

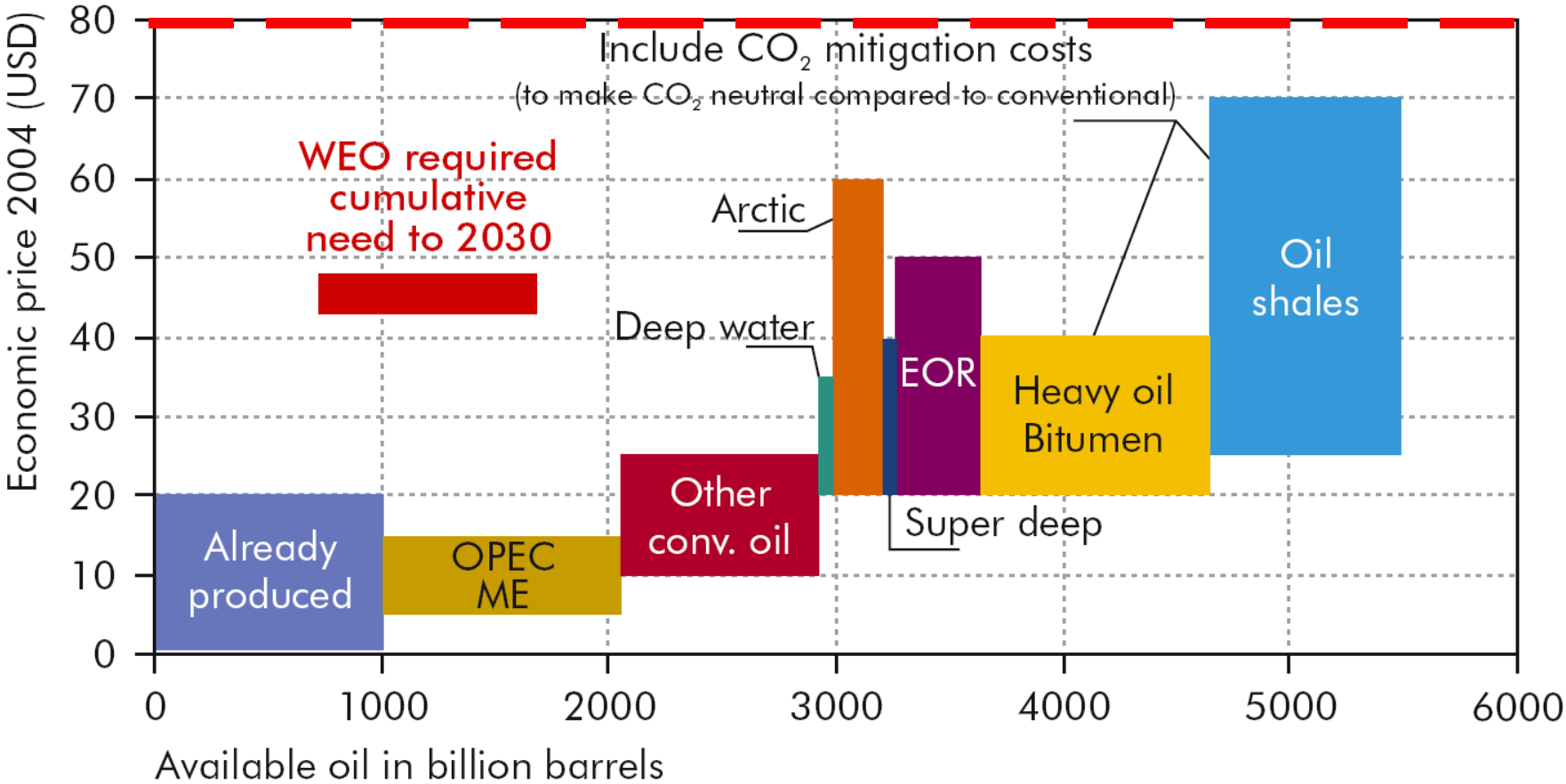
# World Fossil-Fuel Supplies

Dave Rutledge  
Chair, Division of Engineering and  
Applied Science  
Caltech

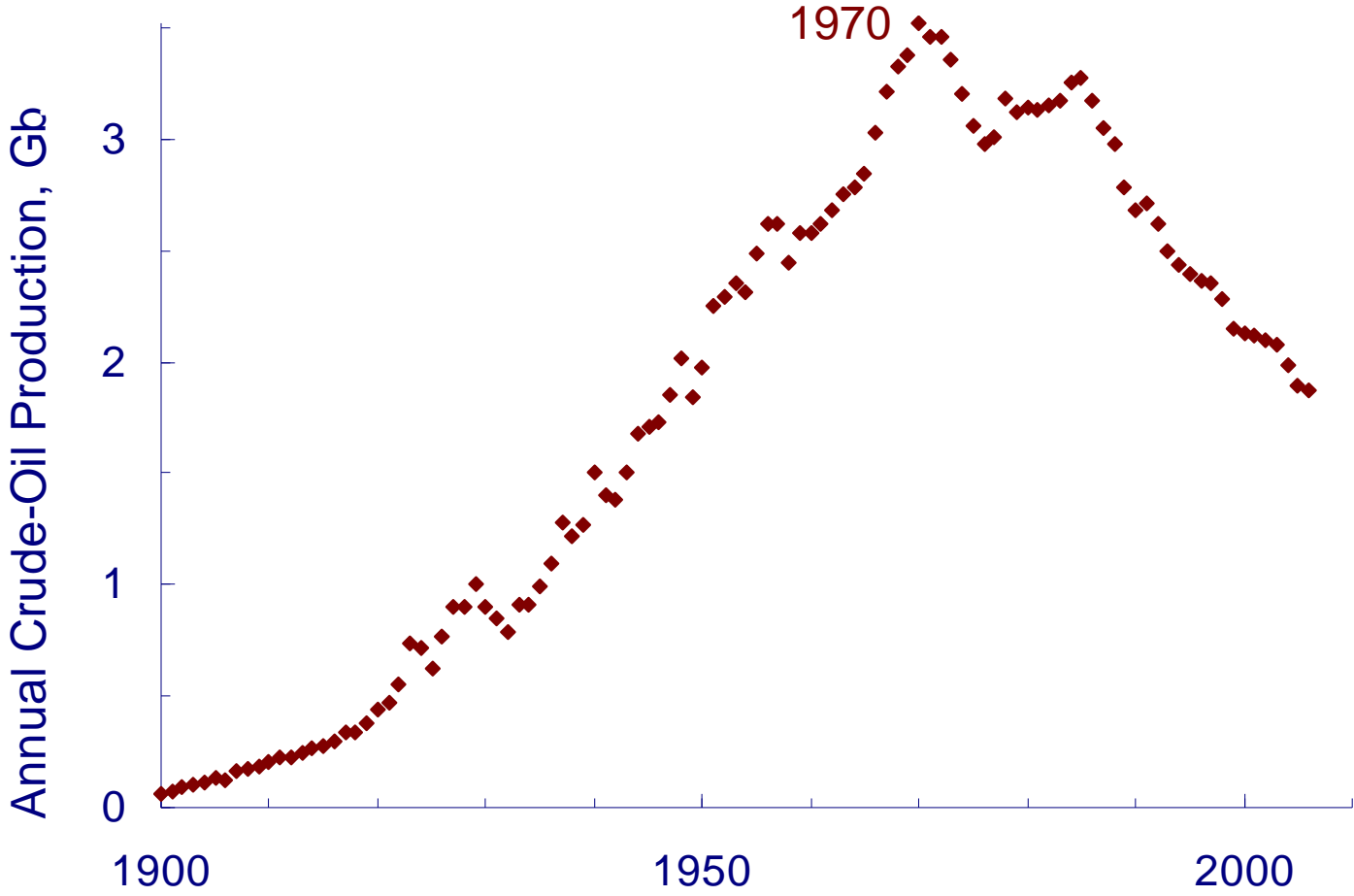
Adam Schiff's Town Hall meeting  
October 8, 2007

Hubbert's Peak, The Coal Question, and Climate Change  
Watson Lecture: 8pm, October 17, Beckman Auditorium

# From the International Energy Agency *Resources to Reserves (2005)*

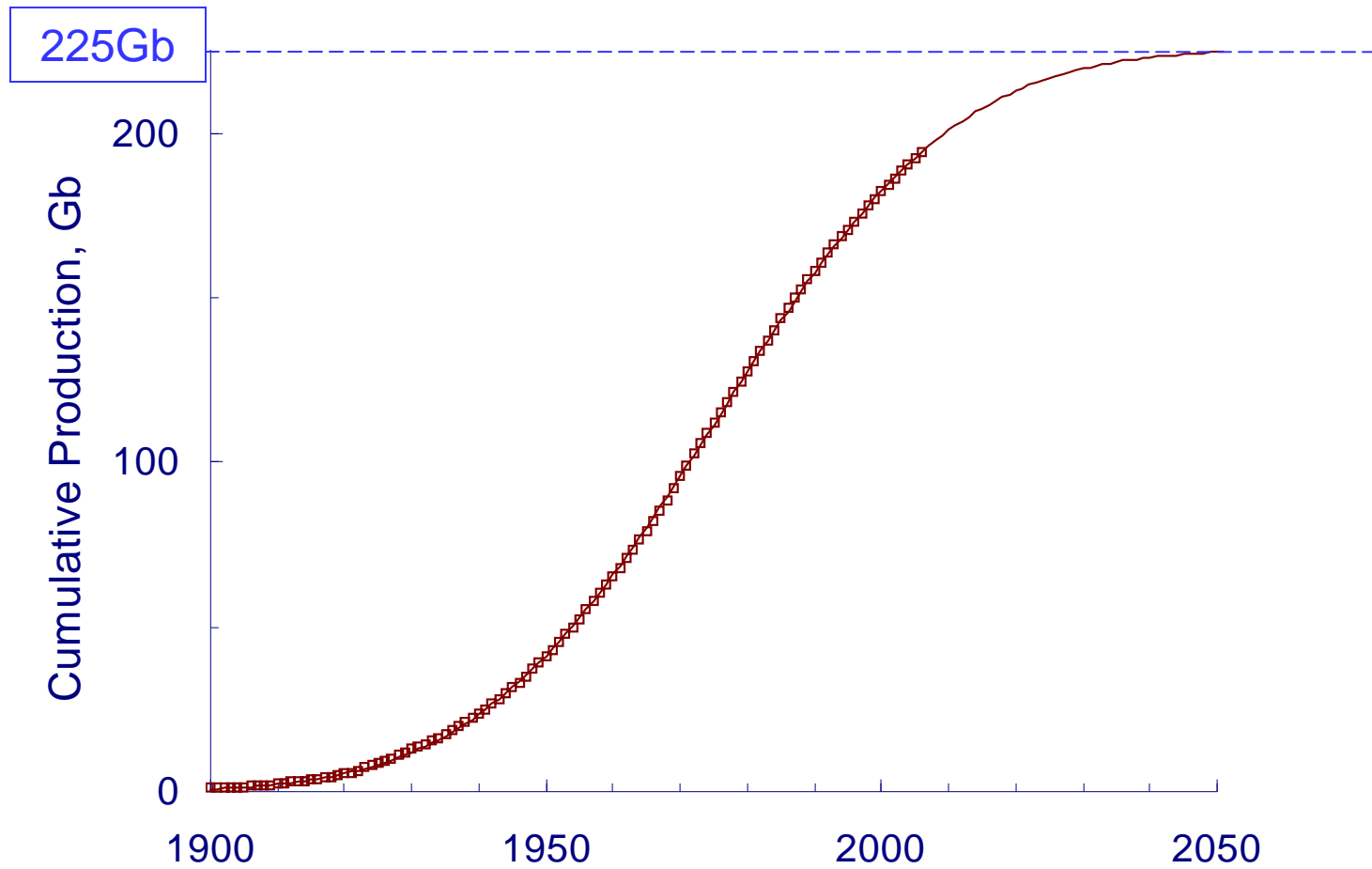


# US Oil Production

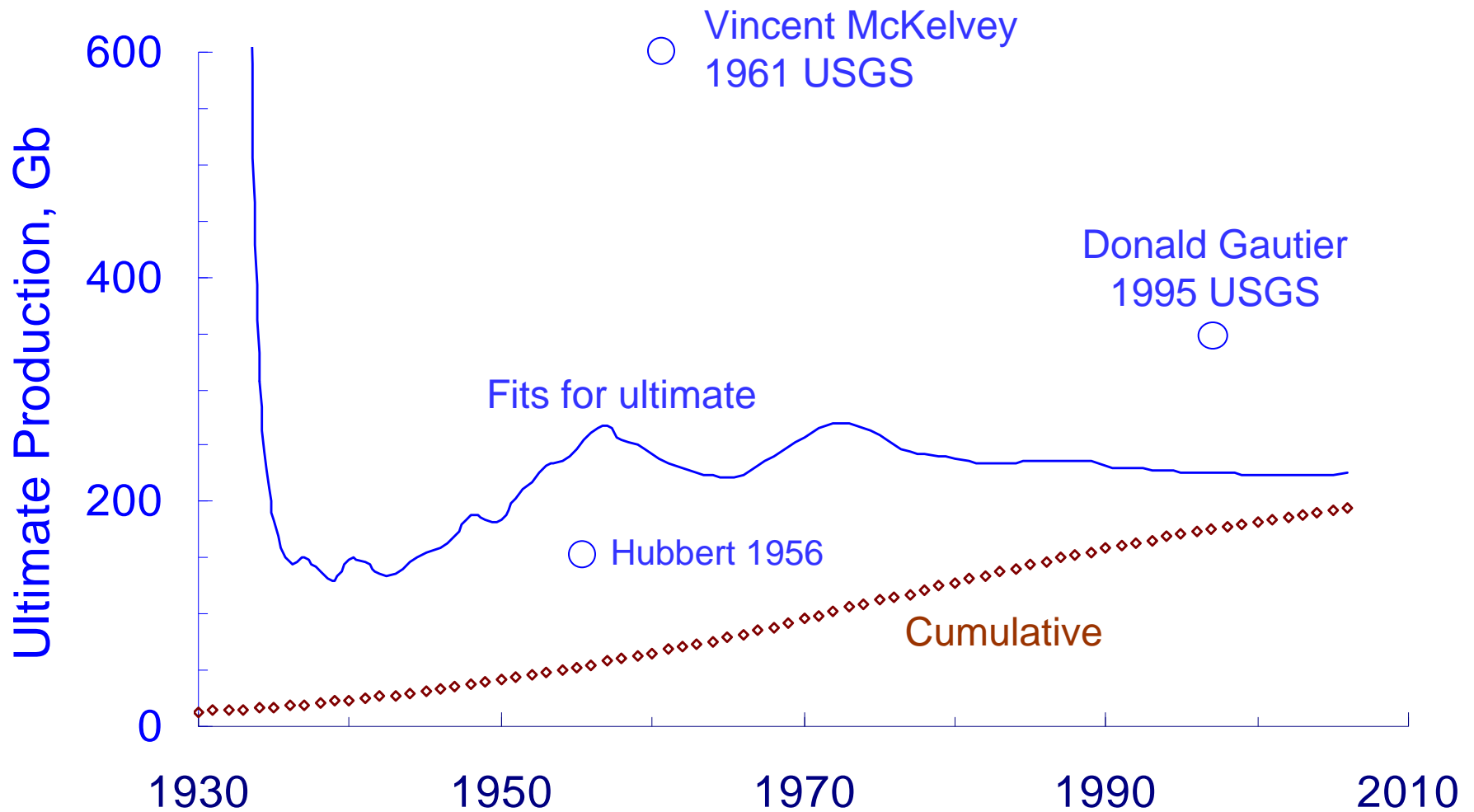


- Gb = billions of barrels

# Cumulative US Oil Production



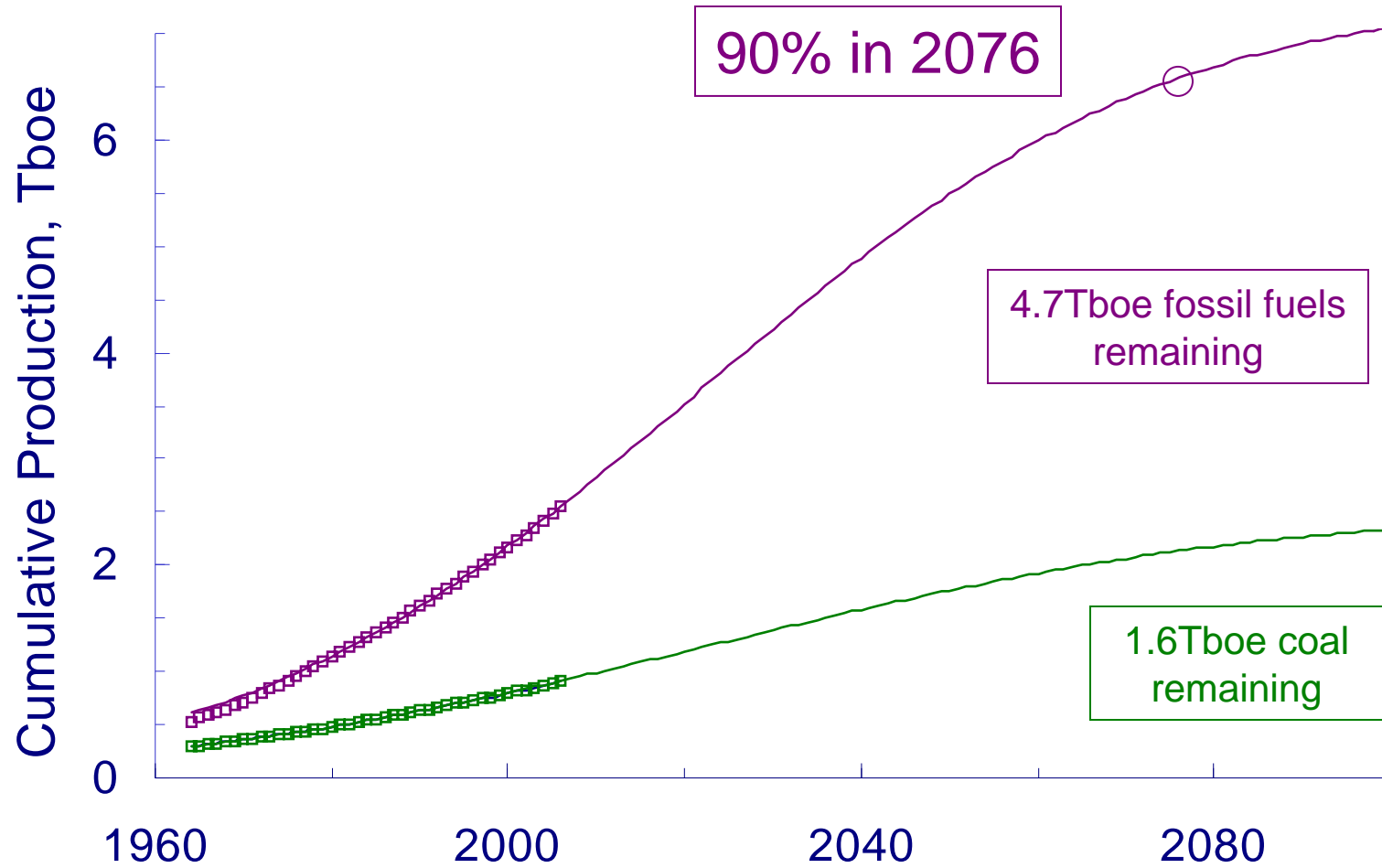
# Historical Fits for the Ultimate



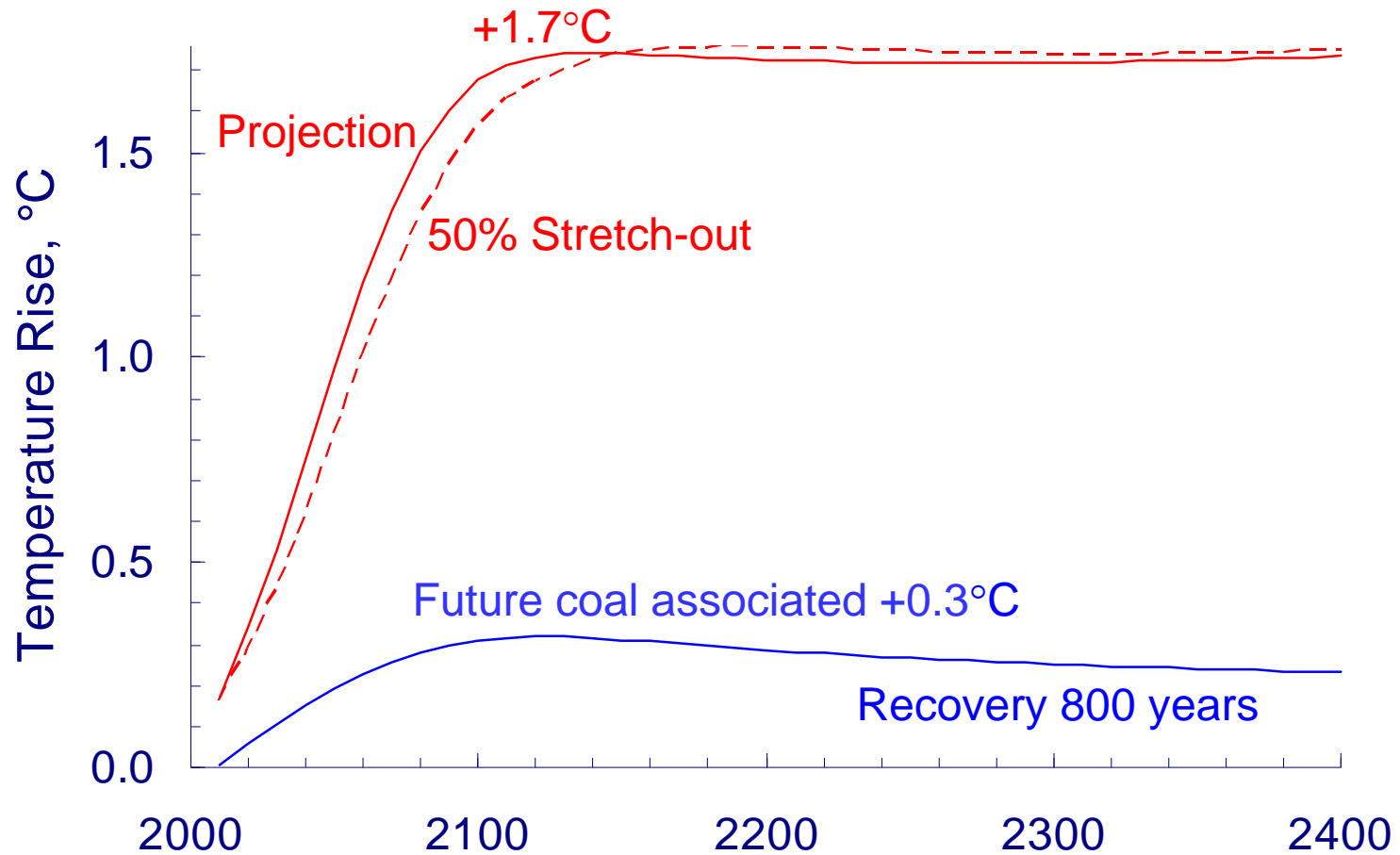
# From the National Academy of Sciences *Report on Coal, June, 2007*

"Present estimates of coal reserves are based upon methods that have not been reviewed or revised since their inception in 1974, and much of the input data were compiled in the early 1970s. Recent programs to assess reserves in limited areas using updated methods indicate that only a small fraction of previously estimated reserves are actually minable reserves."

# World Fossil-Fuels Production



# Simulated Temperature Rises



- 0.1°C of the rise is associated with future US coal production, and this could be reduced by carbon-dioxide capture and burial



# Results

- The projection for remaining world coal production is only half of the reserves
- Less minable coal is *good news* for climate change
- We need to keep up the present high growth rate for alternative sources
- Stretching out production does not reduce the temperature peak in the next century — to reduce the temperature peak, it is critical to reduce ultimate production, not just slow it down
- One possible approach would be to stop issuing new mining and drilling leases on federal lands, which account for 1/3 of US fossil-fuel production

Hubbert's Peak, The Coal Question, and Climate Change  
Watson Lecture: 8pm, October 17 Beckman Auditorium