

The Quest

Part One: The New World of Oil

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Vulnerable



Reliant

Three Fundamental Questions

- 1) Will enough energy be available to meet the needs of a growing world?
- 2) How can the security of the energy system on which the world depends be protected?
- 3) What will be the impact of environmental concerns on the future of energy?



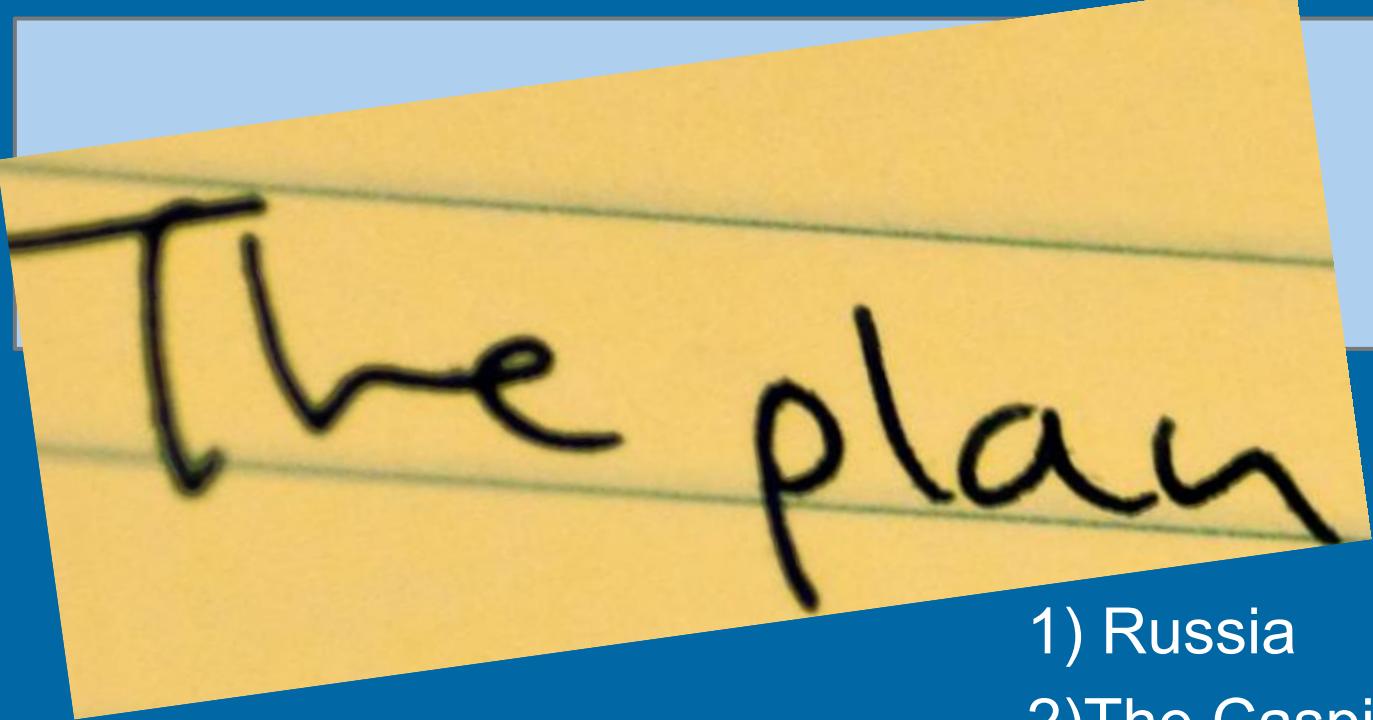
Begin with the past...

The New World of Oil

- Emerged since the gulf war
- Drama of oil
- Struggle for access
- Battle for control

Geopolitics





The plan

- 1) Russia
- 2) The Caspian Sea
- 3) Kazakhstan
- 4) Turkmenistan
- 5) Financial Oil Crisis
- 6) Venezuela - A Petro-State
- 7) Market Disruptions
- 8) Demand Markets
- 9) China



Soviet Union Collapses

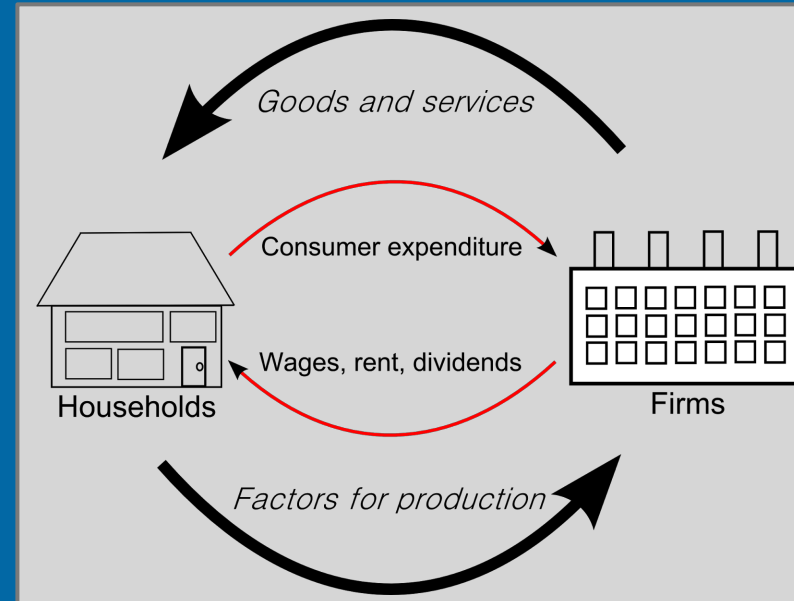
- Mikhail Gorbachev relinquished presidency
- Communism ended
- Fifteen new states emerged
- Russia was the largest

President Boris Yeltsin



No One at the Controls

- Free for all
- Wildly, sometimes criminally, privatized
- First Chechen War
- Yeltsin needed to gain control
 - 1) Stabilize economy
 - 2) Renew flow of goods
 - 3) Establish market economy



The Oil Industry

- Production and supply disrupted
 - 2000 uncoordinated organizations
 - Production down 50%

-Needed to privatize industry

...BUT HOW?

-Vagit Alekperov

Saw how Western companies worked



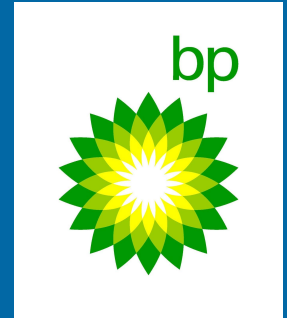
A New Approach

- Yeltsin's Decree 1403
 - Privatized industry
 - Created 3 Vertically integrated companies (Yukos, Lukoil, Surgut)
 - 3 Year transition period
 - Mafia Violence



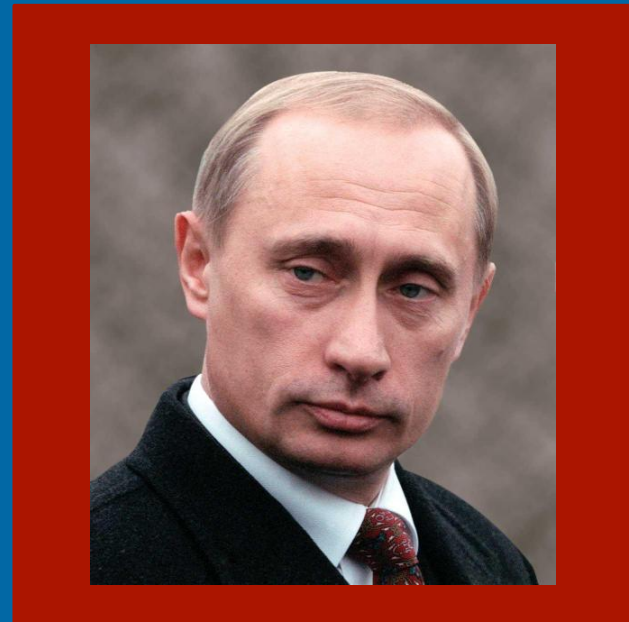
Opportunities And Changing Politics

- New technology
- Unstable political environment
- No foreigners
 - Few Western companies partnered up
 - Only BP in the heartland



- New President
 - Vladimir Putin

Arrested Khodorkovsky!



Stabilization

- Russia back as top oil producer
- Drastically different
 - Now privatized
 - Vertically integrated
 - Technologically integrated
- Operated by variety of companies and leaders



A global business

Now What?

-Debate about modernization and diversification

-Maintain output?

-offshore projects

-more expensive



-Higher expectation than reality

-Turned to other countries

The Caspian Derby





The Oil Kingdom

- Azerbaijan was key
- Power struggle
 - Key to recovery and growth

The Great Game?
Pipeline Politics?
or the Caspian Derby?



The Players

Russia

Turkey

United States

Iran

Britain

China



The Pawns...



Aliyev and the Deal

- Azerbaijan struggling
- Native Son return to power

Oil potential
Country



Established

Mission Impossible?



Which Way?

- Route for early oil
 - North through Russia
 - West into Georgia
- Offend no one
 - Insurance policy
 - Second Chechnya War



Main Pipeline

- Increased production
- Bigger pipeline but only one
Bosporus, Iran or BTC?
- Baku-Tbilisi-Ceyhan obstacles
 - Convince AIOC partners
 - Negotiate Multiparty agreements
 - Opposition of NGO



The Decision

-BTC built

1,099 miles, cross 1,500 rivers, mountains, earthquake fault zones

Finished in 4 years and 4 billion dollars

-Azerbaijan established





Kazakhstan



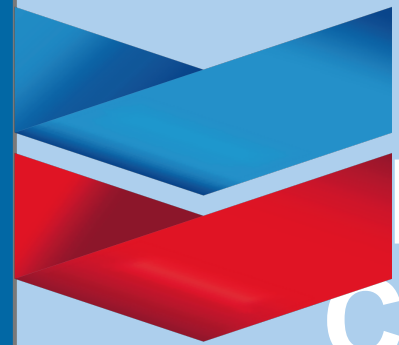
- 15.5 million people
- Steppe

Tengiz Oil Field



- 10 billion barrels of potential reserves
- "Sour gas"
- Location
- poor shape, billions of \$ required to invest in the field.

Chevron



Tengiz brings a partnership between Chevron & Kazakhstan

- 50-50 ownership
- 80-20 revenue (government --> 80)
- \$20 billion investment
 - 935-mile pipeline into Russian territory at the Black



Kashaghan Oil Field

- BIG
- discovered in 2000.
- recoverable reserves: 13 billion barrels!
- Challenges:
 - new tech
 - resources 2.5 miles under seabed
 - sour gas
 - long time to complete
 - lots of \$\$\$\$ (\$116 billion!!!!!! :0)

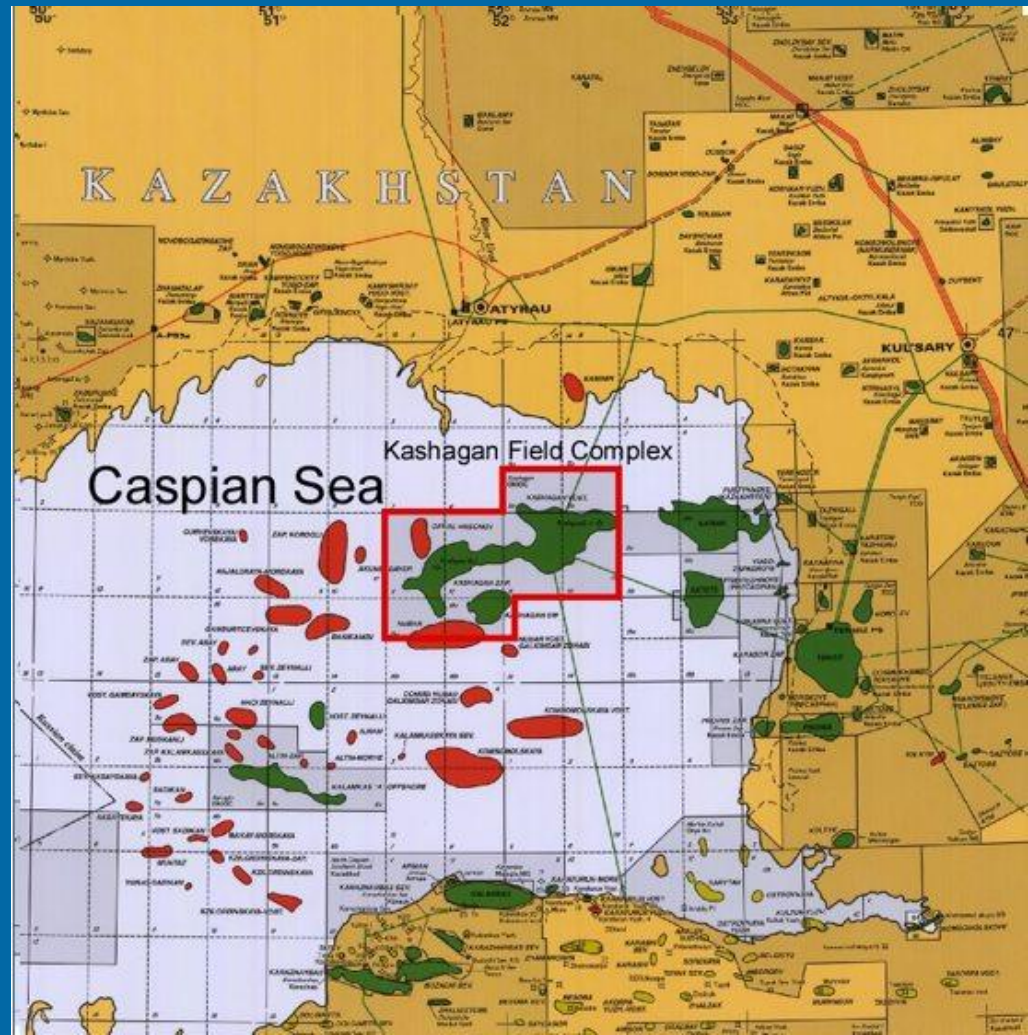


PHOTO: SHAMIL ZHUMATOV/REUTERS/CORBIS

Turkmenistan

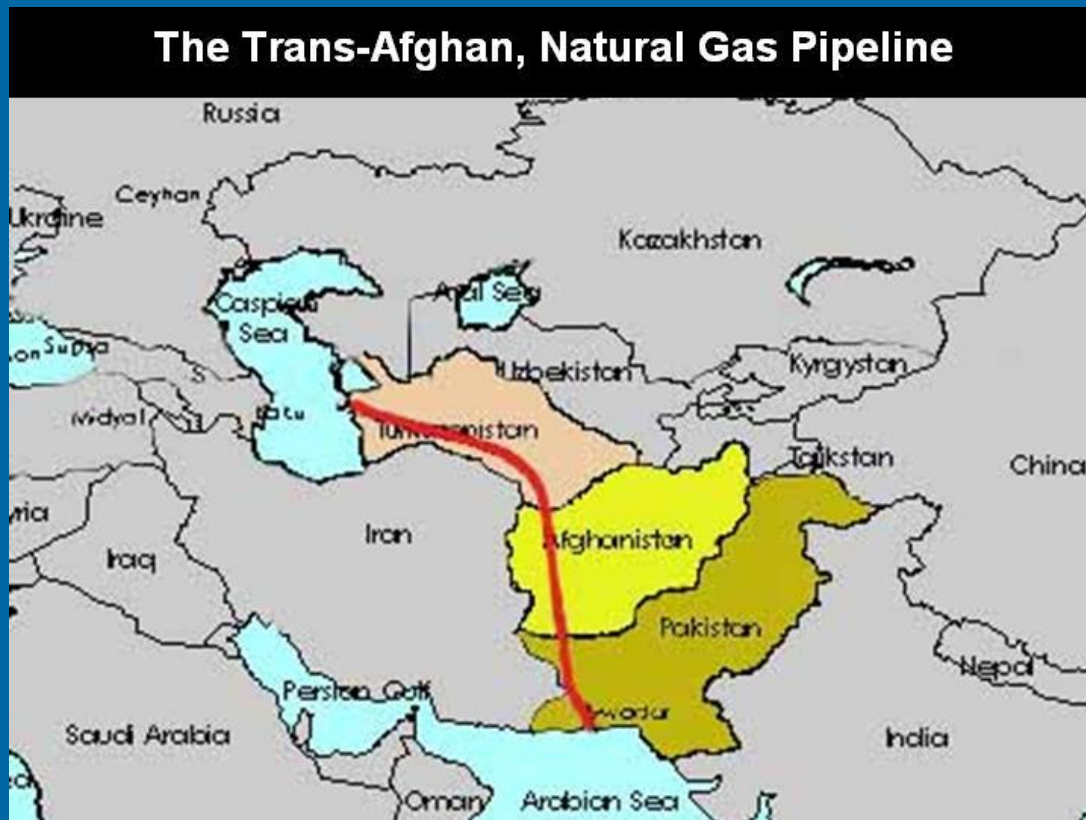


- 5 million people in 2012
- 4th largest holder of conventional natural gas resources in the world

TAP & CAP

Trans-Afghan Pipeline & Central Asia Oil Pipeline

- Unocal
- \$8 billion idea.
- Twin pipelines
- TAP: natural gas
- CAOP: Oil
- Afghanistan
 - Taliban



- who to negotiate with in Afghanistan?
- Taliban vs. Northern Alliance
- bin Laden financed Taliban and created Al Qaeda.
- Aug 1998: Suicide bombers



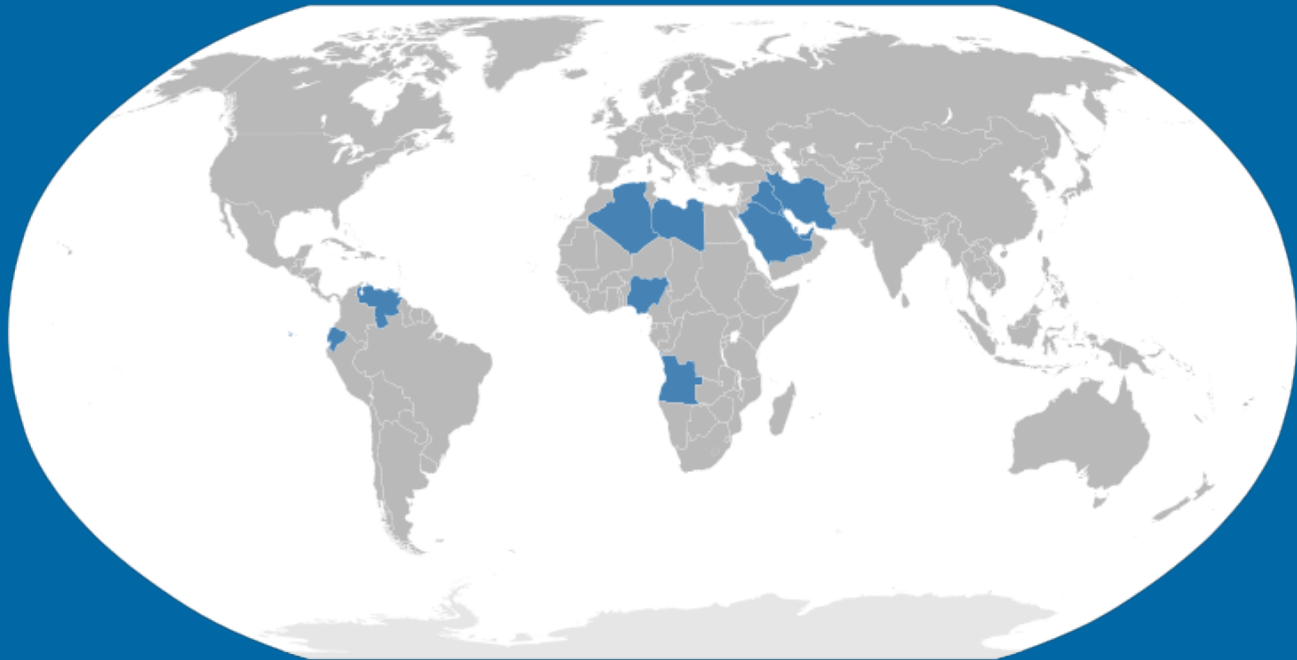
Financial Oil Crisis (July '97)

- Asia was the target market for TAP and CAOP
- High growth rates in Asia --> demand for energy and specifically for oil
- Thailand forced to float the rate of its currency which caused a chain reaction among other Asian countries.
- Overextension: A loan or extension of credit that is larger than what the borrower can repay.
- Would temporarily destroy & transform the oil industry in a way no one expected.

OPEC

Organization of Petroleum Exporting Countries

- Decides to raise production limit internationally by 2 million barrels per day.
- Allows all countries to produce at their maximum capacity.



Company mergers

"Unparalleled globalization and scale resulting from mergers would lead to superior returns & premier valuations."

-Doug Terreson

- Combine companies to gain efficiency & bring down costs.



John Browne, BP

Laid out rationale for a merger

- Mobil was premier choice
 - deal could not be done
 - Premium= percentage of share not given to Mobil
- Fuller, Amoco's CEO, approaches BP
- Merger set on 8/11/98
 - \$48 billion
 - deal closed on 12/31/98



BP acquires ARCO

- Poor shape due to Jakarta Syndrome of '99
- Bad timing for ARCO
- Major asset was North Slope in Alaska
 - Largest oil field ever discovered in North America
- Purchase of ARCO for \$26.8 billion announced on April 1st 1999





- Lee Raymond
 - With Exxon since '63
 - President in 1987
 - CEO in 1993
 - Who to merge with....????
- Nov 30th 1999 Exxon owns 80% of the company, Mobil gets 20%; Mobil receives 20% premium on their stock.



FTC brings the hammer down

- Exxon & Mobil had to divest 2,431 gas stations and 1 oil refinery in California for merger to take place.
- ARCO absorption would give BP too much power
 - North Slope not included in deal.





Chevron & Texaco
major
merge on Oct 2000
in Oklahoma

Last ones

Standing

1981.

Announced that it would sell off
company in 1998.

ConocoPhillips

Phillips Petroleum: mini-
company headquartered

Conoco: owned
company) since



- Prior to mergers, Shell was largest oil company in the US.
 - owned by Royal Dutch and Shell Transport & Trading

Kazakhstan, Turkmenistan, and status of the TAP & CAP today

- 2.8 million barrels of oil
- “More than a decade later, Turkmenistan is still negotiating with Western companies over the development of its natural gas resources. Pakistan is struggling with a domestic Taliban insurgency. And NATO forces are fighting in Afghanistan.”



- Deal signed in 2002 by leaders of Turkmenistan, Afghanistan, and Pakistan.
- 2012: Afghanistan approves pipeline agreement
- operational by 2013

The "petro-state"

- Any country that produces oil as their main export.
 - 50% government revenue
- When the price of oil is up, economy does well
 - Social programs
 - Better standard of living
- When price of oil is down, economy suffers
 - Spending snowballs
 - Economy suffers



Venezuela and Oil

- Before oil, government revenue was from agricultural goods
- Struck oil in 1922
 - Increase of wealth
 - Victim of the "resource curse"
- Spending could not stop



Carlos Perez



- Elected president in 1970
 - Oil revenues at high point
- PDVSA created in 1976
 - Petroleos de Venezuela, S.A.
 - Professionally managed, state owned
- Huge revenues, determined to spend
 - Perez falls into this trap
- Price of oil falls in 1979
 - Leads to decreased revenues
- Perez re-elected in 1989
 - Brings reforms
 - Cuts spending, cuts regulations, and adds social

Hugo Chavez

- Ambitious military leader determined to lead Venezuela
 - Extreme left wing
- Leads coup against Perez
 - Fails but becomes hero in the process
- Perez impeached for corruption
- Caldera takes over



Caldera and La Apertura



- Caldera replaces Perez
- Economy down
 - Increased output = increased revenue
 - Oil there, technology not
- Luis Giusti
 - President of PDVSA
 - Campaigned for La Apertura
 - Brings in outsiders for investment
 - Venezuelan government gets a %
- Caldera accepts this plan

Chavez as president



- Elected over Caldera(1998)
 - Unpopular for La Apertura
- Befriends Fidel Castro
 - Oil cheap for Cuba
- No set political party
- Writes new constitution
 - Changes so more power in his hands
 - PDVSA completely ran by government
 - Chavez has control of money
- When oil price is high, gives Chavez power
 - Asian economic recovery
 - \$10 to \$25 a barrel

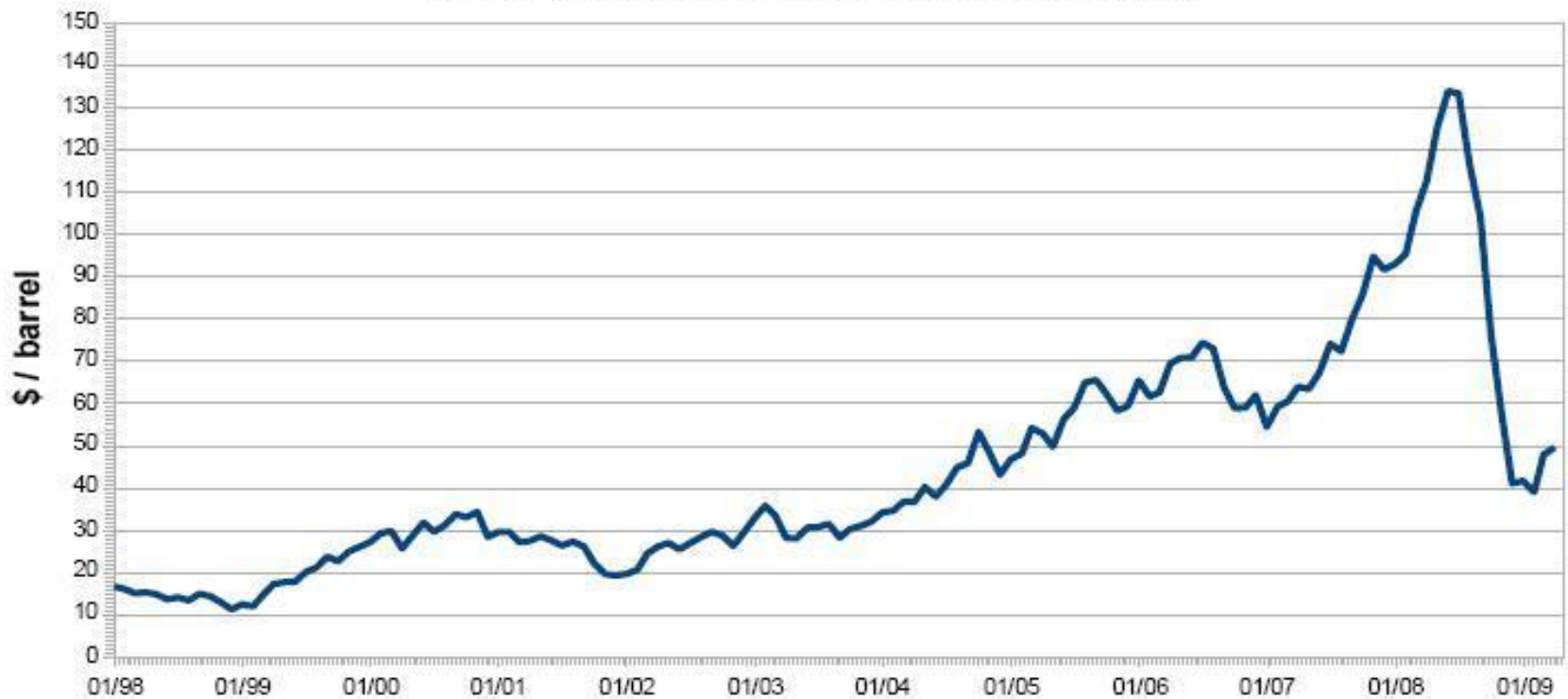
Aggregate Disruption

- The series of events that increased oil price
 - All time high of \$147/barrel
- These events include:
 - Terrorist attack on 9/11
 - Chavez and the struggle for power in Venezuela
 - The violence in Nigeria over oil
 - Hurricane Katrina
 - War in Iraq
- These events alone would not cause much harm to the oil market, but together will cause a major disruption

Price of Oil

Crude Oil Prices 1998 – 2009

(West Texas Intermediate – monthly averages)



9/11

- 2001
- Showed the dark side of globalization
 - Ease of transportation
 - Abundance of information
- Oil consumption/imports - Security Risk
 - Movement away from oil
- Tension between US and Saudi Arabia
 - 15 of 19



di Arabia

Chavez and Venezuela



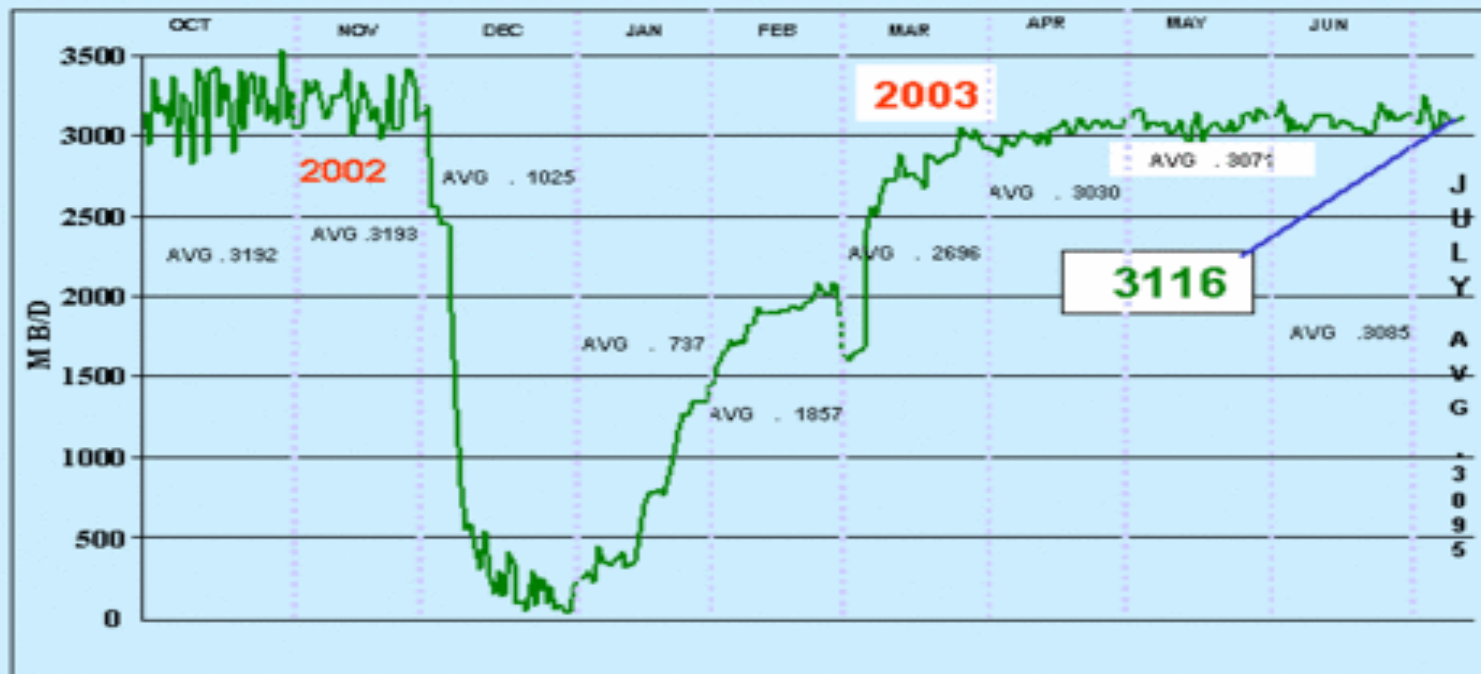
- Continues gaining power
 - Media controls
 - Bolivarian circles - militias
 - Extended state power
 - PDVSA professionalism down
- Opposition rising - 2000
 - Mass march
 - People killed, seen on TV
 - Chavez arrested, put back in power
- One party system - 2002
 - Nation wide strike occurs

Chavez and Venezuela cont.

- PDVSA shuts down
 - Global oil shortage
 - Chavez fires 20,000 employees
 - Hires un-experienced workers to fill in
 - Does not gain pre-strike production levels

Venezuelan Oil Production

Oil Production



Note: Production figures by 07/08/2003 do not include the 146 million b/d in the Oriente division, the 74.6 million b/d from BITOR (Orimulsion).

Including these, total production reaches 3.338,9 million b/d

Nigeria



- Very divided
 - 250 ethnic groups
 - Weak institutions
 - Violent gangs and militias
- Struggle control of oil
- Leader - General Sani Abacha (1993)
- Bunkering
 - Stealing of oil, militias main culprits
 - Gained more money and more power
- Violence increases, production decreases
 - Oil rig crews evacuated
 - Adds to aggregate disruption

Hurricane Katrina

- 2005
- 115/3000 platforms destroyed
 - 52 damaged
- 535 segments of oil pipeline damaged
- Knocked out 29% of production and 30% of refining
- 2.7 million people without electricity
 - No pumps to move oil
 - Prices soared



War in Iraq

- 2003
- An "Oil Country"
- Reasons
 - 9/11, WMD's, Saddam's ruthless rule, democratic Iraq reliable oil provider
- Oil production had to continue during and after war
 - 95% of government revenue
 - Secure oil ministry
- Post war underestimated
 - De-Baathification
 - Change lifestyle of 35 years
 - Needed more people
 - Iraq not ideal for democracy



War in Iraq

- Oil industry in shambles
 - Years of neglect and lack of investment
 - Equipment dated to 1950's
 - Oil police dismantled, open for pillage
- Looting
 - recurring epidemic
 - set back even further
- Liberators to Occupiers
 - Unemployment at 60%
 - Spring 2004 - war against occupation
- Lack of oil production
 - Adds to aggregate disruption

The Demand Shock

Oil was now **ESSENTIAL** for financial asset to countries

Electronic Trading Platform

More and more \$\$ into the Oil market

-drove prices up

-increased prices = increased hardships

World oil demand = was decreasing

Supply = was increasing



Does Price Actually Matter?

YES

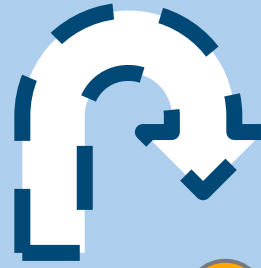
- Impact would be felt, but not immediately
- higher increase...
- boycott by driving less
- fuel efficient cars

NO

- It would continue to go up no matter what
- steady prices
- greedy oil companies for gouging public
- it was up to government
- "New Era"

**some even thought high prices showed positive future

The Great Recession

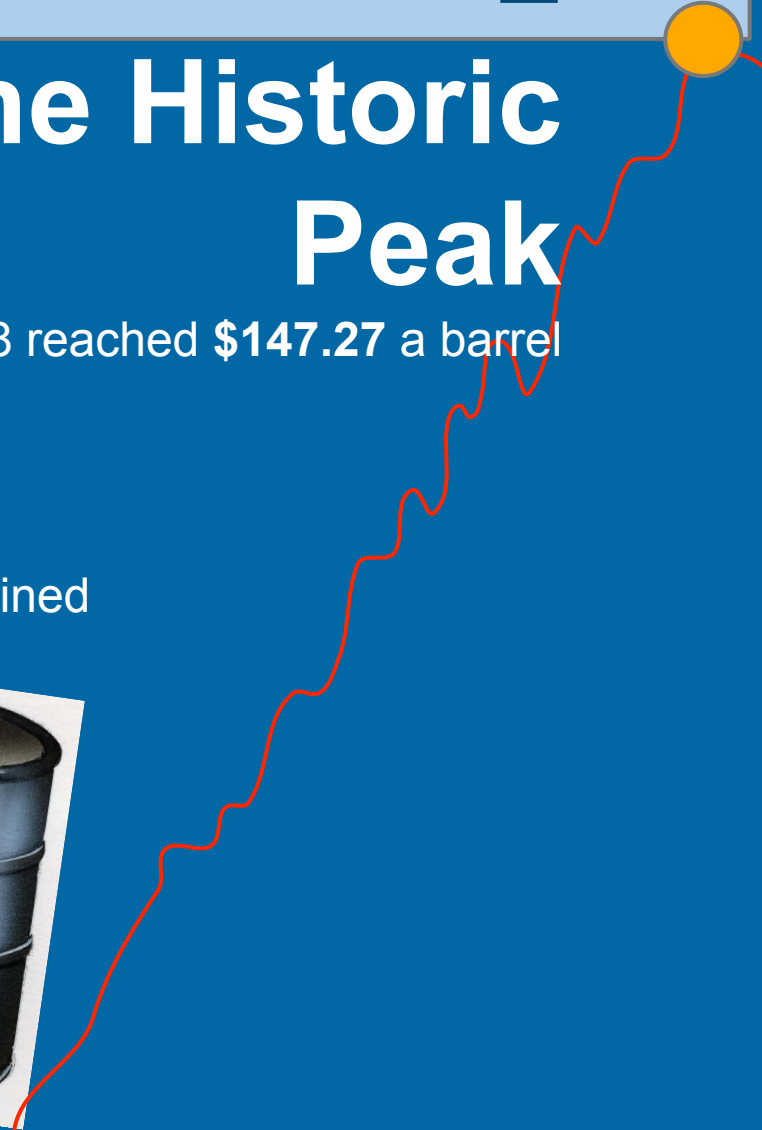
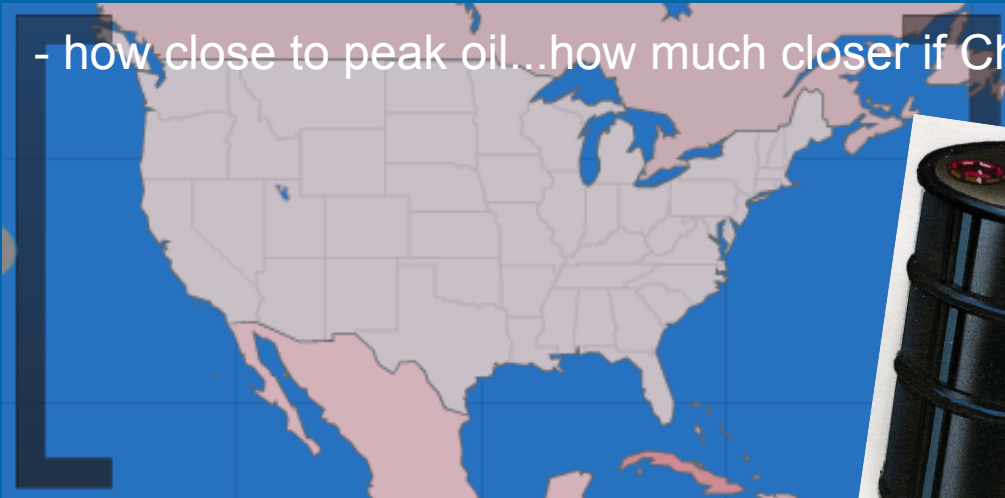


The Historic Peak

July 11, 2008 reached \$147.27 a barrel

Peak oil

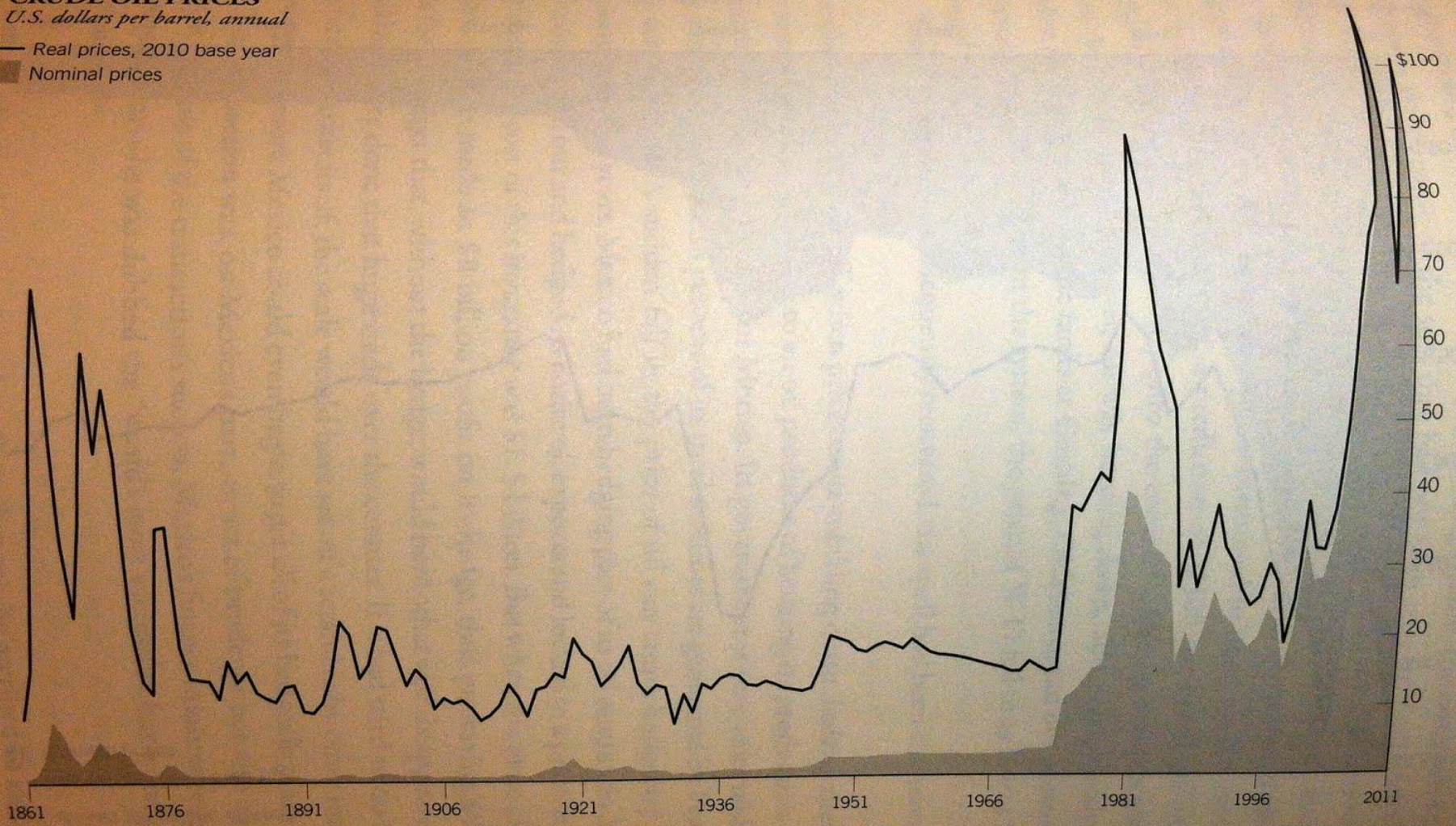
- how close to peak oil...how much closer if China joined



CRUDE OIL PRICES

U.S. dollars per barrel, annual

- Real prices, 2010 base year
- Nominal prices



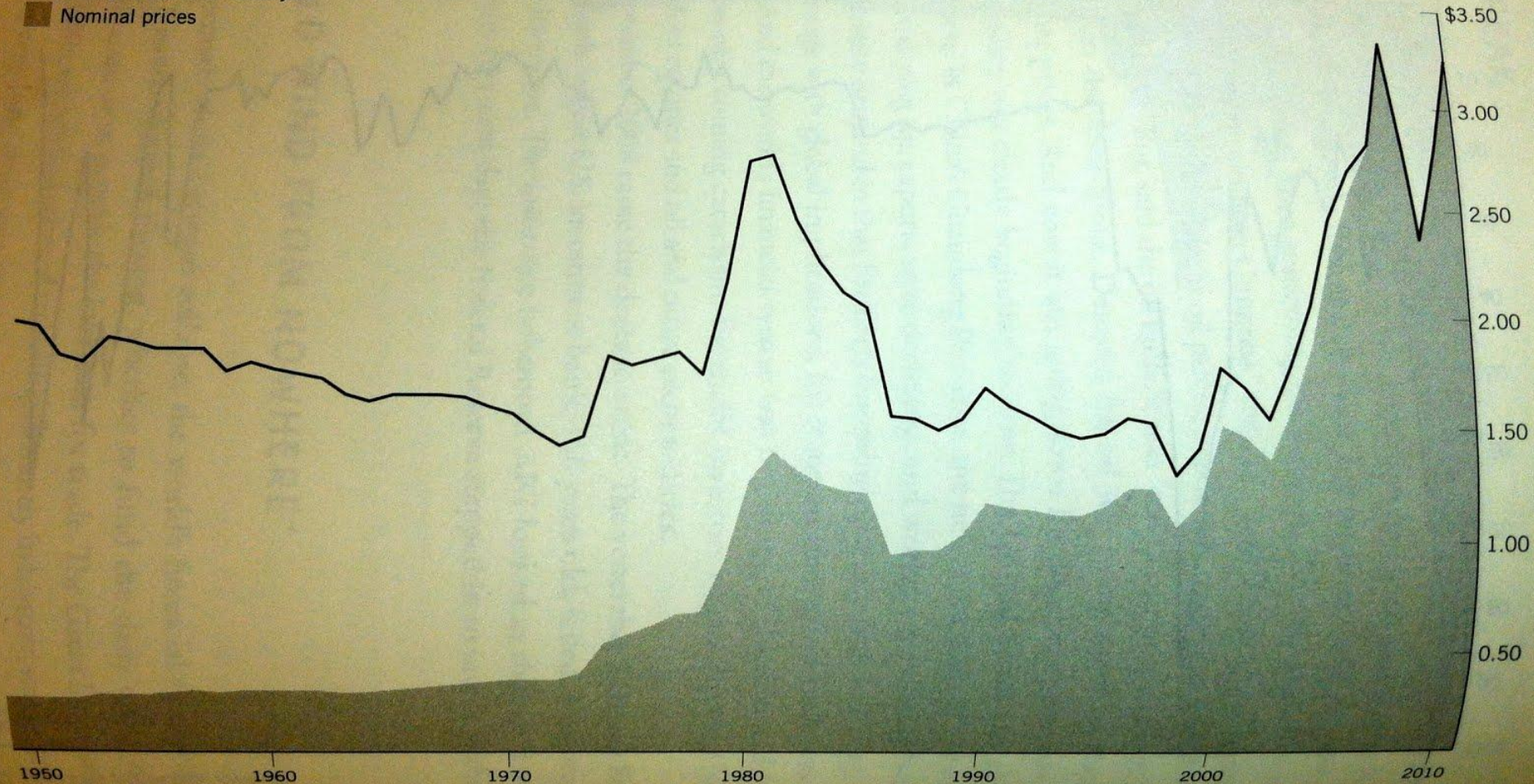
crude prices through March 2011.

Source: IHS CERA

U.S. GASOLINE PRICES

U.S. dollars per gallon, annual

- Real prices, 2010 base year
- Nominal prices



*Leaded Regular Prices used through 1975. Unleaded Regular prices used from 1976–March 2011.

Source: IHS CERA



CHINA



- from **MINOR** to **MAJOR** player in oil
- 1.3 Billion people
- second largest economy
- second largest oil consumer in the world
- Oil define worlds economy
- new to oil



Poor in Oil

- After Second World War...
oil is essential for modern economy
- Speculators said China would never be able to compete
no mass production
- Got help from
Soviet Union "big brother"



Daqing: The Great Celebration



- Iron Man Wang
- self sufficient in mass production of oil
no agreement with Soviet Union...cut ties

FROM MAO TO HU JINTAO **death secured Deng Xiaoping as leader



**crucial to opening Bamboo Curtain

Workshop of the World

- any workshop needs energy to run
- fossil fuels

...used up too much

- petroleum production not meeting rising domestic demand

- from EXPORT to IMPORT

"Go Out" Policy



- Reliant & Dependent on World Oil
- Running out of Energy



- China needed more oil...go get more oil
- Russian- Chinese border pipelines



** This opened up a can of worms
battle between nations

China in the **Fast Lane**

increasingly **LARGER** companies

increasingly **IMPORTANT** participant of world oil

increasingly **IMPORTANT** consumer of oil

increasingly **RELIANT** on world market

depended on coal

...simply running out

...reach peak oil??

"Go Out"...on Wheels!

- could become world's largest automobile market?
- autocentric society
- little to no cars

- push aside bikes
& public transit
- car sales increasing

negatives

(the price of success)

- delays
- growing population
- efficiency
- air pollution (coal)
- congestion-9mph

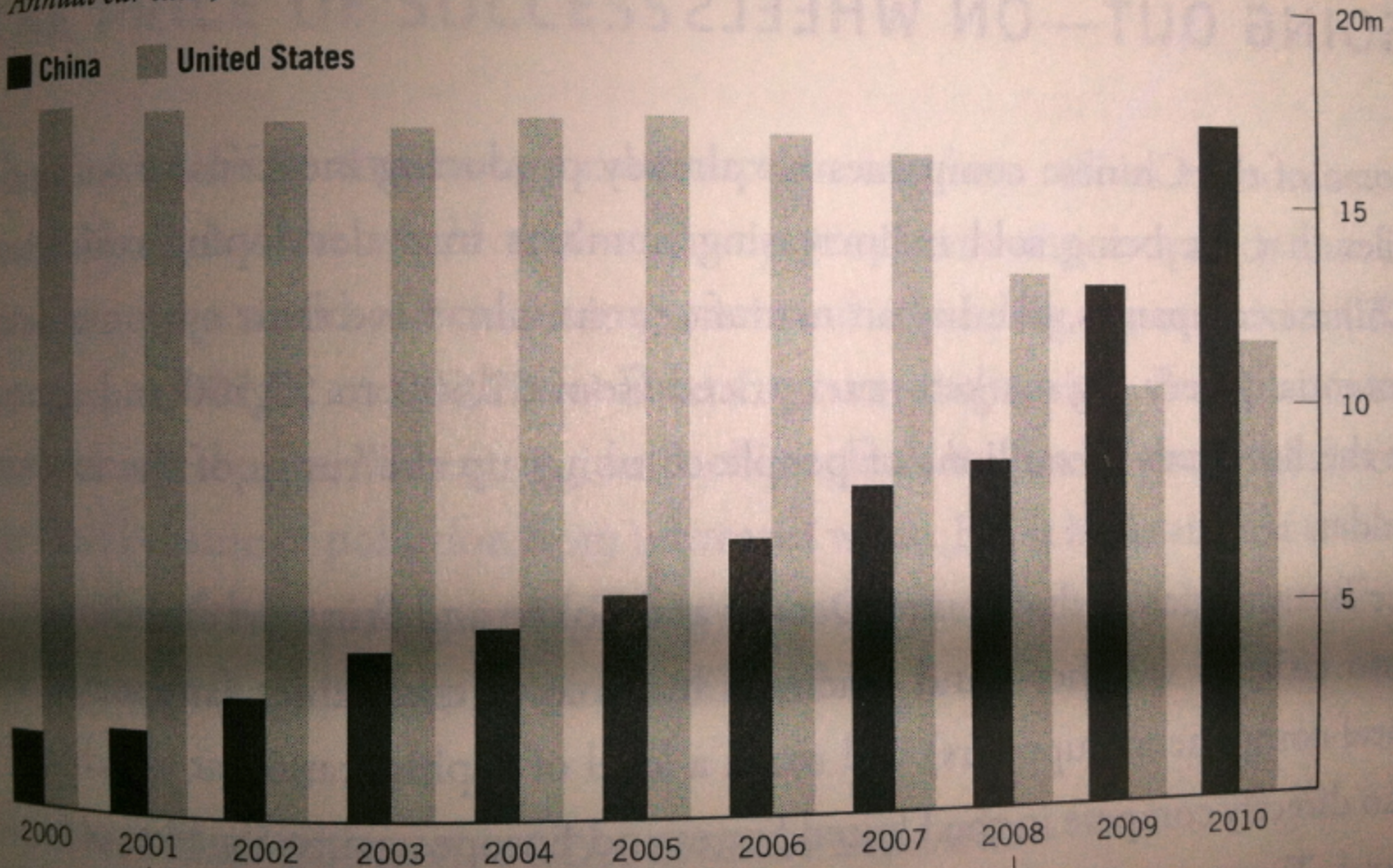
Car Sales in US & China

AUTO NATIONS: U.S. AND CHINA

Annual car sales, in millions

■ China

■ United States



China joins WTO

Great Recession

Source: IHS Global Insight



- electricity demand is growing
- has become LESS energy efficient
needs to be top priority
- possibility to lead world oil

US + CHINA = 35% of total world petroleum
consumption



Second Inauguration (1/21/13)

The path towards

sustainable energy sources will be long and sometimes difficult. But America cannot resist this transition; we must lead it. We cannot cede to other nations the technology that will power new jobs and new industries – we must claim its promise. That's how we will maintain our economic vitality and our national treasure – our forests and waterways; our croplands and snowcapped peaks. That is how we will preserve our planet, commanded to our care by God. That's what will lend meaning to the creed our fathers once declared.

The Cookie Crisis



did

you

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