows human activities are causing global warming. ...***

“If the IPCC is incapable of following its most basic procedures, ***it would be best to abandon the entire IPCC process, or at least that part that is concerned with the scientific evidence on climate change, ...***”

- Dr. Frederick Seitz
President Emeritus
Rockefeller University
in Wall Street Journal, 6-12-1996

“There are no sacred cows in science, one hundred authorities count for nothing. Experiment counts for everything.”

- Michio Kaku

Professor of Theoretical Physics

City College of New York

in Wall Street Journal, 9-26-2011

"No computer can accurately represent such a gigantic system as the Earth with all its unknown processes. ...Therefore, no supercomputer, no matter how powerful, is able to prove definitively a simplistic hypothesis that says the greenhouse effect is responsible for warming."

- Syun-Ichi Akasofu

former director, Arctic Research Center

University of Alaska

in Wall Street Journal, op-ed, 2007

“One hundred famous intellectuals aren’t needed to disprove relativity. All you need is one simple fact.”

- Albert Einstein

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Crude Oil and Refined Products Pipelines



- Pipelines by Commodity
- Crude Oil
 - Highly Refined Liquids
 - Liquid Petroleum Gas
 - Natural Gas Liquids
 - Refined Products

REX-TAG
PIPELINE SYSTEMS

