



CENTER FOR
CLIMATE STRATEGY

Lessons from Forty Years of Promoting The Limits to Growth

Jorgen Randers
Professor
Center for Climate Strategy
Norwegian Business School BI

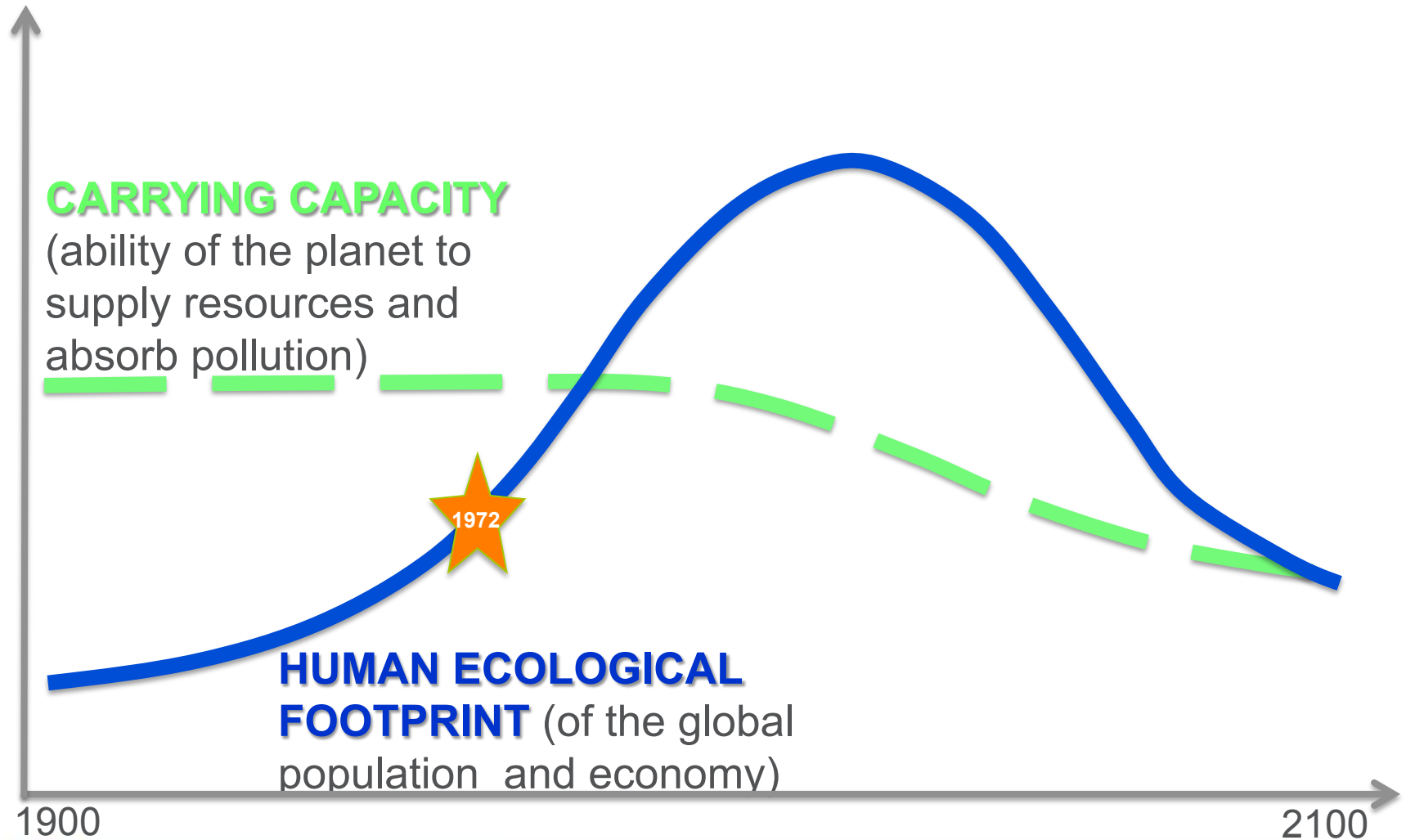
Smithsonian Institution Castle
Washington, D.C.

March 1, 2012

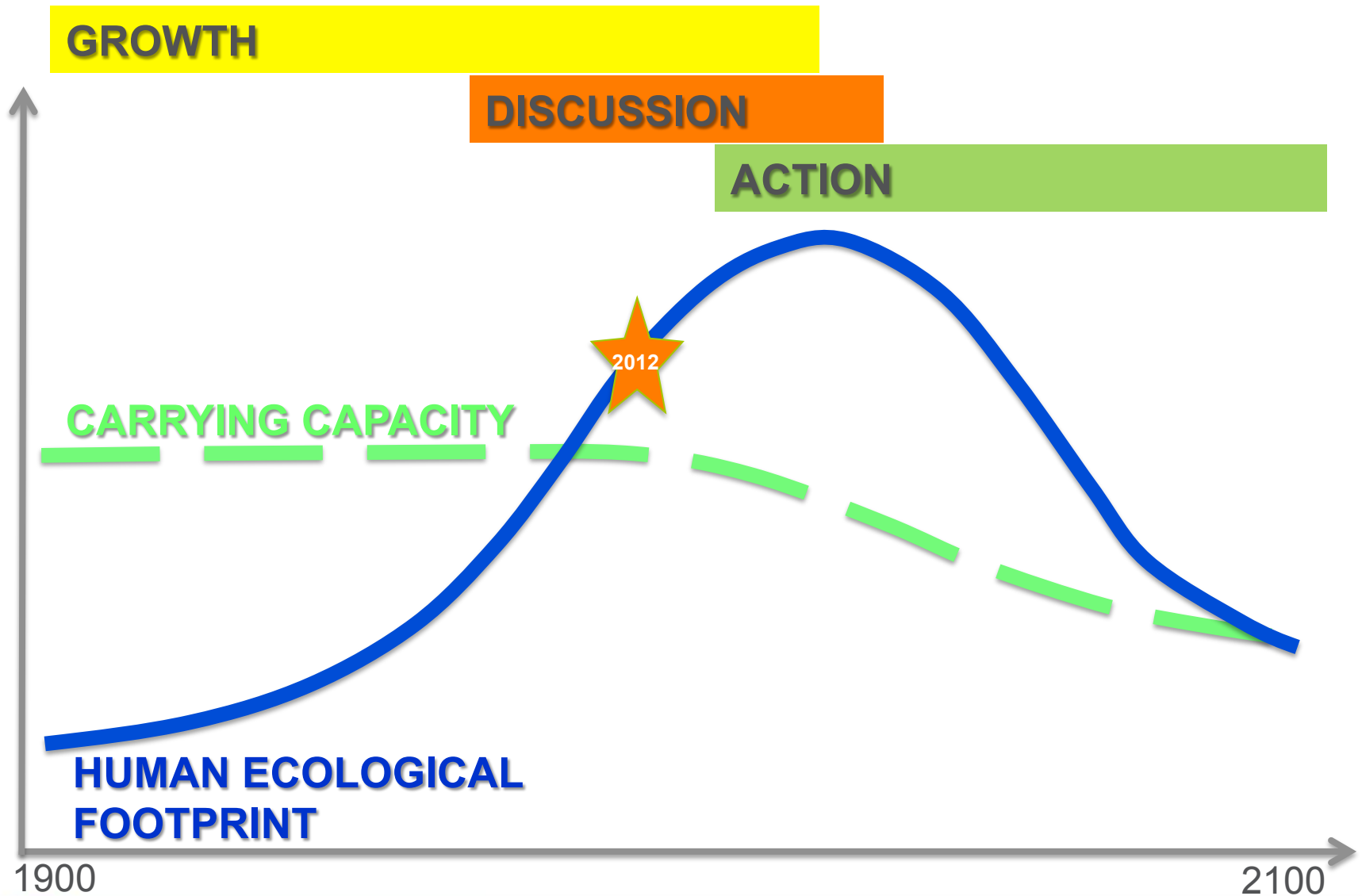
Limits perspective: A small world



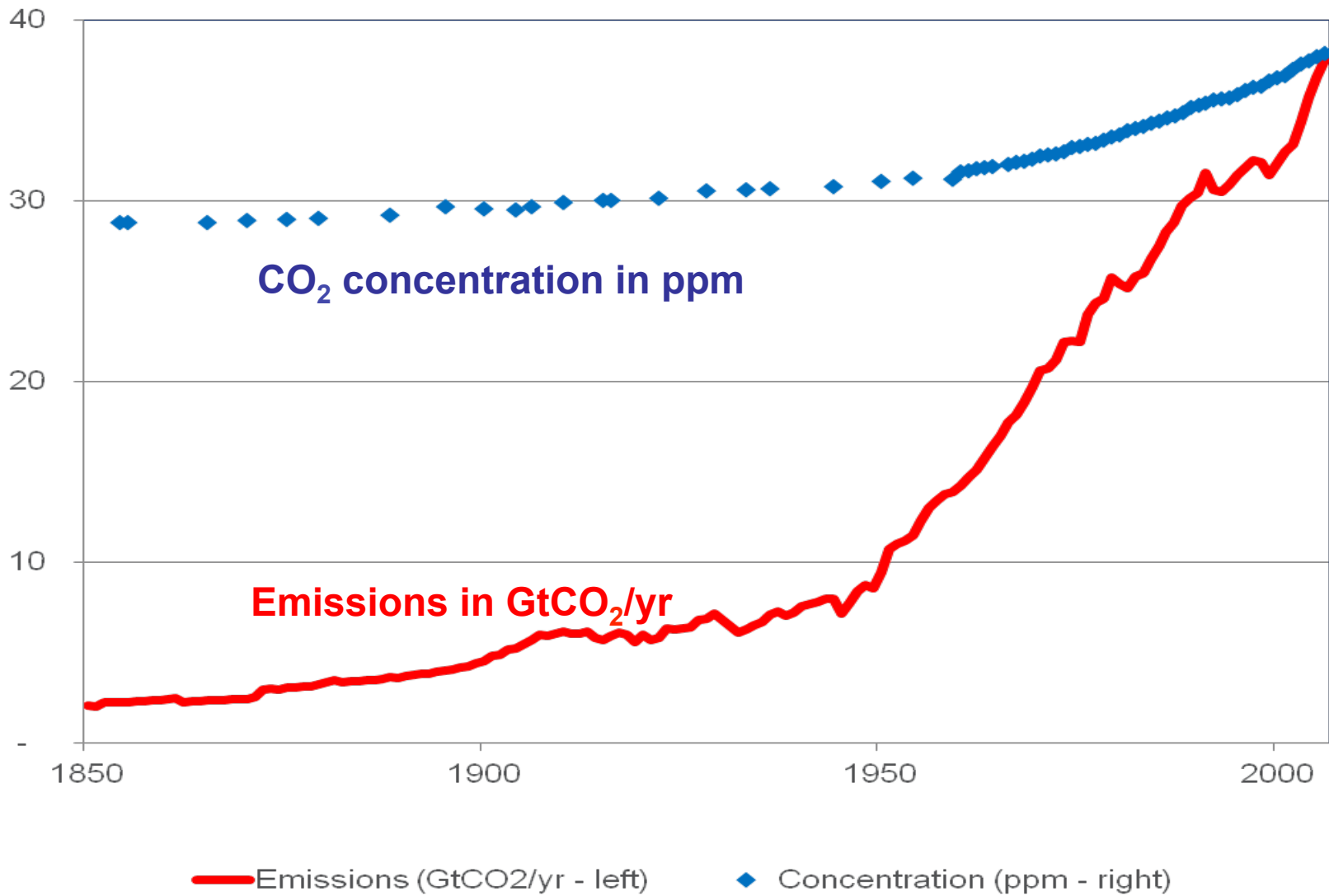
The real threat: Overshoot and collapse



Decision delays allowed overshoot



Human CO₂ emissions and its effect



The root cause of current decision delays

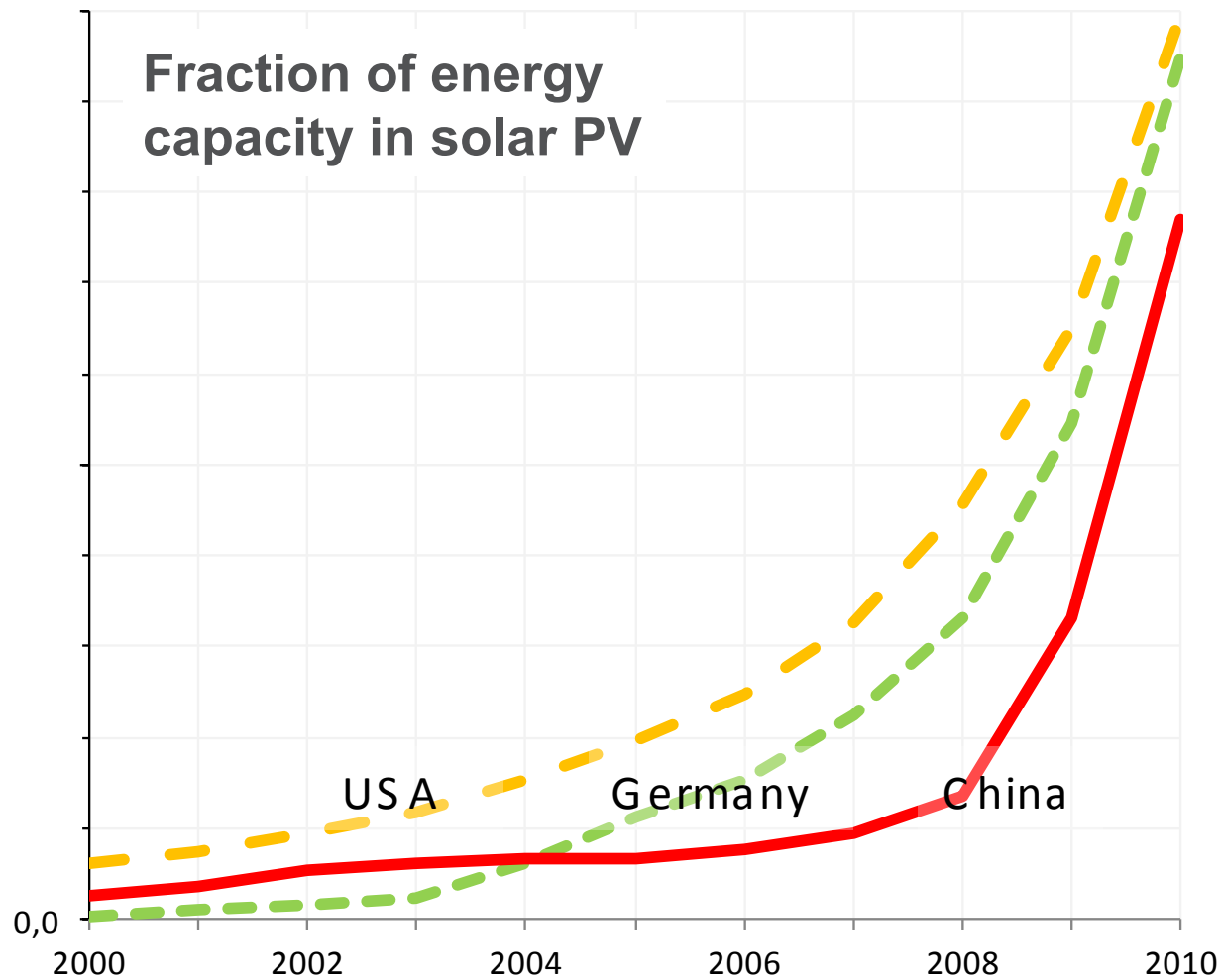
**“ We know the solution.
But we don’t like it. ”**

**Jeffrey R. Immelt
Chairman and CEO
GE
London, August 2010**

Democratic decision making takes time



Response delay in 3 governance systems

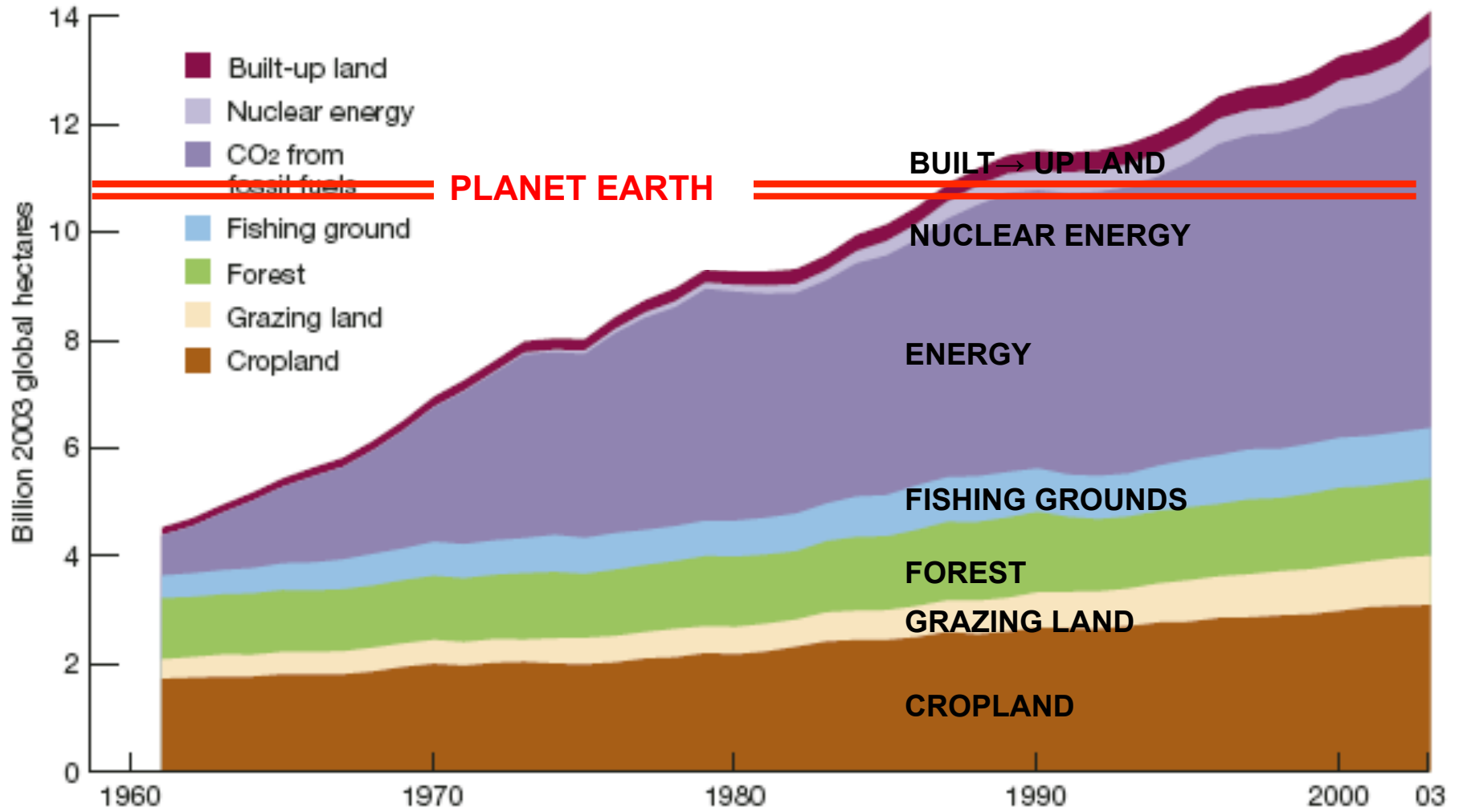


Installed photovoltaic generating capacity per energy use –
US, China and Germany 2000 to 2010
Scales: Germany (0 – 55 MW_p per Mtoe per year); USA and China (0 – 1.1 MW_p per Mtoe per year)

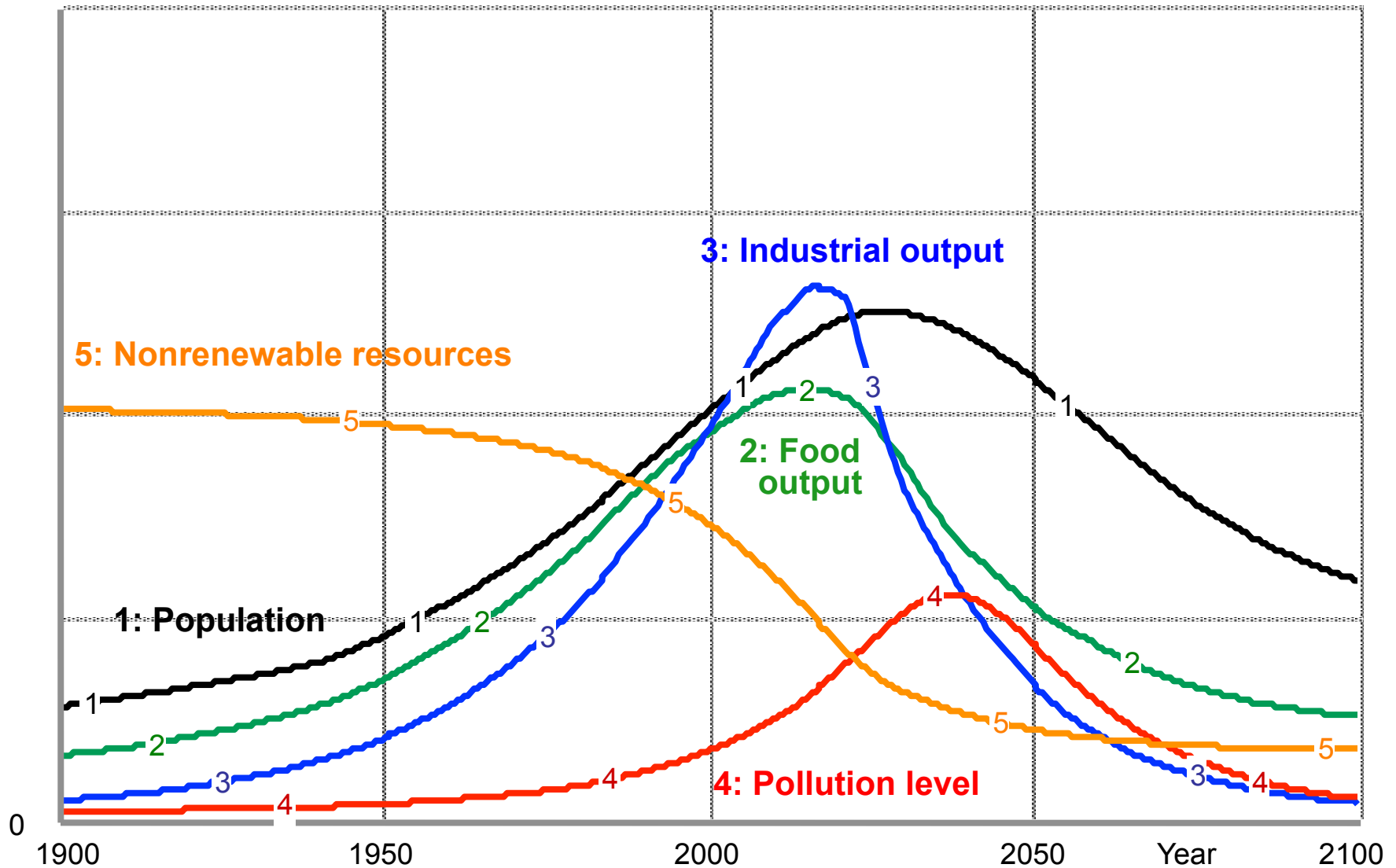
When is the right time to turn?



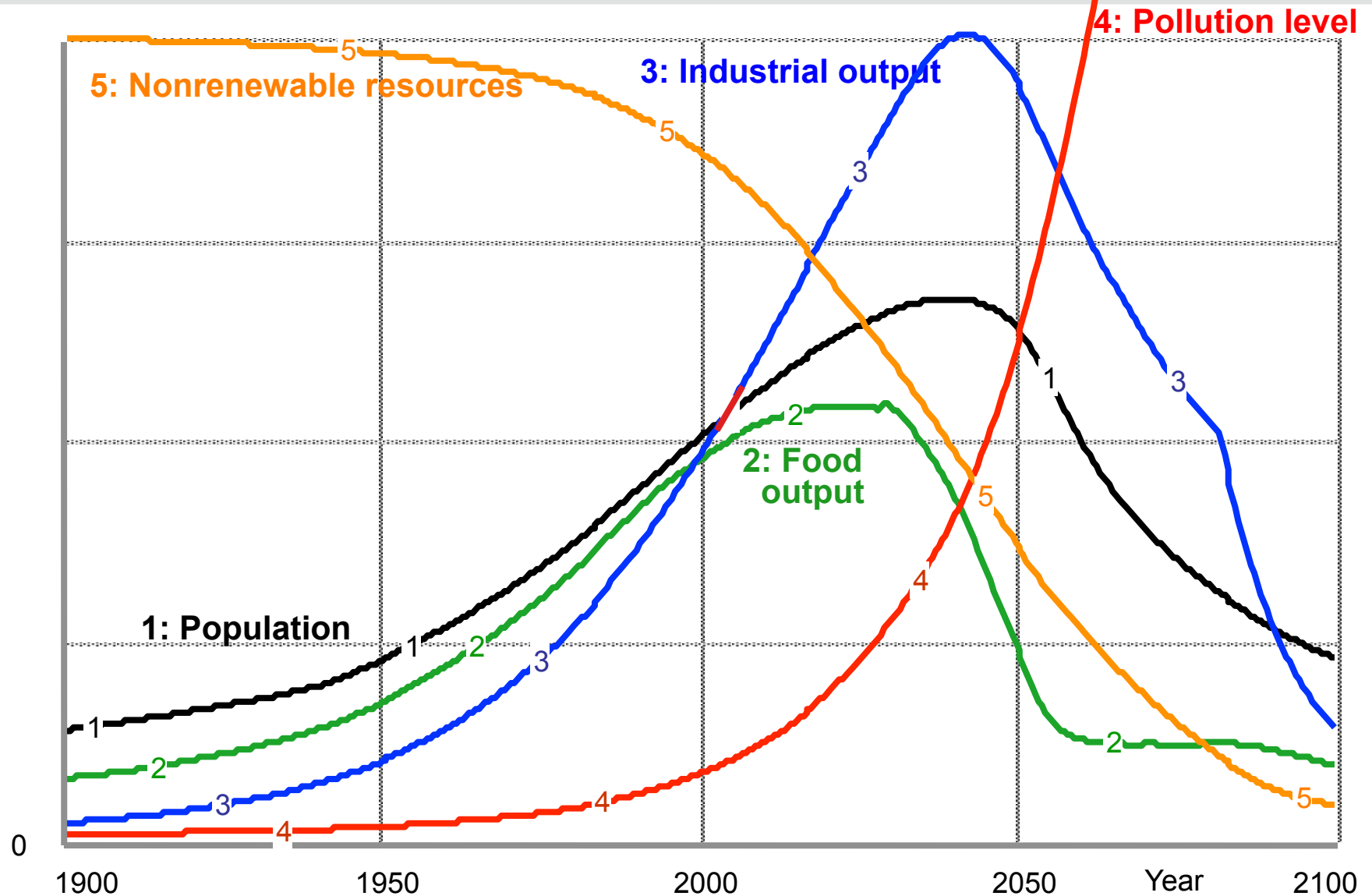
The human ecological footprint 1961 – 03



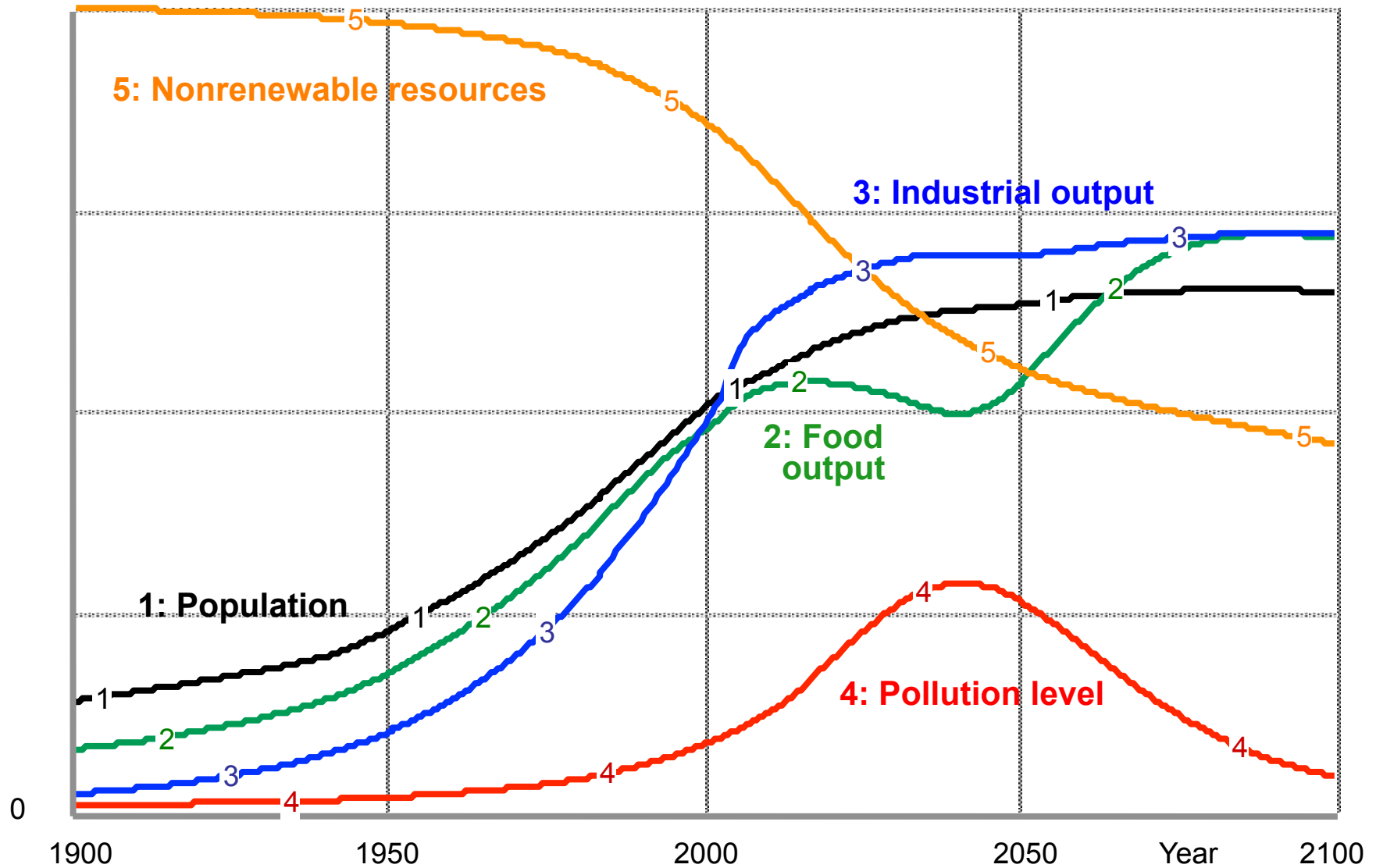
Limits Scenario 1: Resource crisis



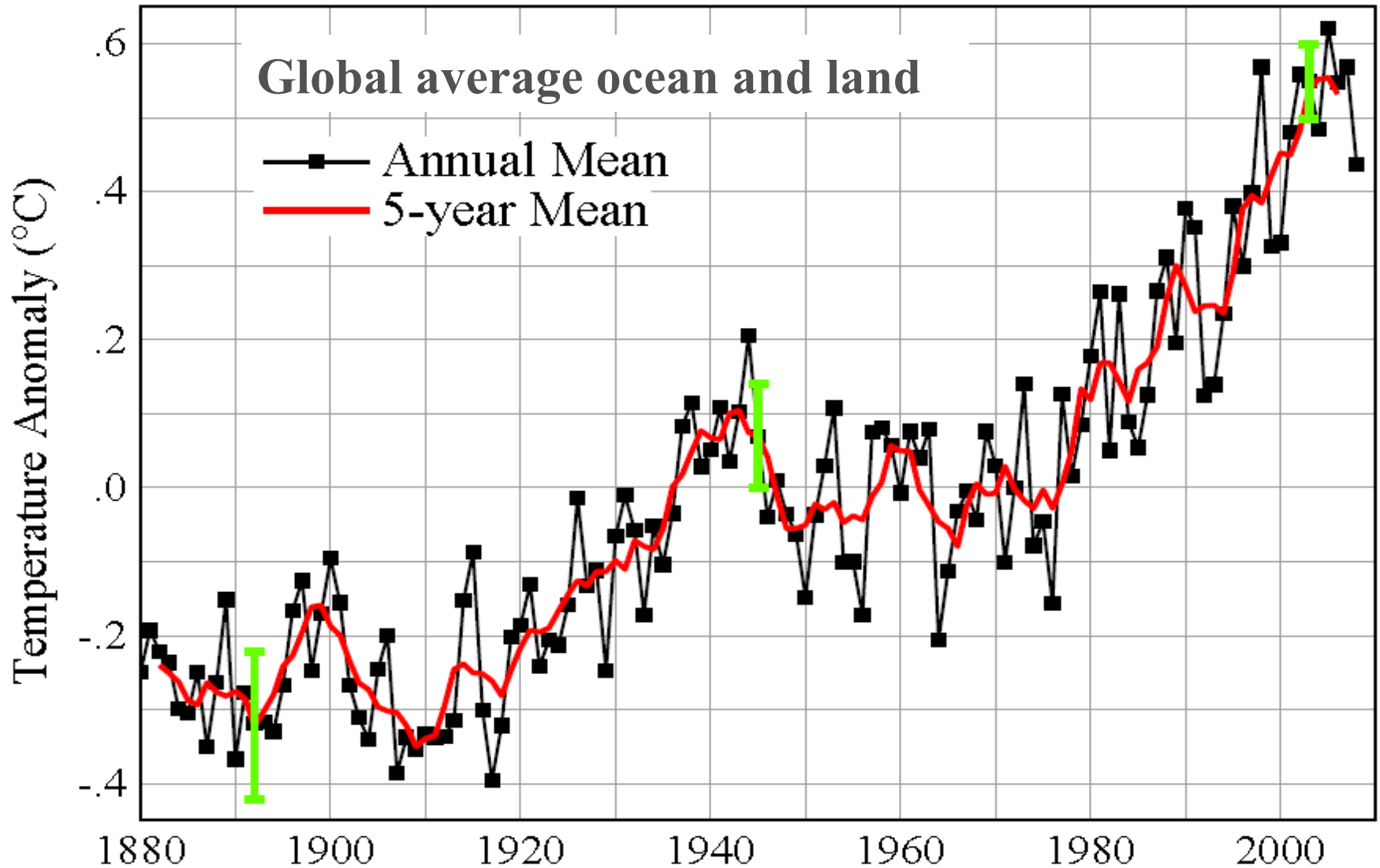
Limits Scenario 2: Pollution crisis



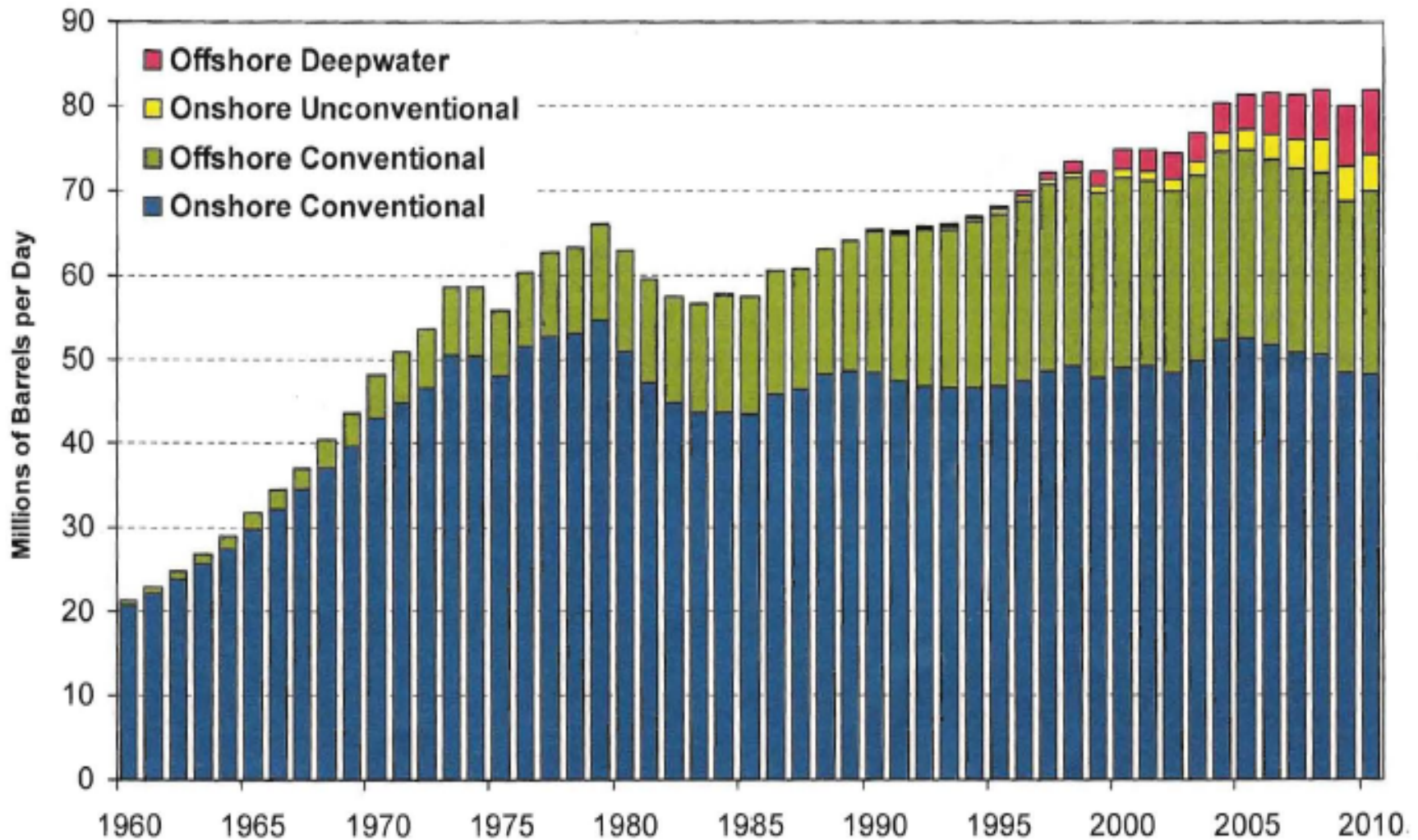
Limits Scenario 9: Sustainability



Average temperature is going up



World oil production – less conventional



Approaching peak oil?

