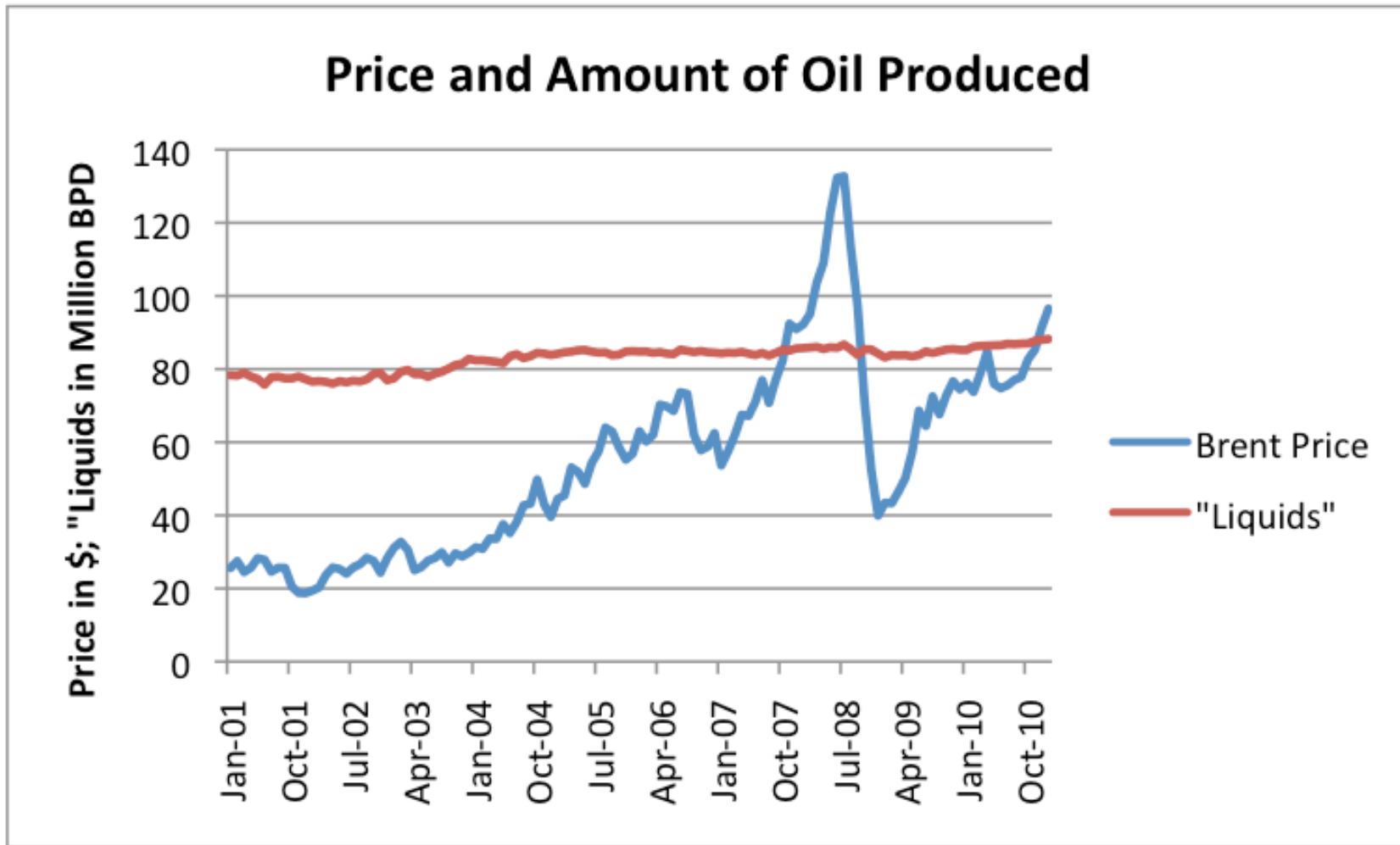


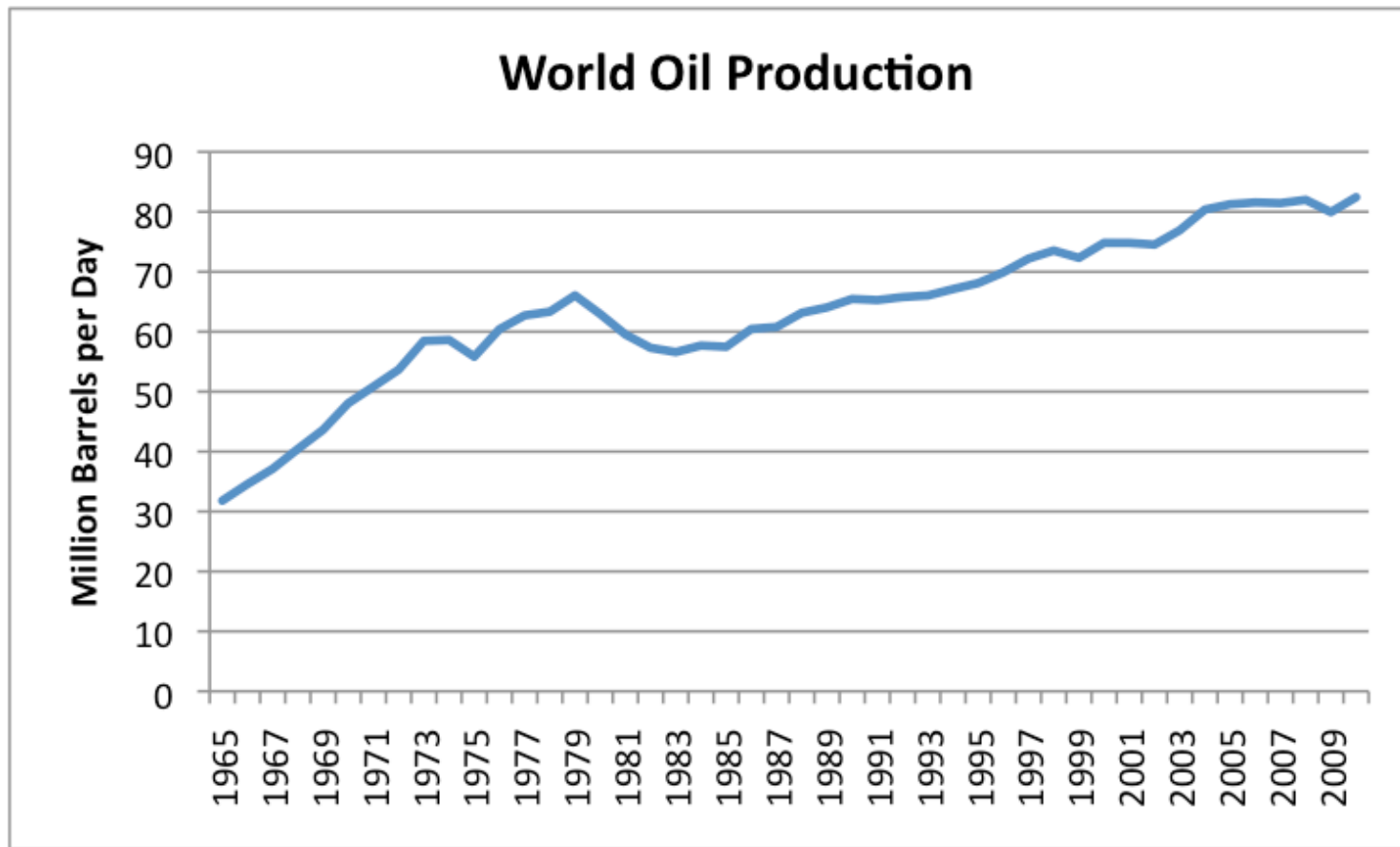
An Update on the Peak Oil Story

Gail Tverberg
May 13, 2011

World oil supply has been quite flat, despite rising oil prices

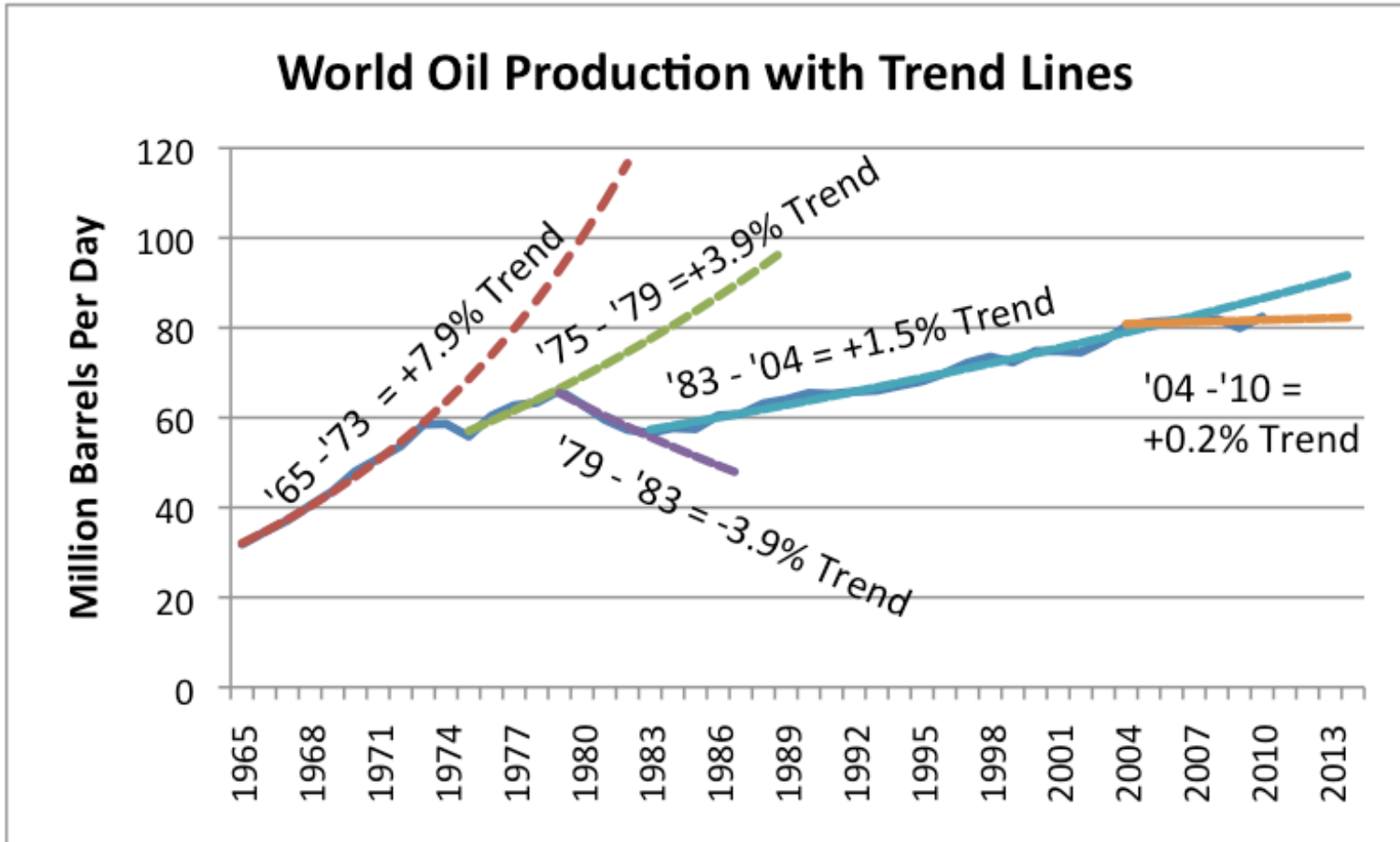


A longer look at world oil supply shows more changes



Source: Based on BP Statistical Data through 2009; EIA data for 2010.

It is helpful to add trend lines to see how trends have been changing

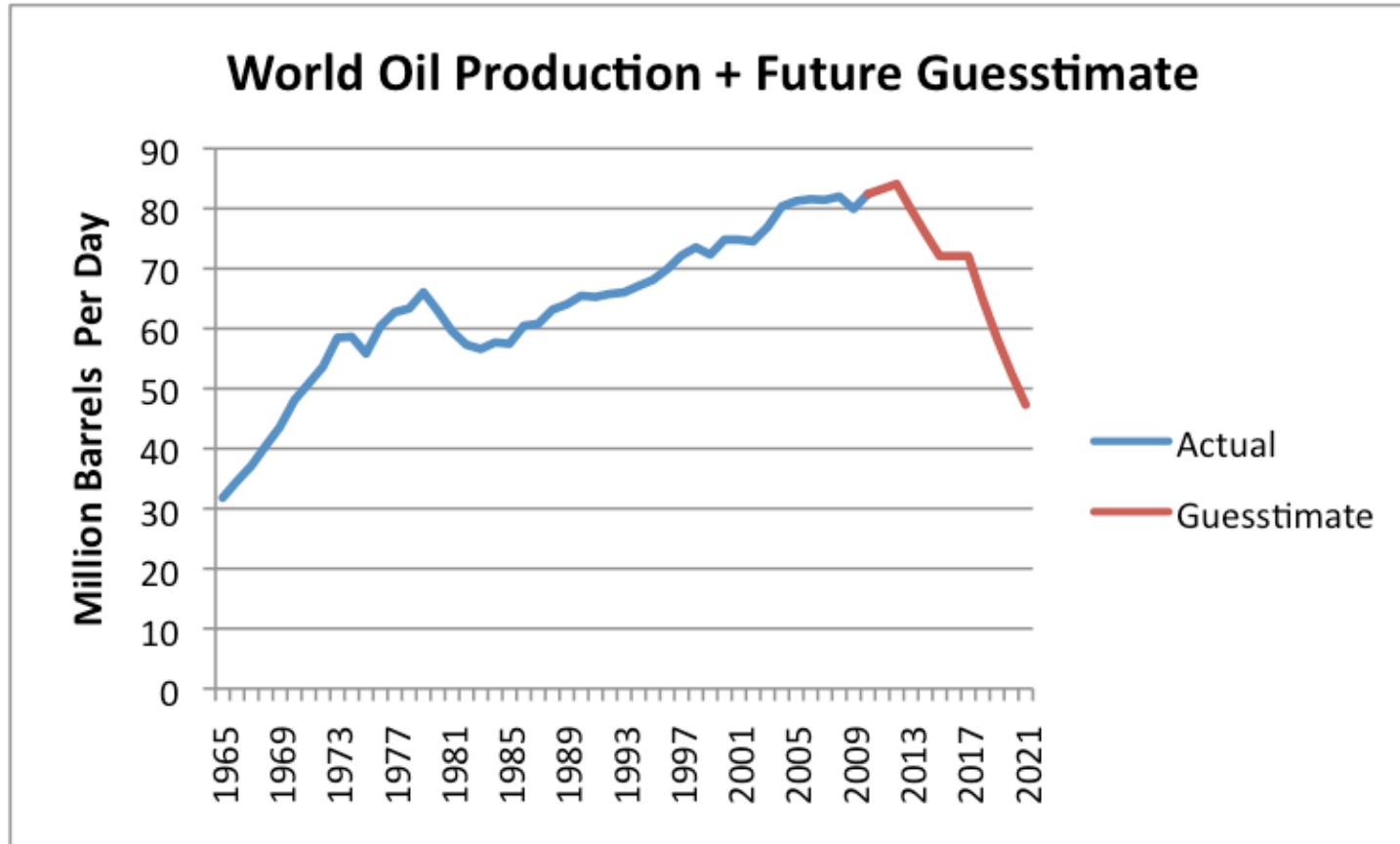


Note: Oil is crude, condensate, and natural gas liquids. Underlying data from BP Statistical Data and EIA.

Trends lines are becoming flatter

- ▶ Seems likely that world oil production will not increase much more
 - ▶ Perhaps add 5 million barrels a day, at most
 - ▶ Iraq might add a little production
- ▶ It seems likely that United States and Europe will enter recession in the next few months
 - ▶ Economies cannot withstand current high prices
 - ▶ Recession will cause the price of oil to drop
 - ▶ Amount of oil extracted is likely also to drop also

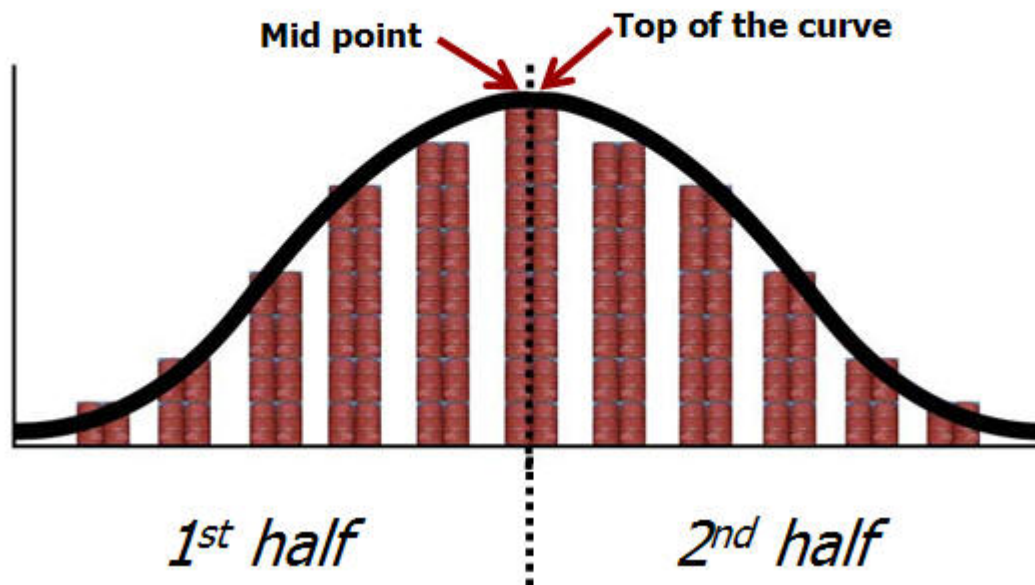
My view of what may be ahead



Many people believe that the decline in world oil supply will be relatively slow

- ▶ They believe that $\frac{1}{2}$ of world oil will be extracted after the peak in production

PEAK OIL: When you plot the production of an aggregate of oil fields over time you get roughly a bell curve



Source: <http://www.drmillslmu.com/peakoi36.jpg>

The Hubbert Curve only holds when conditions are “normal”

- ▶ People have enough food
- ▶ There is enough capital for investment
- ▶ There is not too much war
- ▶ Hubbert thought “normal” conditions would hold forever

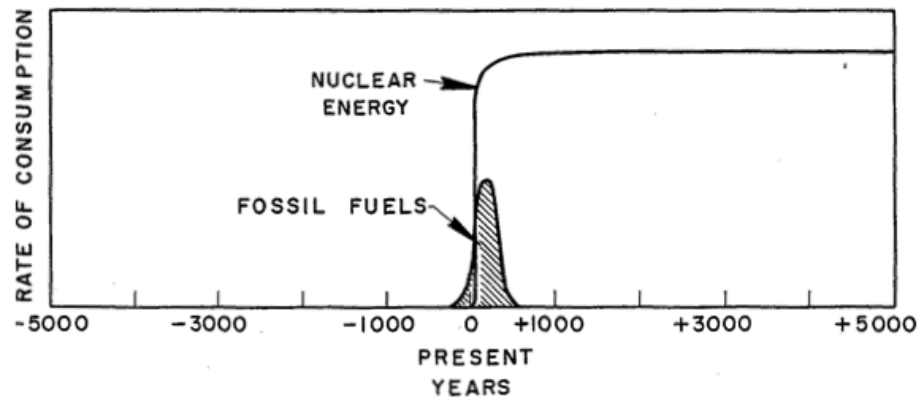
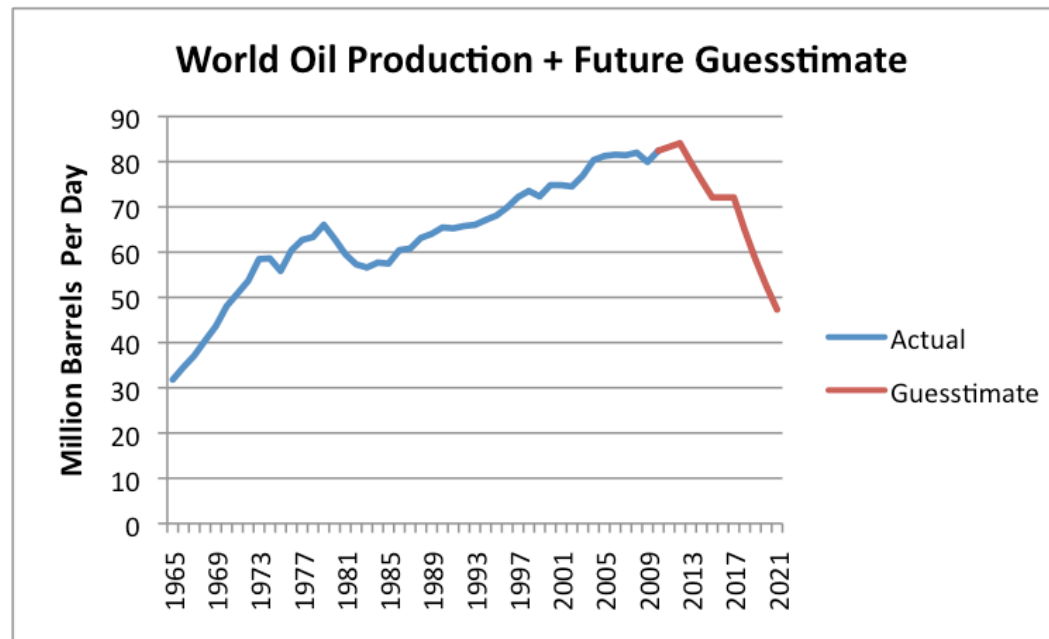


Figure 30 - Relative magnitudes of possible fossil-fuel and nuclear-energy consumption seen in time perspective of minus to plus 5000 years.

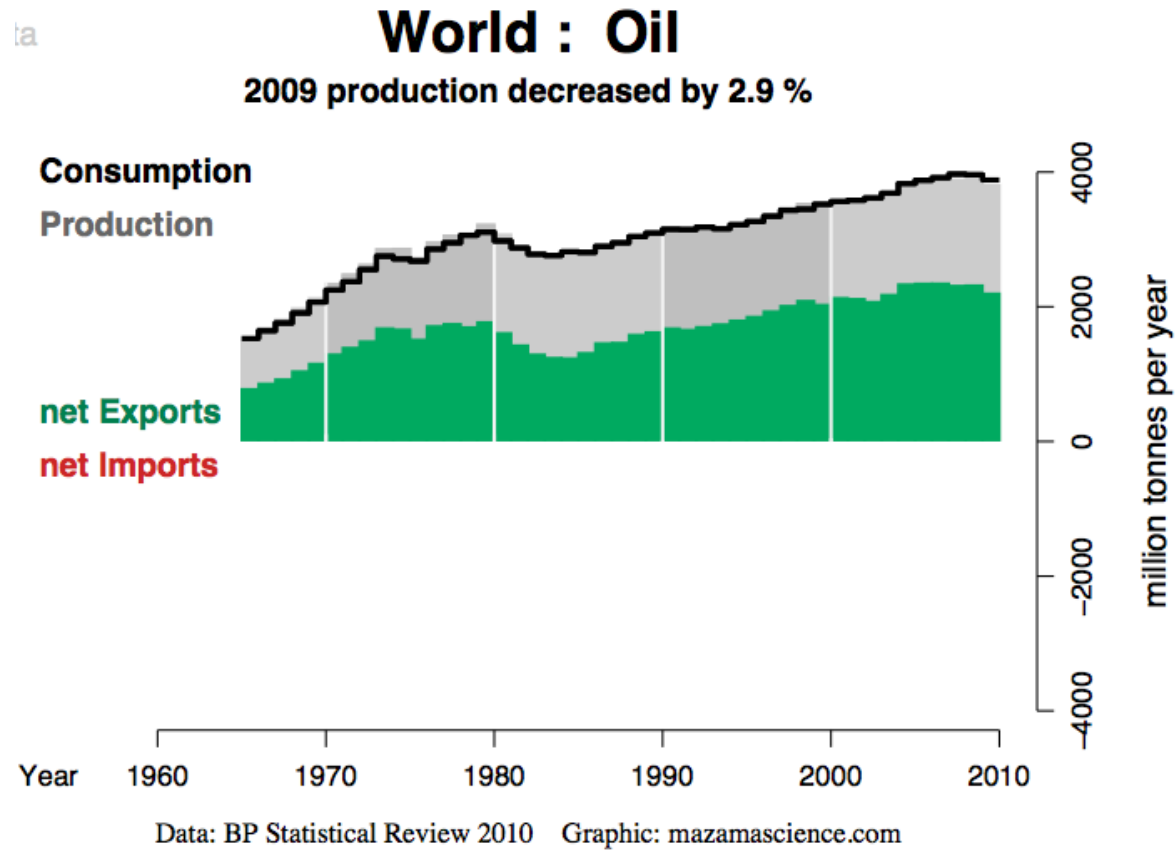
Source: M. King Hubbert, Nuclear Energy and the Fossil Fuels, 1956.

If problems prevent oil production, slope may be steeper

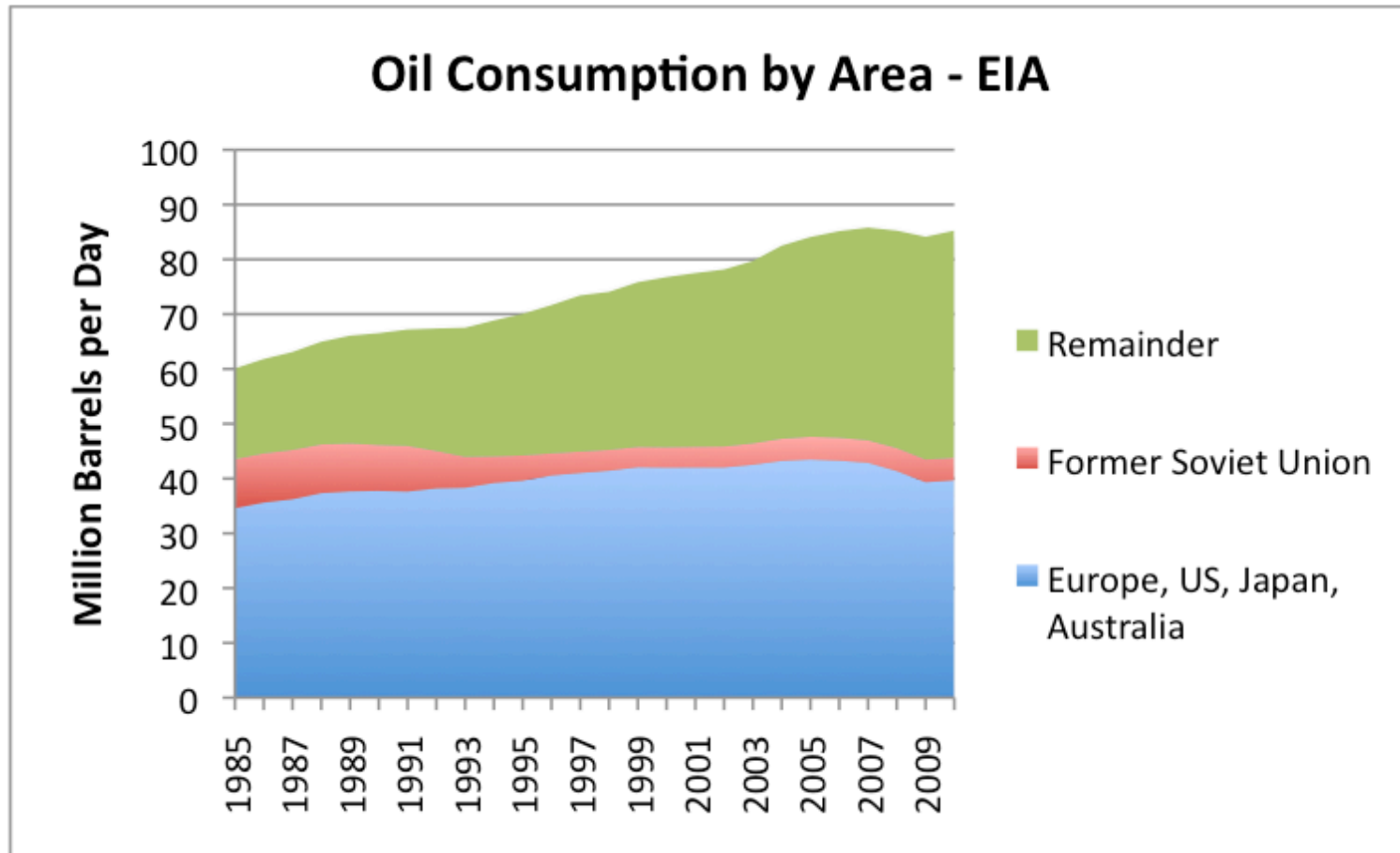
- ▶ Financial problems of some of buyers
- ▶ Riots and civil disruption for seller
- ▶ Some countries may lose ability to buy oil



World exports seem to be already trending down

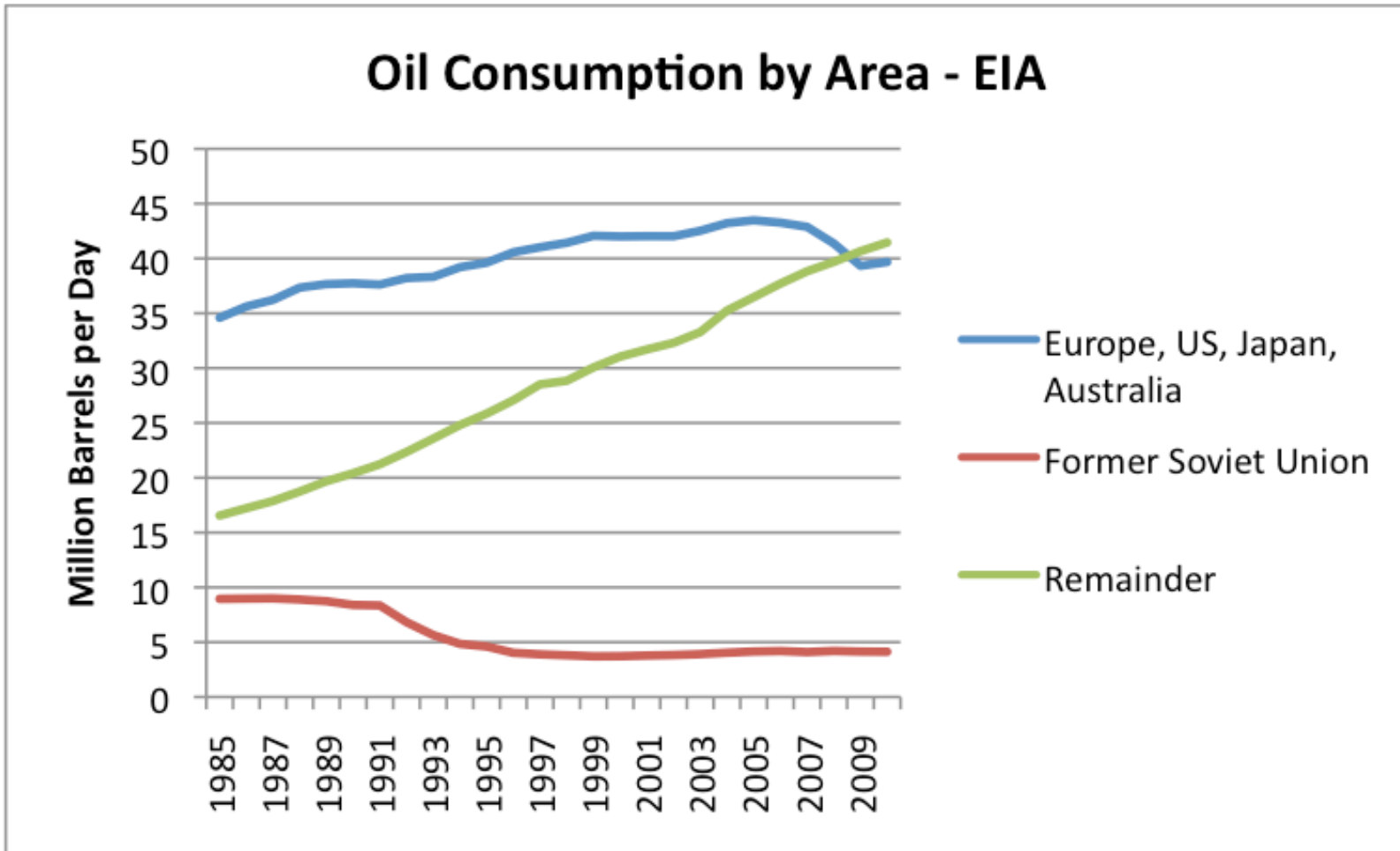


There is increasing competition for who get the oil that is produced

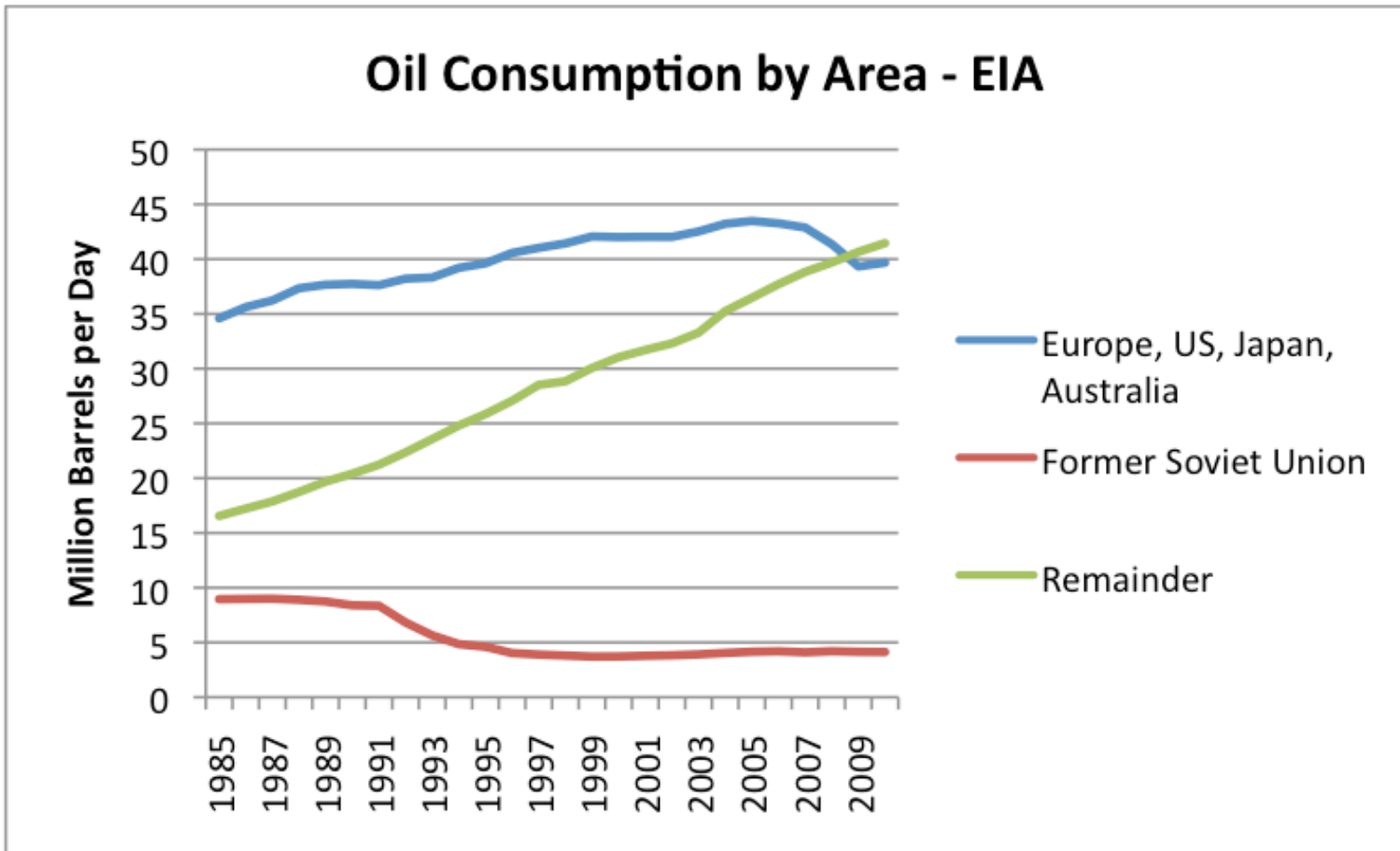


Source: Based on data of U.S. Energy Information Administration

This increased competition for oil is even more evident from a line graph



Recession tends to occur where there is a down slope in oil consumption



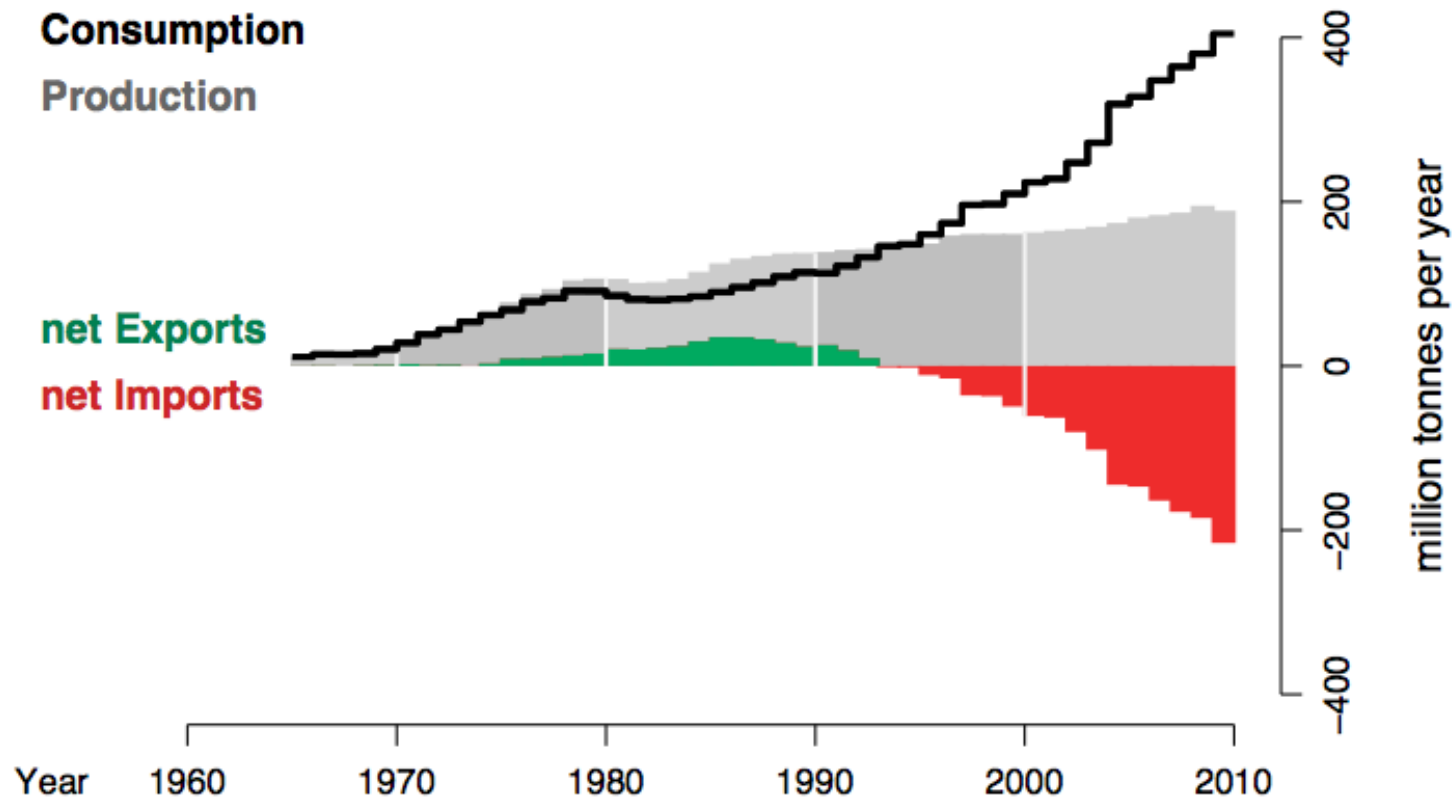
Increased oil production tends to go where the jobs are

1. Oil is often used when goods are made and transported
2. Workers with good wages can afford to buy cars and other goods that use oil.

China's oil use is growing rapidly

China : Oil

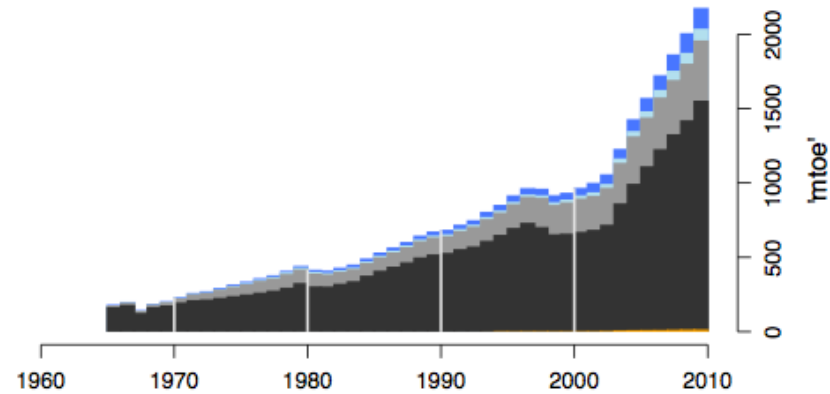
2009 imports increased by 16. %



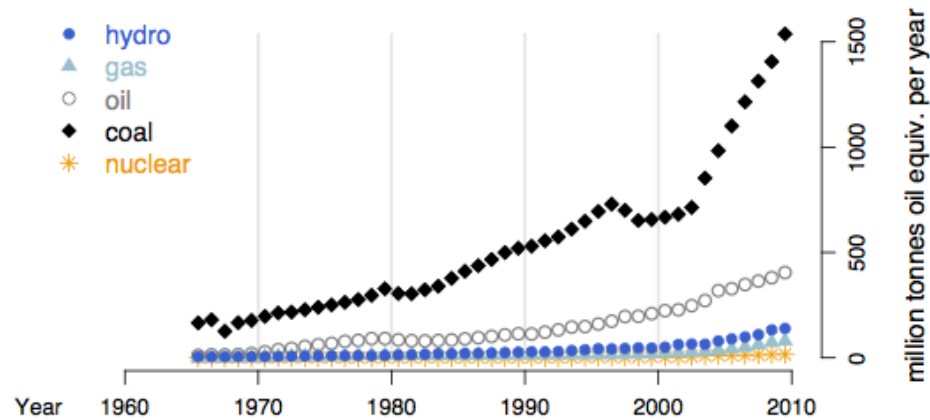
Data: BP Statistical Review 2010 Graphic: mazamascience.com

Coal consumption has been rising even more rapidly

2009 : Total energy consumed increased by 8.4 %



China : Consumption



Data: BP Statistical Review 2010 Graphic: mazamascience.com

Average cost of energy in China is low, because there is so much coal in mix

- ▶ Helps keeps China's prices competitive
- ▶ How long can coal production rise rapidly?
 - ▶ Peak coal could be a big problem, if it occurs

Questions

- ▶ Gail Tverberg
- ▶ Our Finite World <http://ourfiniteworld.com/>
- ▶ The Oil Drum “Gail the Actuary”
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