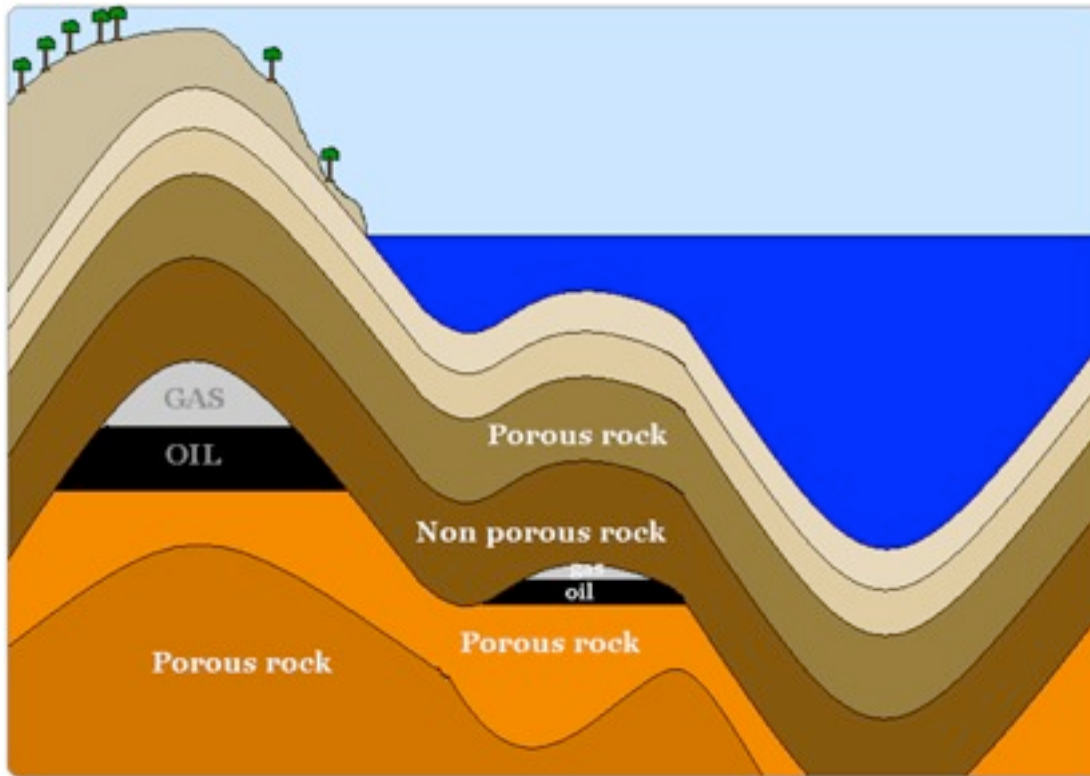




Peak Oil
Austin Quan
2011-02-17

Oil Formation



- Formed from prehistoric zooplankton and algae by the heat and pressure in a source rock
- Accumulates in reservoir rock
- Trapped by cap rock

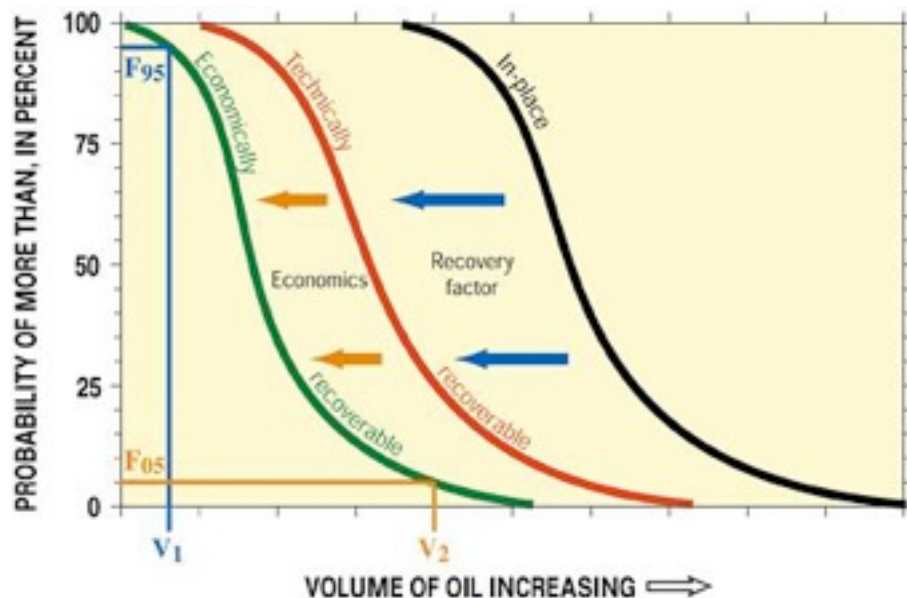
Detection

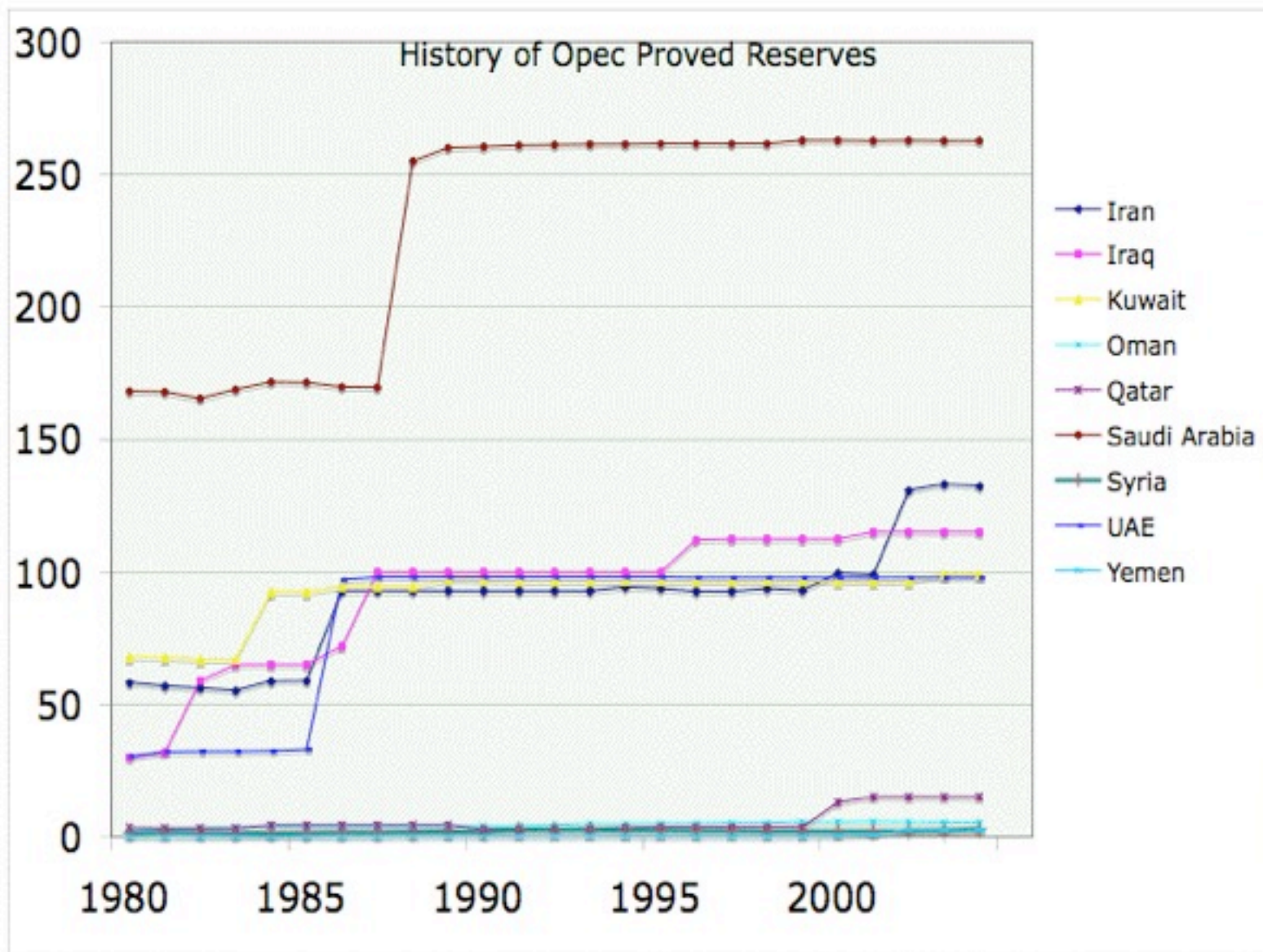
- Methods
 - Gravity survey
 - Magnetic survey
 - Passive seismic survey
 - Seismic reflection survey
- Expensive and high risky



Oil Reserves

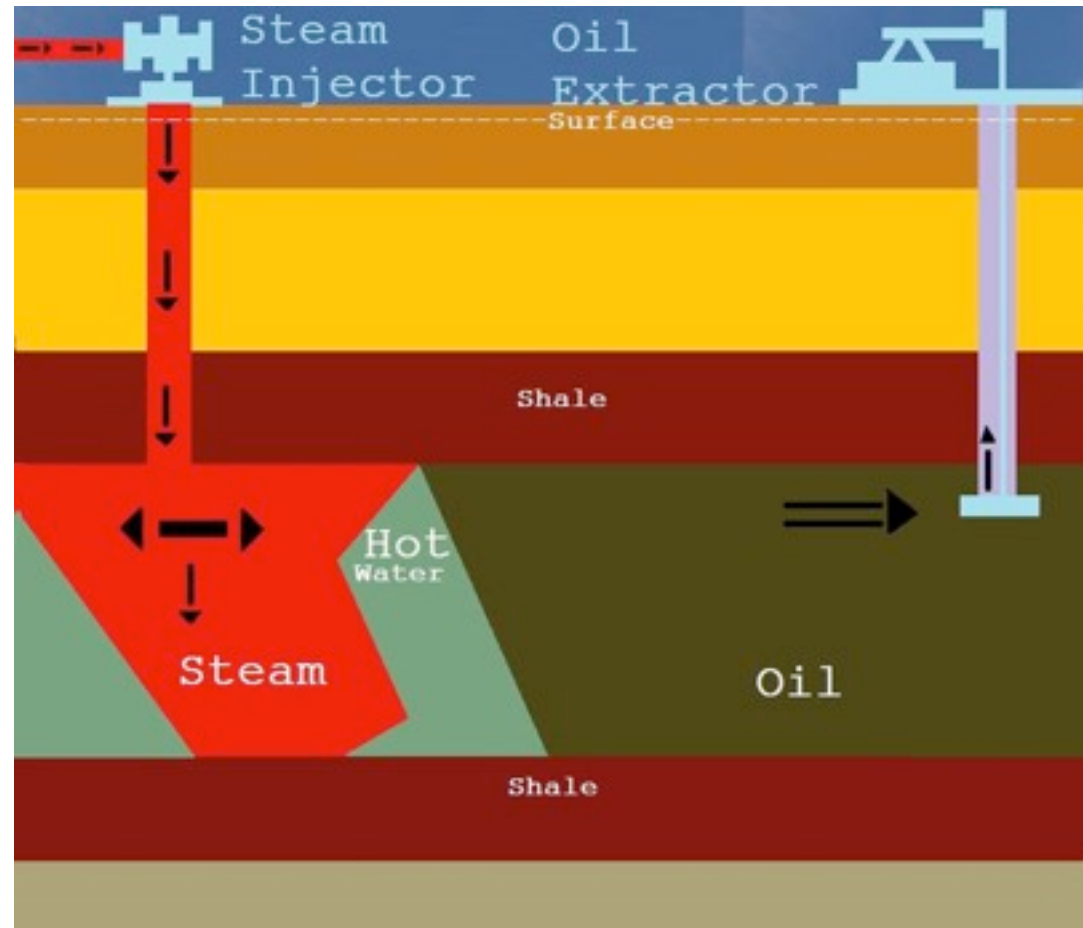
- Recovery factors vary greatly, commonly 30–35%
- Estimates are usually made conservatively, and grow with time
- Many oil producing countries don't reveal their data
- Classification:
 - Proven (~90% probability of recovery)
 - Probable (~50%)
 - Possible (~10%)





Recovery

- Primary recovery
 - Underground pressure sufficient to force oil up
 - Recovery ~5–15%
- Secondary recovery
 - Oil needs to be coaxed out
 - Recovery ~30–50%
- Tertiary recovery
 - Increase mobility of oil to increase extraction
 - Recovery ~5–15%

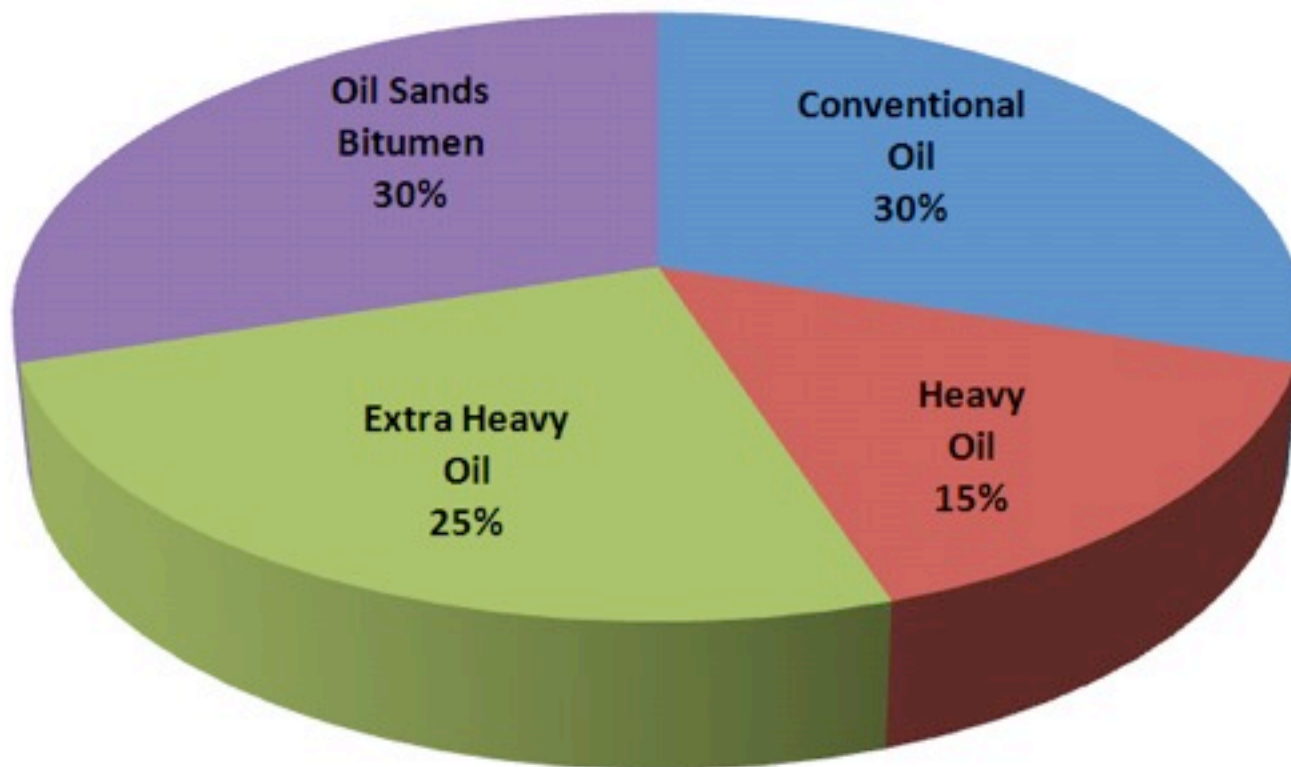


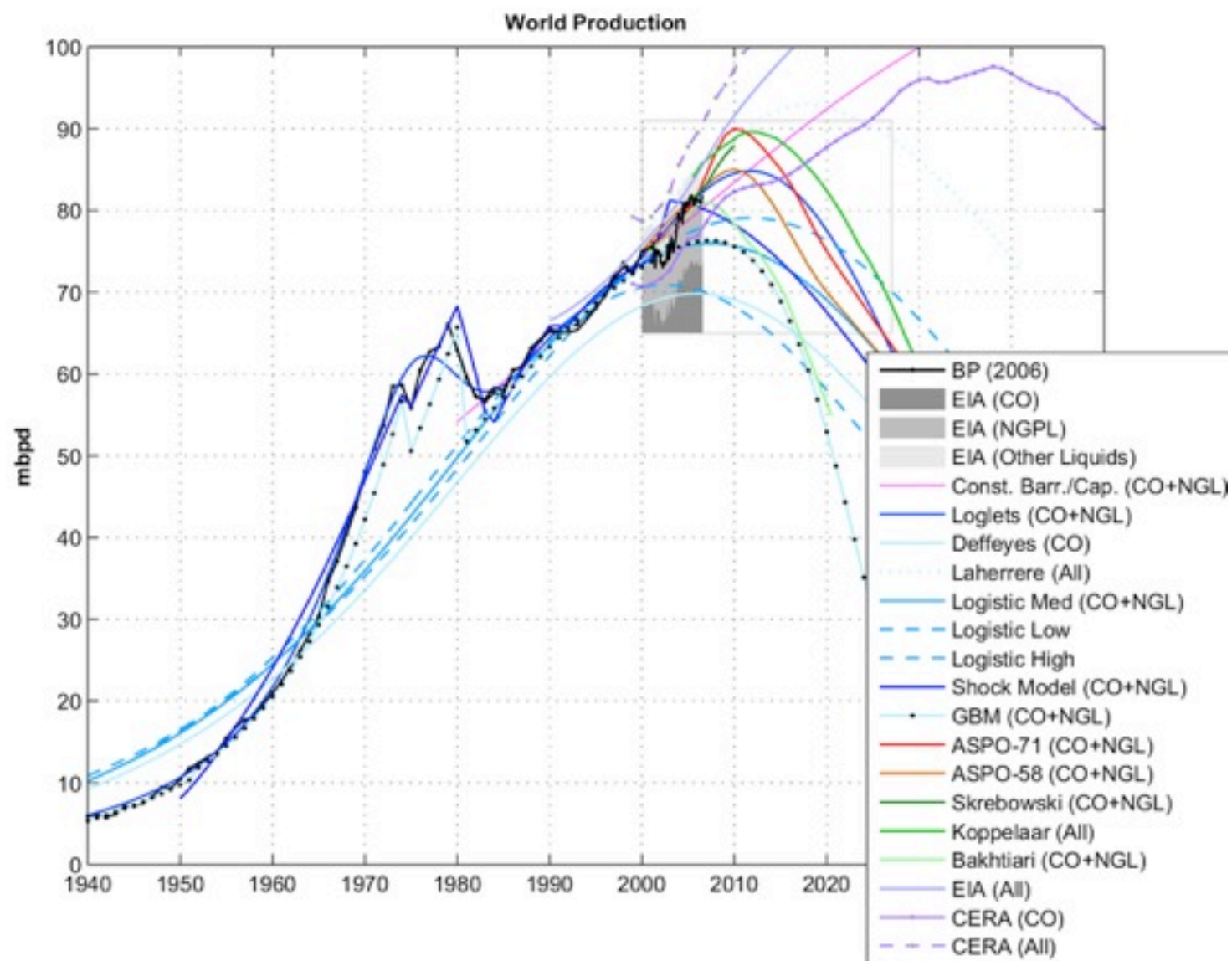
Unconventional Sources



- Generally less efficient and more environmentally damaging
- Sources
 - Oil shales
 - Green River Formation
 - Heavy oil and oil sands
 - Orinoco heavy oil belt in Venezuela
 - Athabasca Oil Sands in Alberta, CA

Total World Oil Reserves

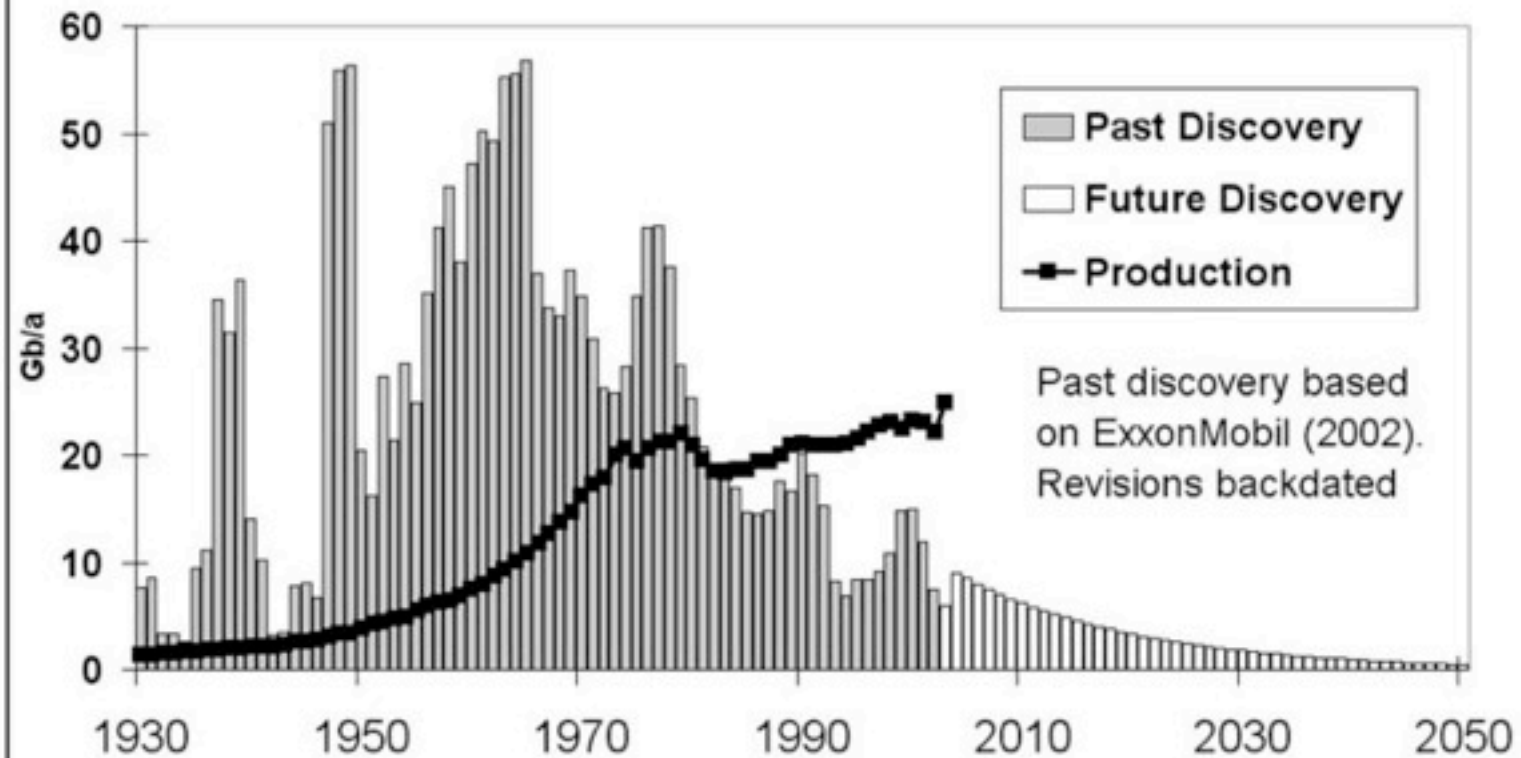




Peak Oil

- “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, a former chairman of Shell, October 2008
- “[World] reserves are confused and in fact inflated. Many of the so-called reserves are in fact resources. They're not delineated, they're not accessible, they're not available for production.” – Sadad I. Al-Husseini, former VP of Aramco, presentation to the Oil and Money conference, October 2007
- “I do not believe the world has to worry about ‘peak oil’ for a very long time.” --Abdullah S. Jum'ah, President, Director and CEO of Saudi Aramco

THE GROWING GAP



TODO

- Look at oil consumption projections
- Environmental impacts of recovery
- Impacts of peak oil
- Policy and politics of oil recovery and peak oil
- Investigate depletion from other resources?