

# The Oil Drum

DISCUSSIONS ABOUT ENERGY AND OUR FUTURE



## Peak Oil Overview - March '08

Gail Tverberg

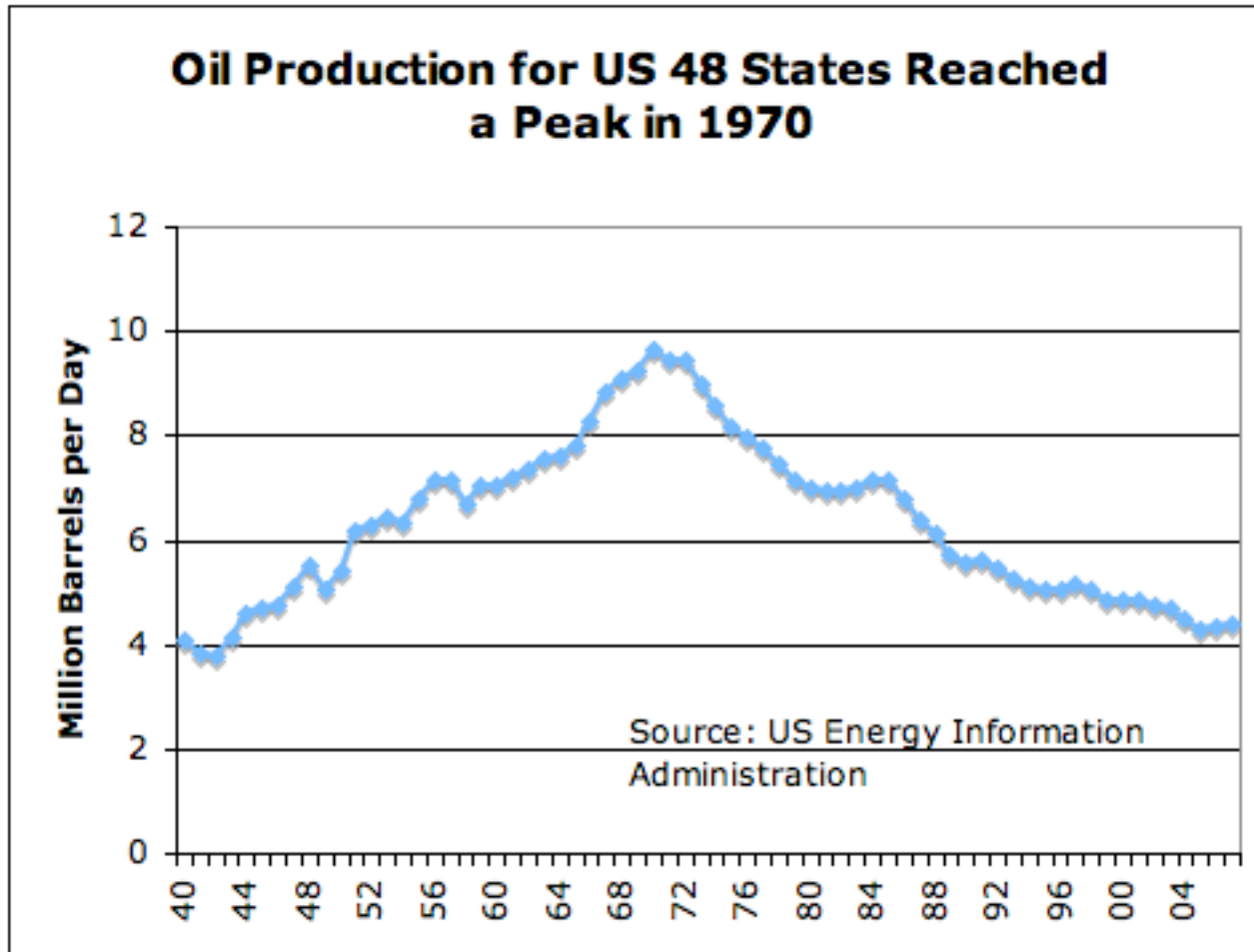
[TheOilDrum.com](http://TheOilDrum.com)

# Outline

- The US oil story
- The world oil story
- Five myths

# The US Oil Story

# The US Oil Story



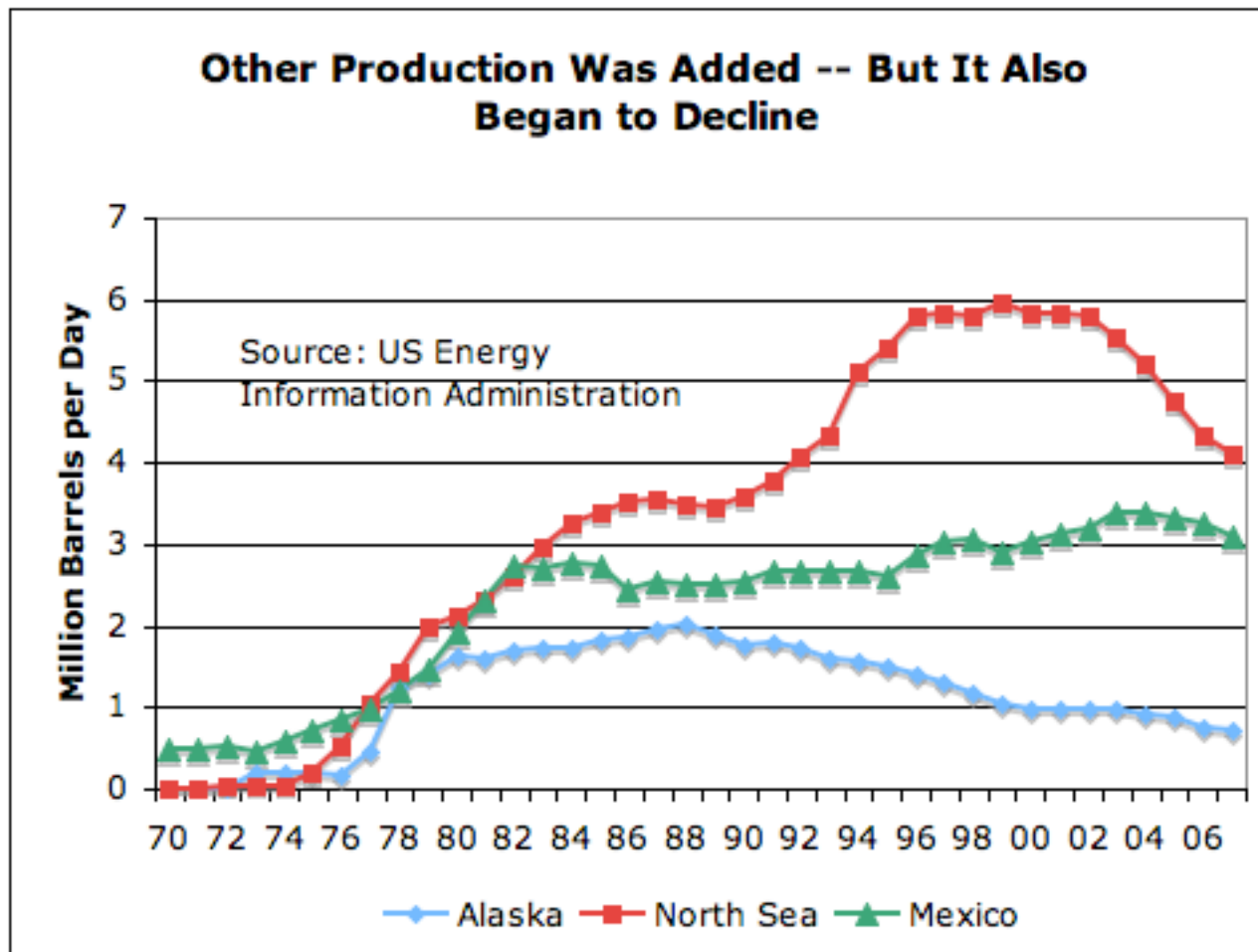
# US Peak in 1970

- US had been world's largest producer
- Peak came as a surprise to most
  - Had been predicted by Hubbert in 1956
- Precipitated a rush to find oil elsewhere
  - Ramp up Saudi and Mexico production
  - New production in Alaska and North Sea

# Saudi increases were quickest

- Saudi oil company was run by Americans
  - Able to ramp up quickly
- OPEC embargo in 1973, however
  - Oil shortages
  - Huge oil price run-ups
  - Lead to major recession 1973 - 75

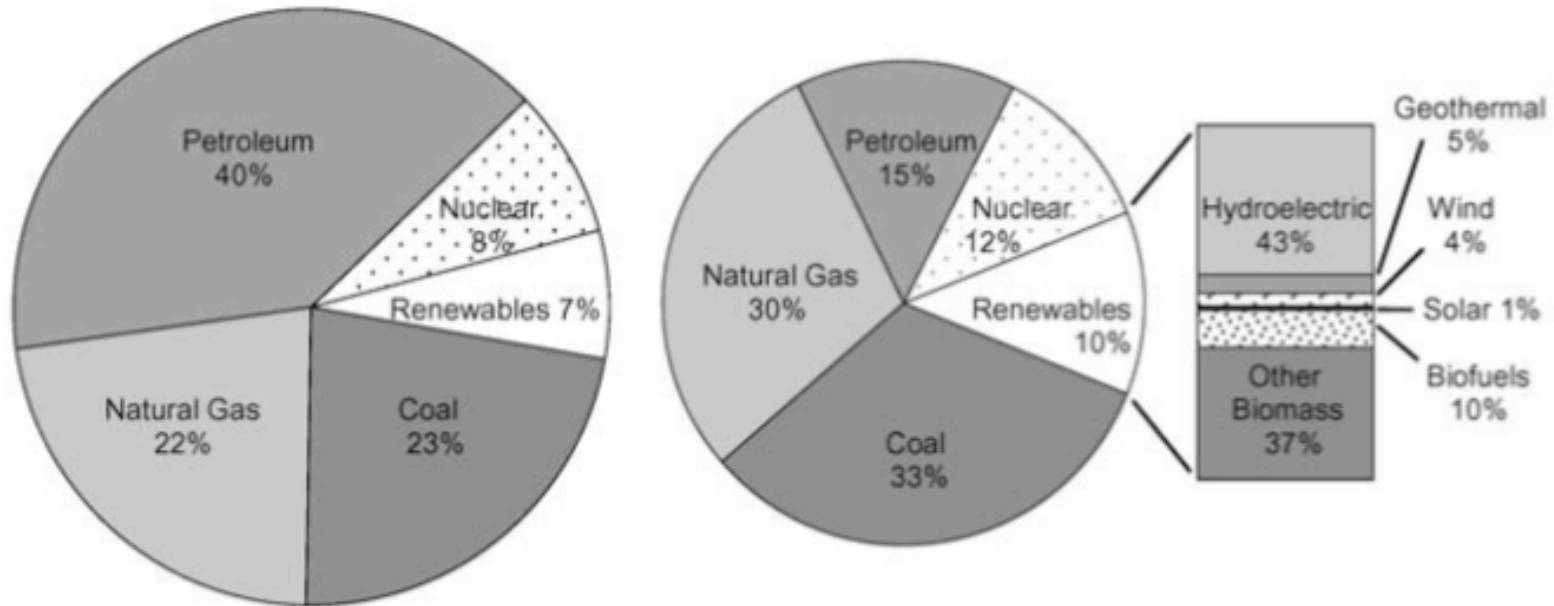
# Other oil online by late 1970s



# Now the US is a major importer of oil and tiny user of newer renewables

Chart 7-1 U.S. Energy Consumption and Production (2006)

Fossil fuels accounted for the majority of U.S. energy consumption and production in 2006.



Total Consumption: 100 Quadrillion Btus

Total Production: 71 Quadrillion Btus

Source: Department of Energy (Energy Information Administration).

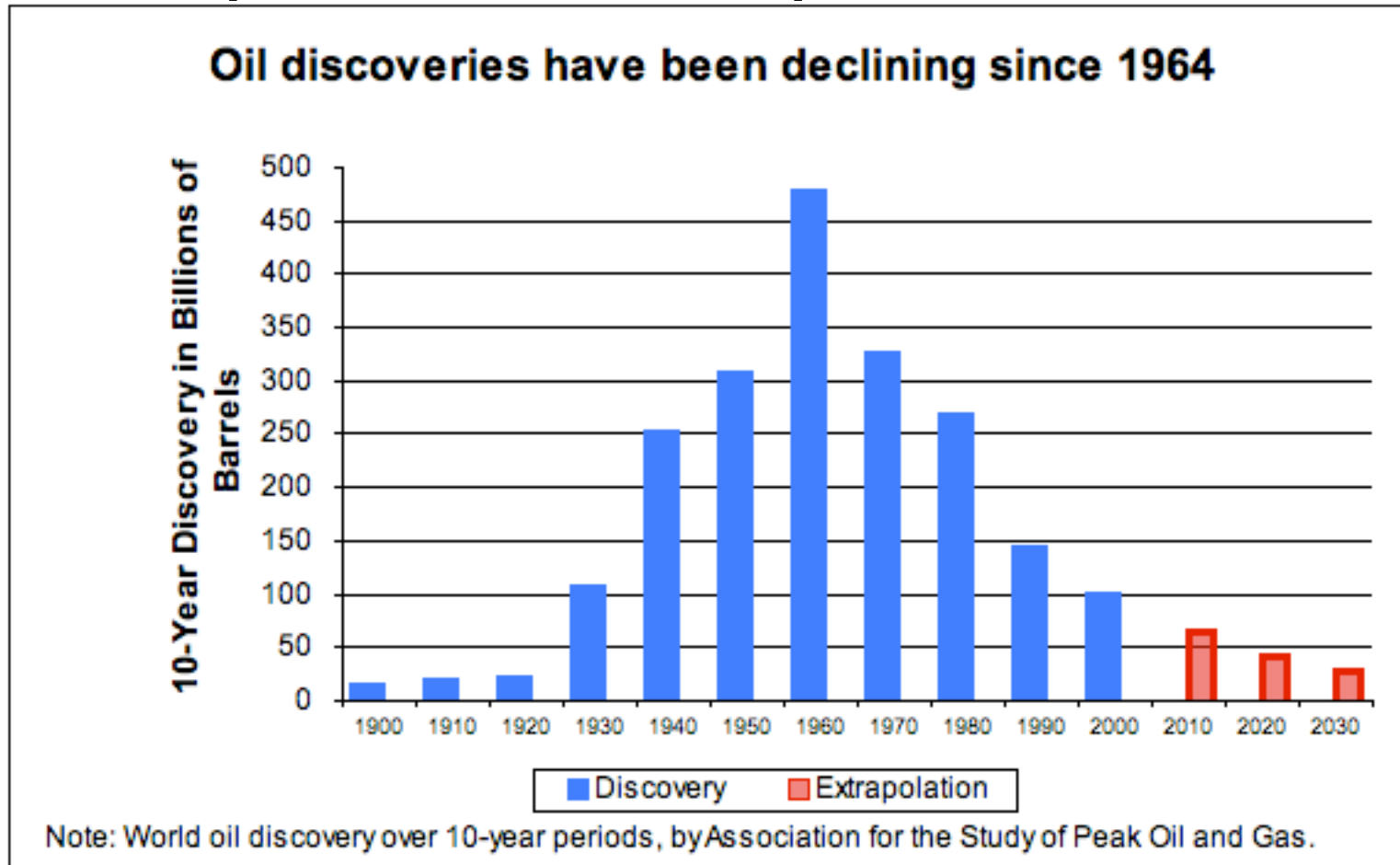


## Reading the slide:

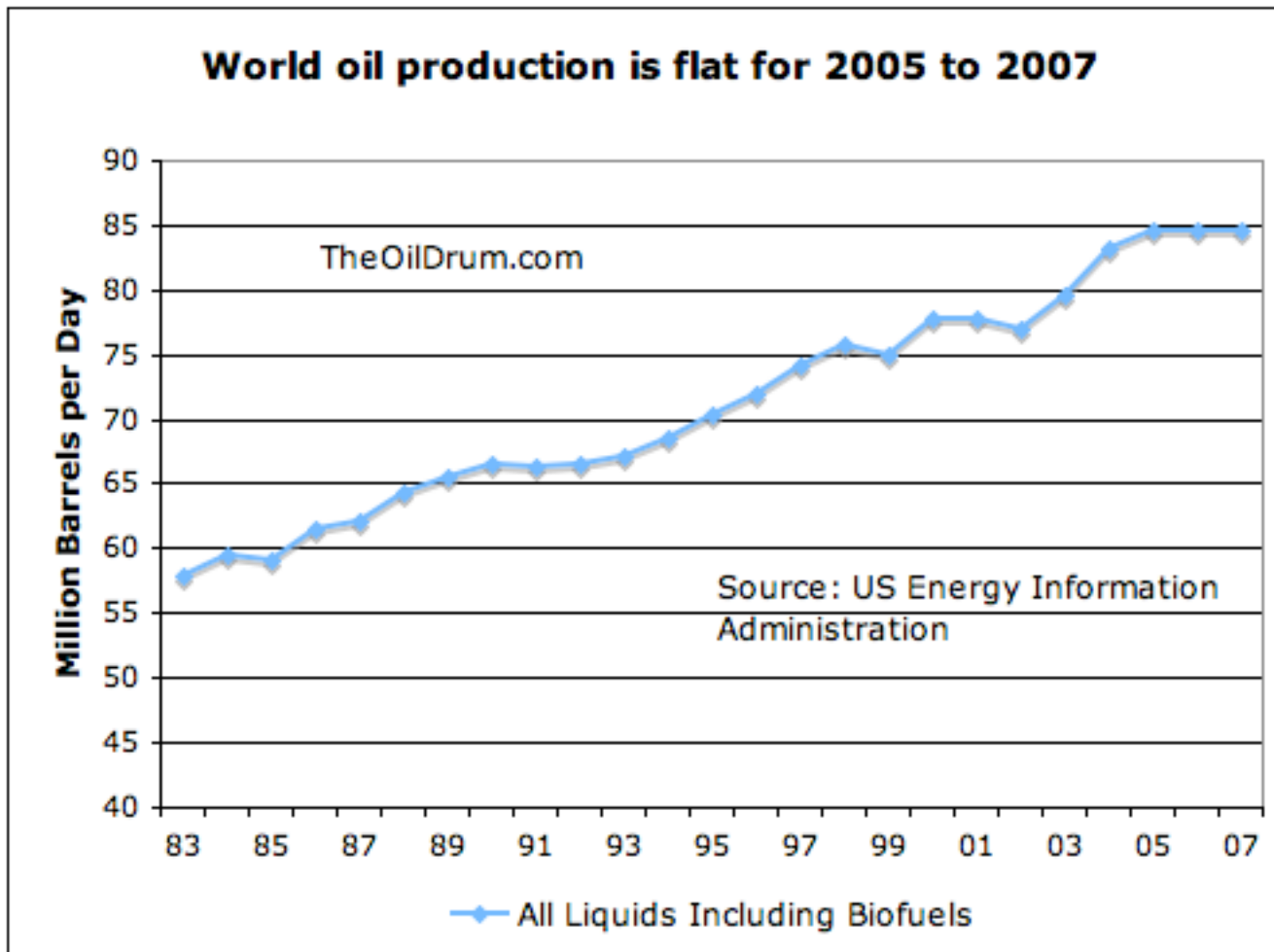
- About two thirds of oil is imported
- Biofuels make up about 1.0% of energy production - a little less of use
- Wind comprises 0.4% of energy production
- Solar comprises 0.1% of energy production

# The World Oil Story

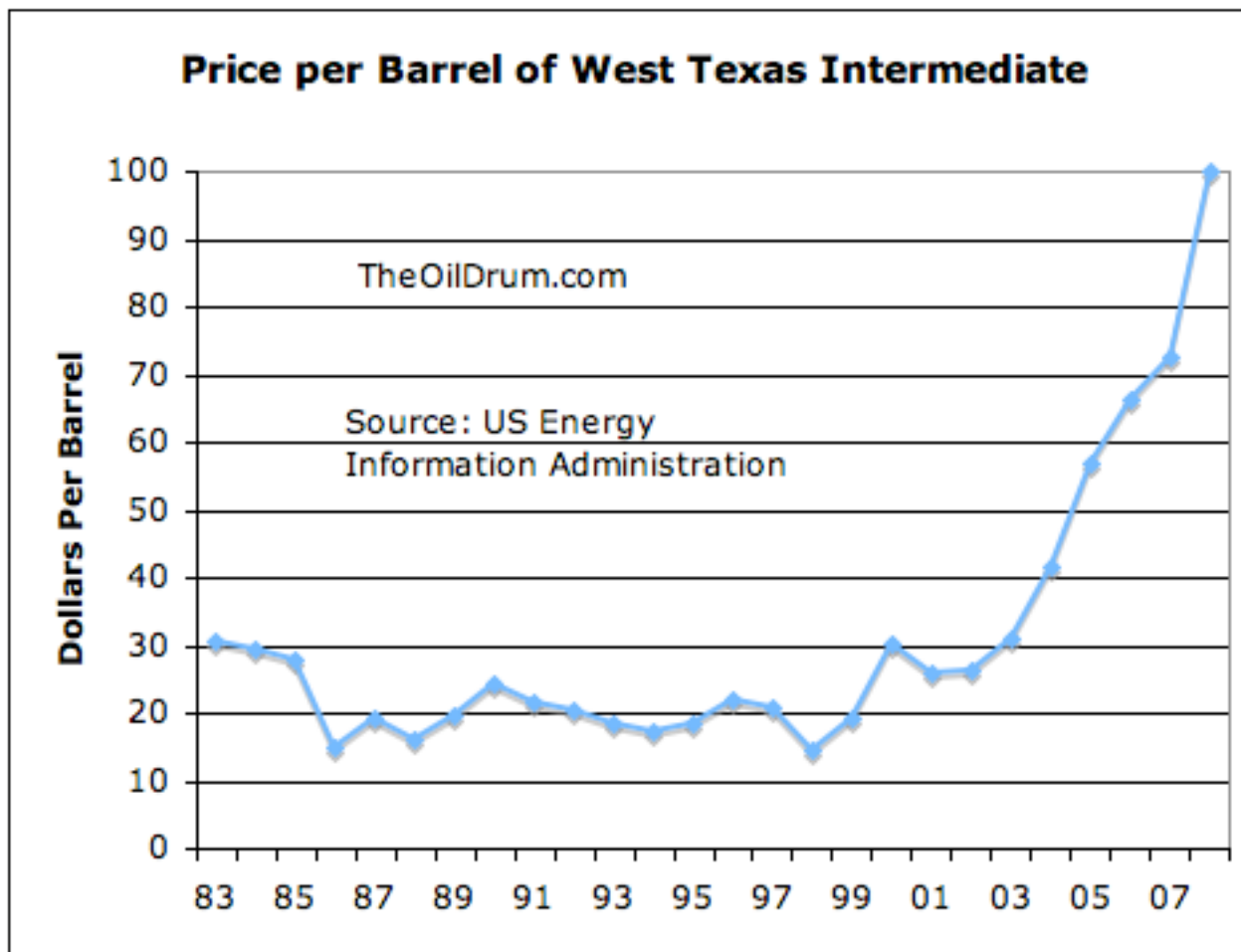
# World Oil: Discoveries follow same pattern as US production



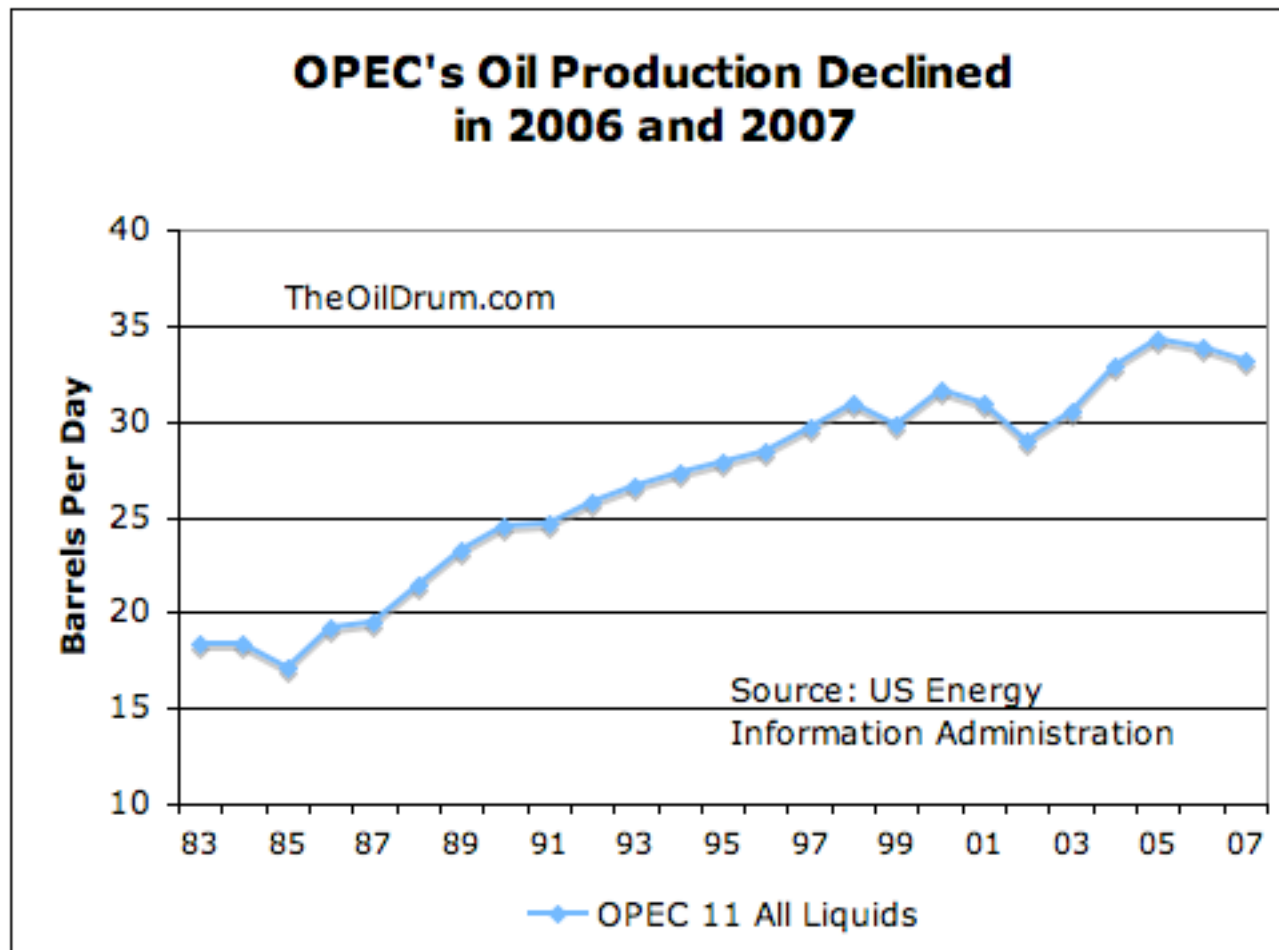
# World oil production has stalled



# And Prices are Spiking



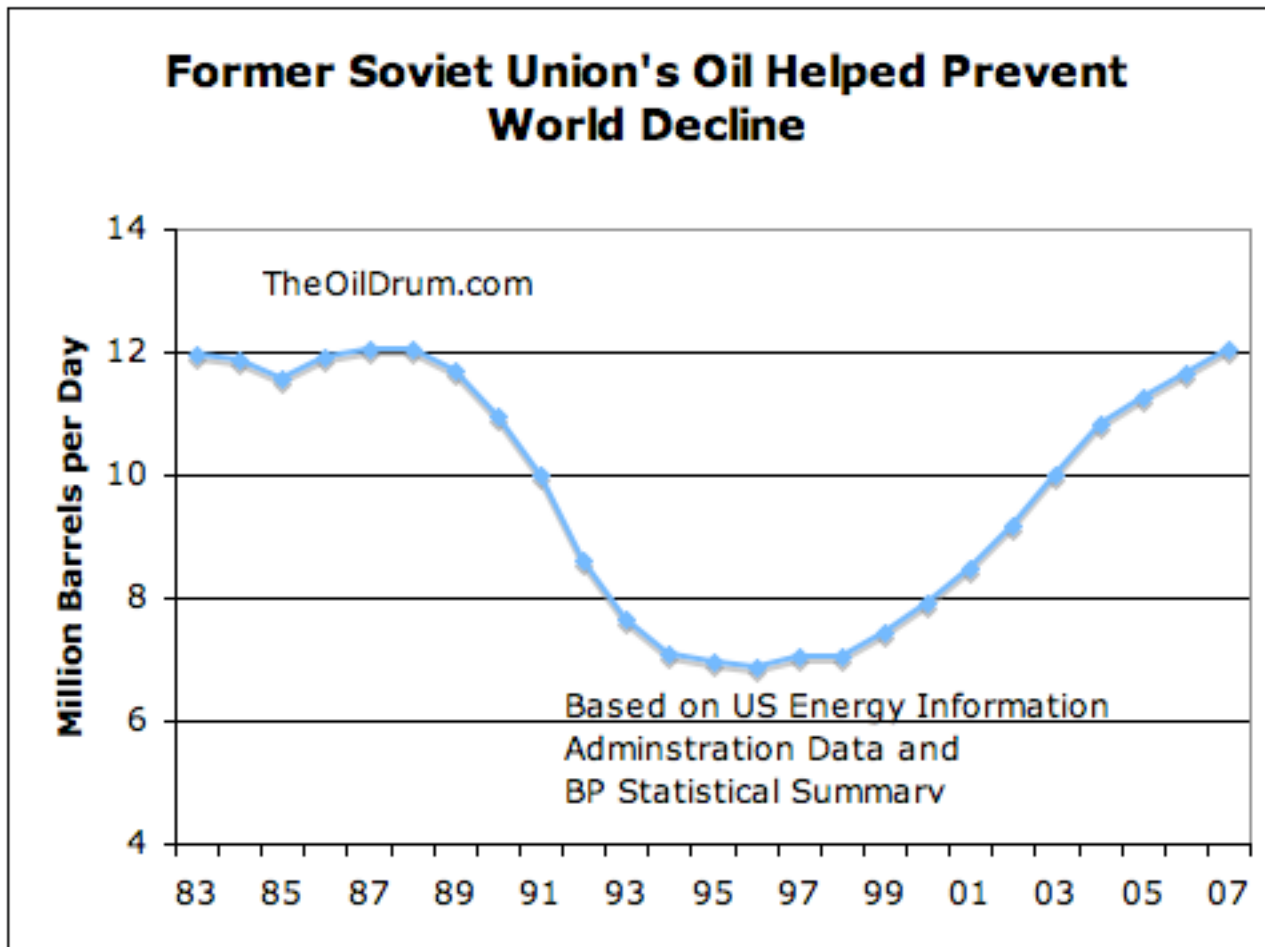
OPEC, particularly Saudi Arabia, has had reduced oil production recently



# OPEC's true reserves are unknown

- Published reserves are unaudited
- Last Saudi reserve while US involved was 110 Gb in 1979 (perhaps 168 at “expected”)
  - Production to date 81 Gb, implying 29 to 87 Gb remaining; Saudi claims 264 Gb remaining
- Kuwait published 96.5 Gb - Audit 24Gb
- GW Bush says regarding asking Saudi Arabia for more oil
  - “It is hard to ask them to do something they may not be able to do.”

# Fortunately, FSU production has increased recently

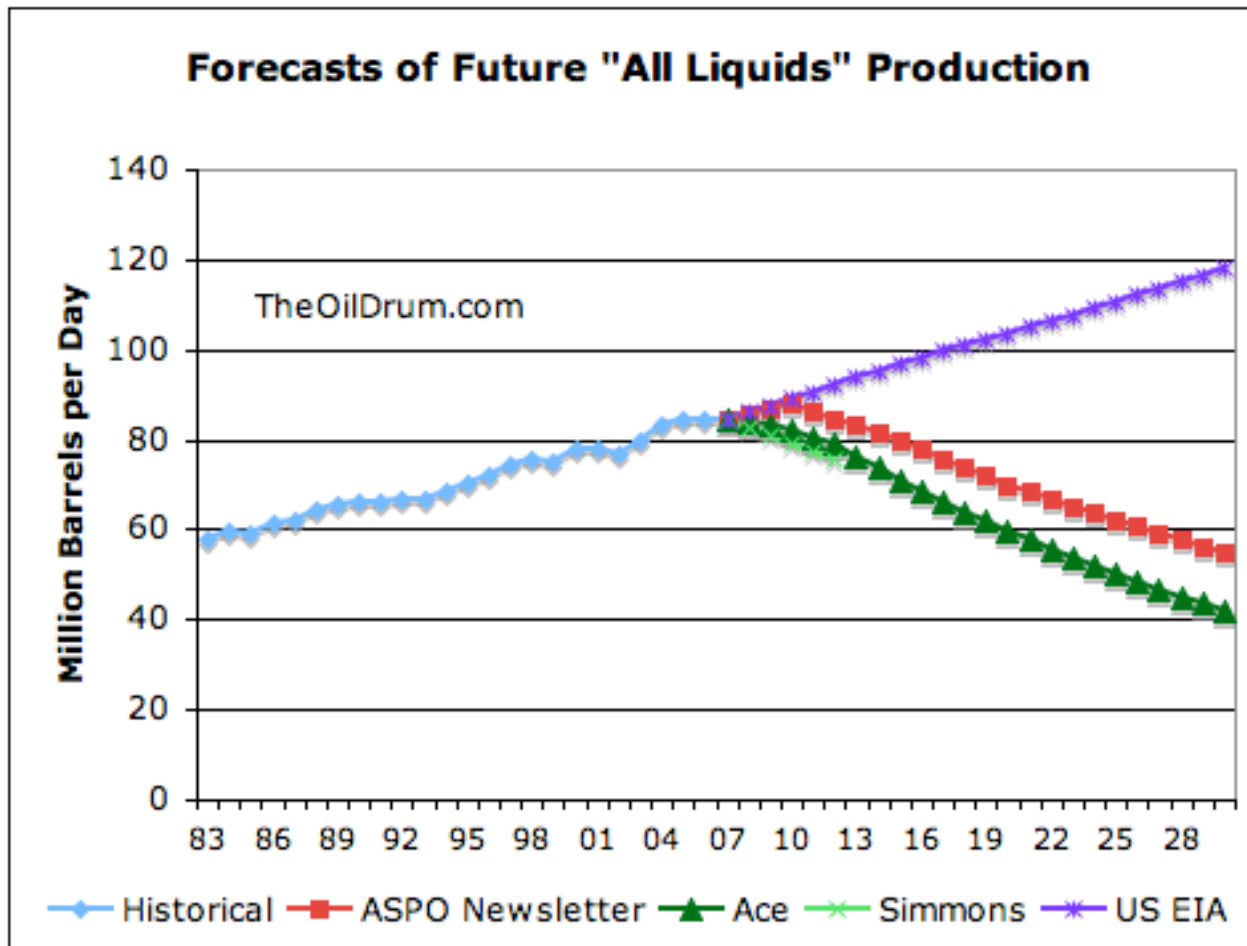




# Production going forward is uncertain

- OPEC refuses to increase quotas
- Numerous reports say Russian production is likely to begin decreasing soon
- Little hope for US, North Sea, Mexico
- Canadian oil sands contribution is very small
- Recent discoveries have been small, relative to what is needed
- New production techniques can lead to sudden drop-offs
  - Followed by small dribble for years from EOR

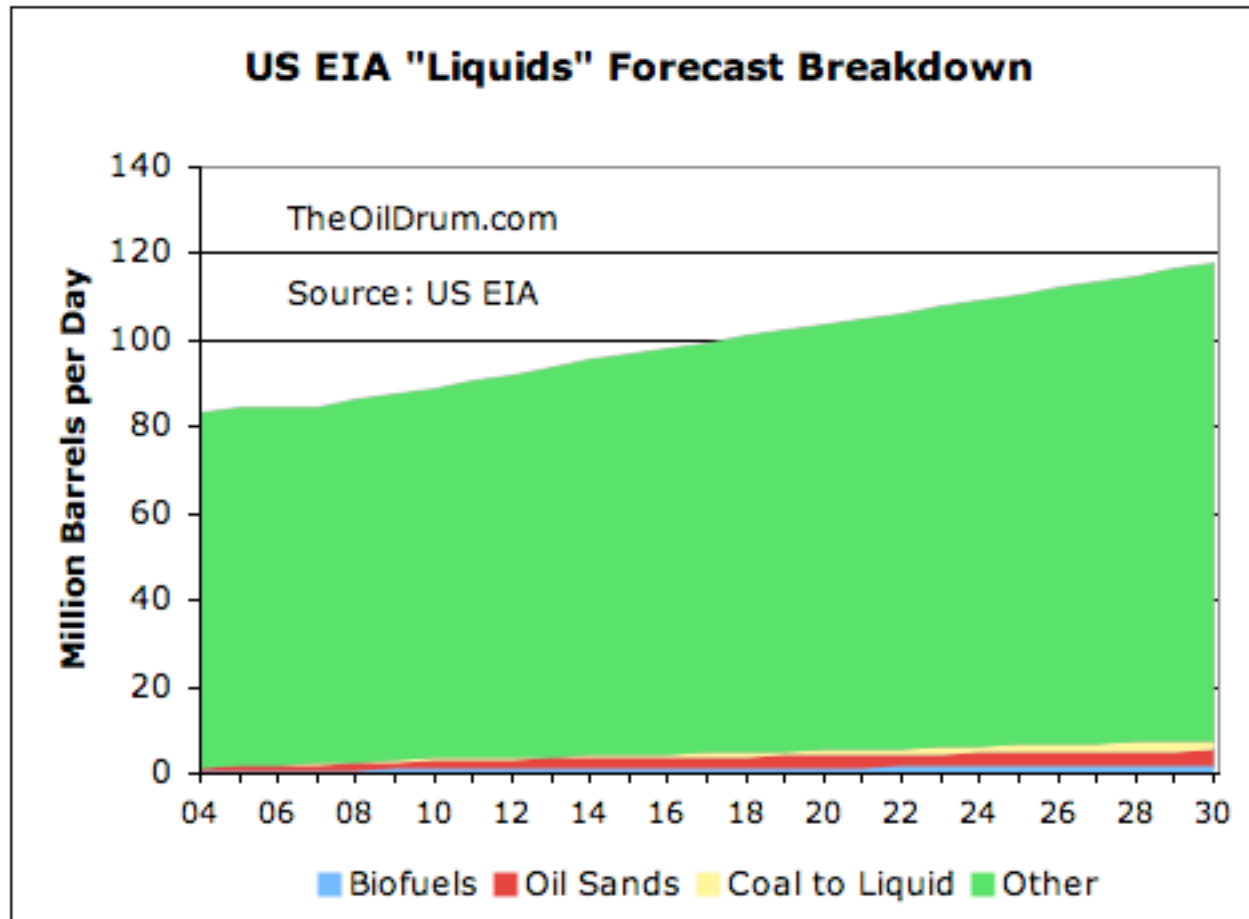
# Projections of Future Production Vary Widely



# World “All Liquids” Forecasts

- “All Liquids” - Includes biofuels and “coal to liquid” fuels
- US EIA forecast - Based solely on demand
- ASPO Newsletter - Assoc. for the Study of Peak Oil and Gas Ireland, March ‘08
- “Ace”- Tony Eriksen, on The Oil Drum
- Simmons - Matt Simmons, recent interview on [evworld.com](http://evworld.com)

# EIA expects biofuels, CTL, and oil sands to remain small



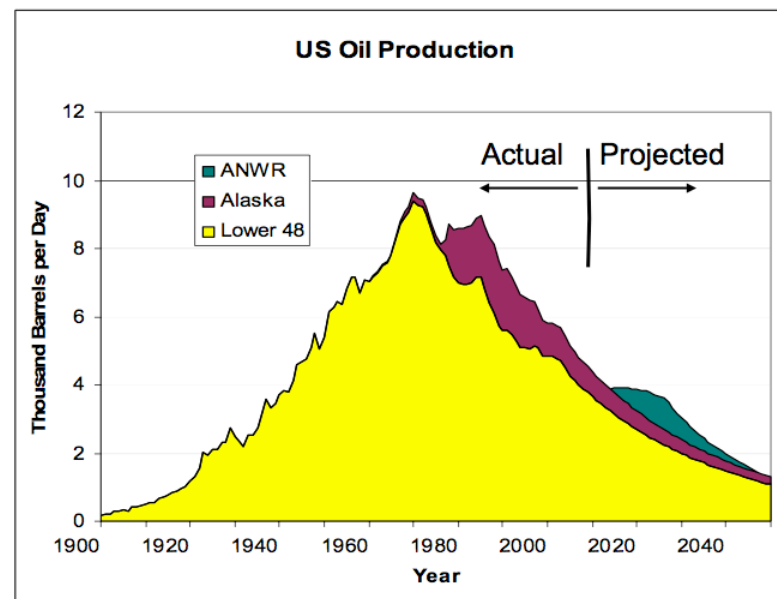
# Five Myths

# Myth #1: OPEC could produce more if it used current techniques

- International oil companies use same service companies US companies do
- Most are using up-to-date techniques
- Expenditures often are high
- Problem is very old fields
- Overstated reserves raise expectations

# Myth #2: Drilling in Arctic National Wildlife Refuge will save us

## U.S. Oil Production



## Myth #3: A small downturn can easily be made up with energy efficiency

- The quickest impacts are financial
  - Recession or depression
  - Serious recession in 1973 - 75
- Use of biofuels raises food prices
  - Further increases recession risk
- Don't need peak for recession
  - Only need supply/demand shortfall
  - Likely what we are experiencing now



## Myth #4: Canadian oil sands will save us

- Hard to see this with current technology
  - Technology known since 1920s
  - Production slow and expensive
- Requires huge amount of natural gas
  - In limited supply
- Most optimistic forecasts equal 5% of current world oil by 2030
  - Even this exceeds available natural gas

# Myth #5: Biofuels will save us

- Corn-based ethanol has many problems
  - Raises food prices, not scalable, CO2 issues, depletes water supply
- Cellulosic ethanol theoretically better
  - Still does not scale to more than 20% of need
  - Competes with biomass for electric, home heat
- Biofuel from algae might work
  - Not perfected yet