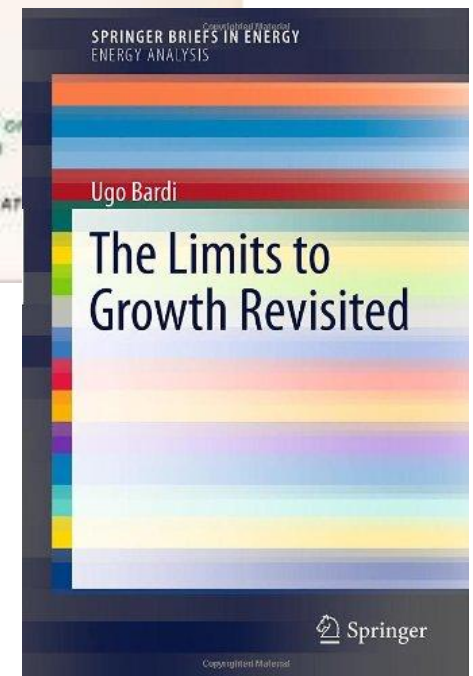


Del Génesis a los límites al crecimiento

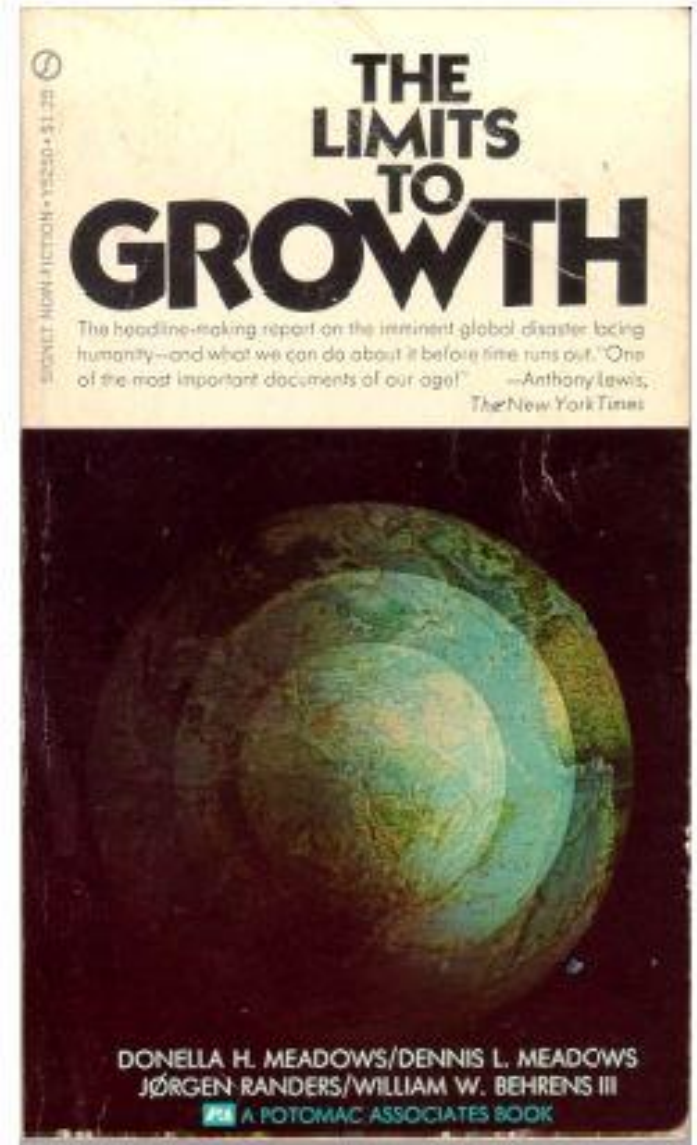
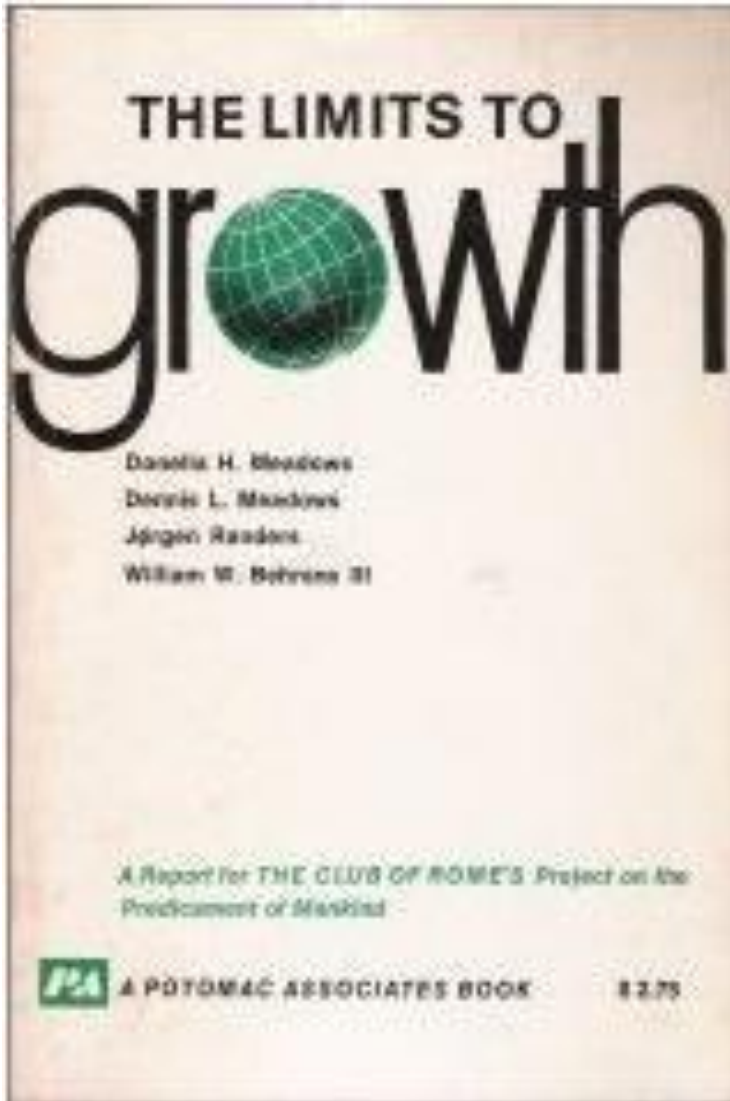
Capítulo Catalán del Club de Roma
Barcelona, 18 de noviembre de 2014

Marcel Coderch i Collell
Miembro del Club de Roma, ex-Vicepresidente de la CMT

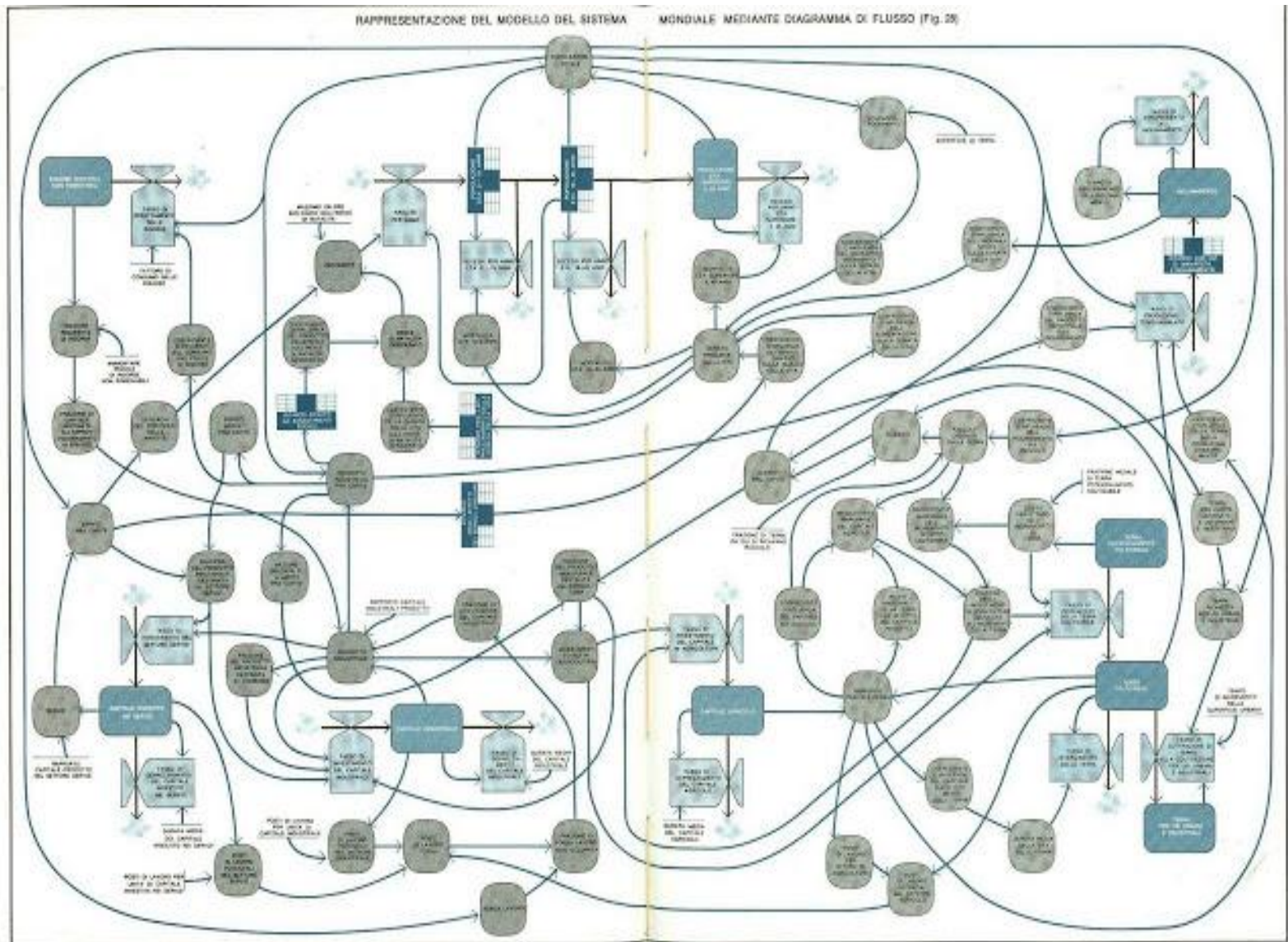
1972



2011

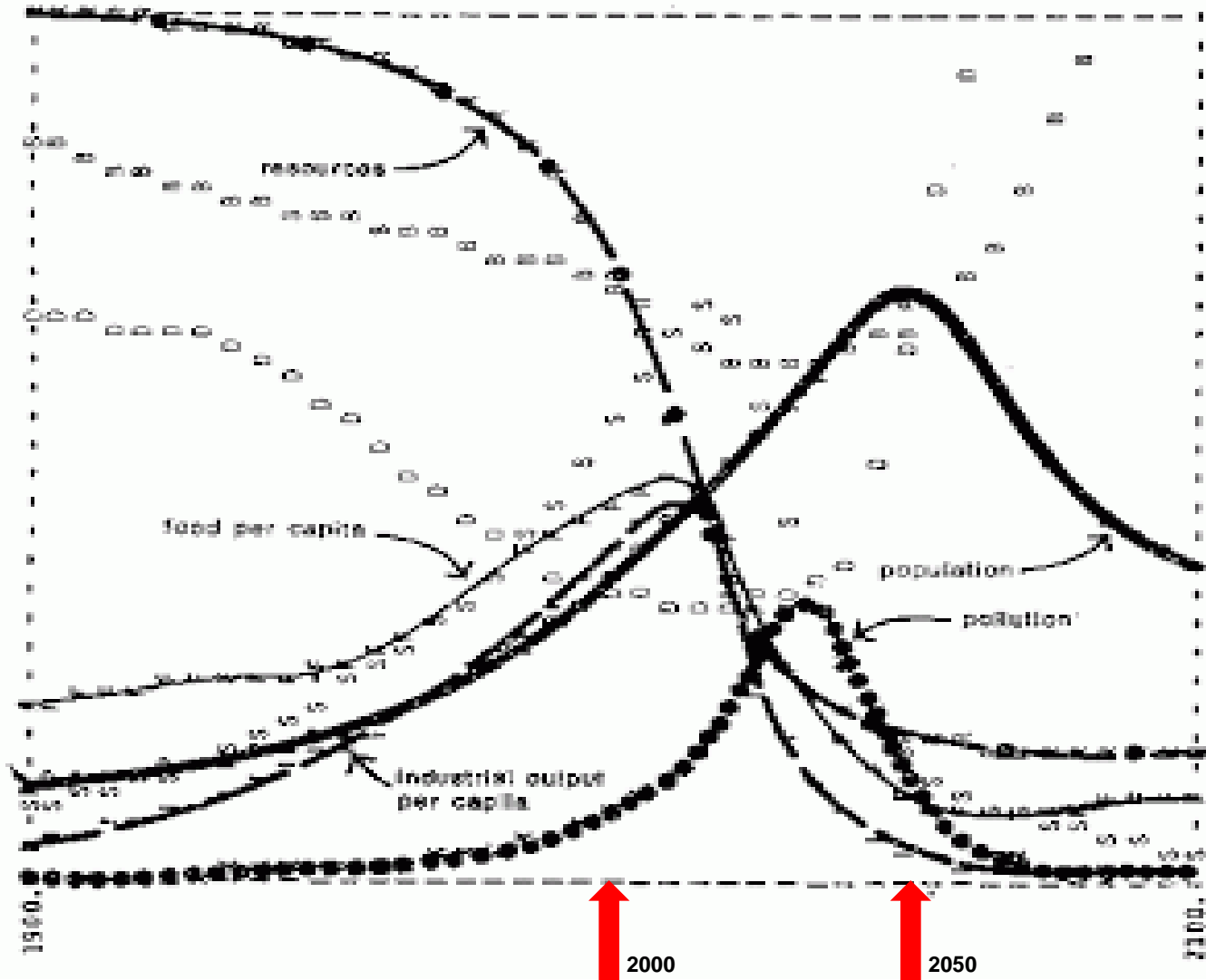


Modelo dinámico: 16 stocks, muchos flujos



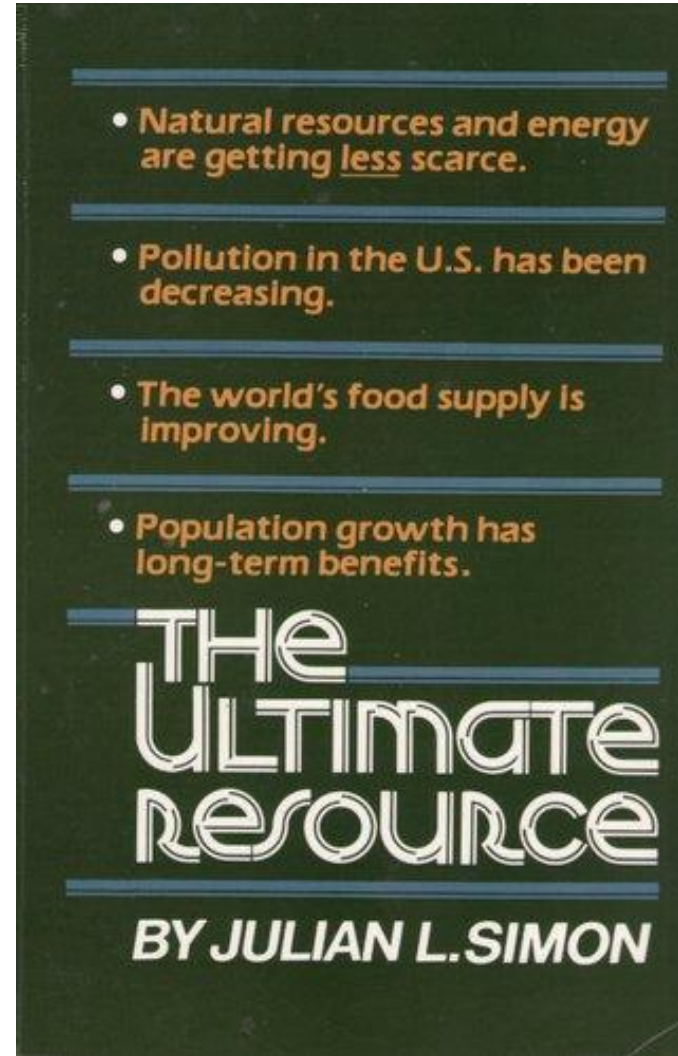
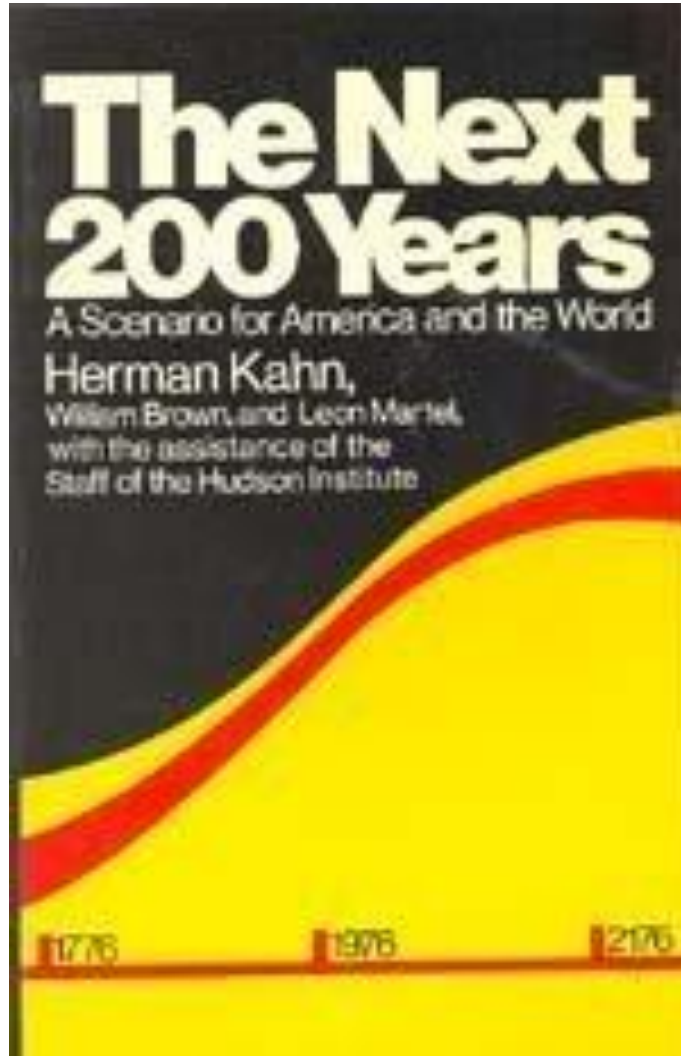
Qué decía realmente TLG?

Figure 35 WORLD MODEL STANDARD RUN



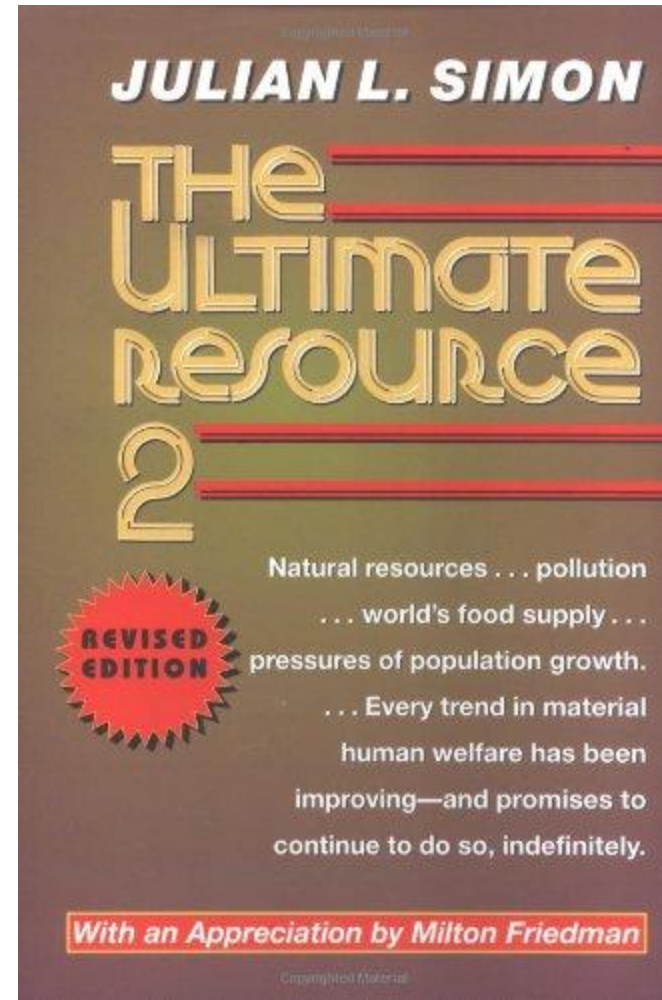
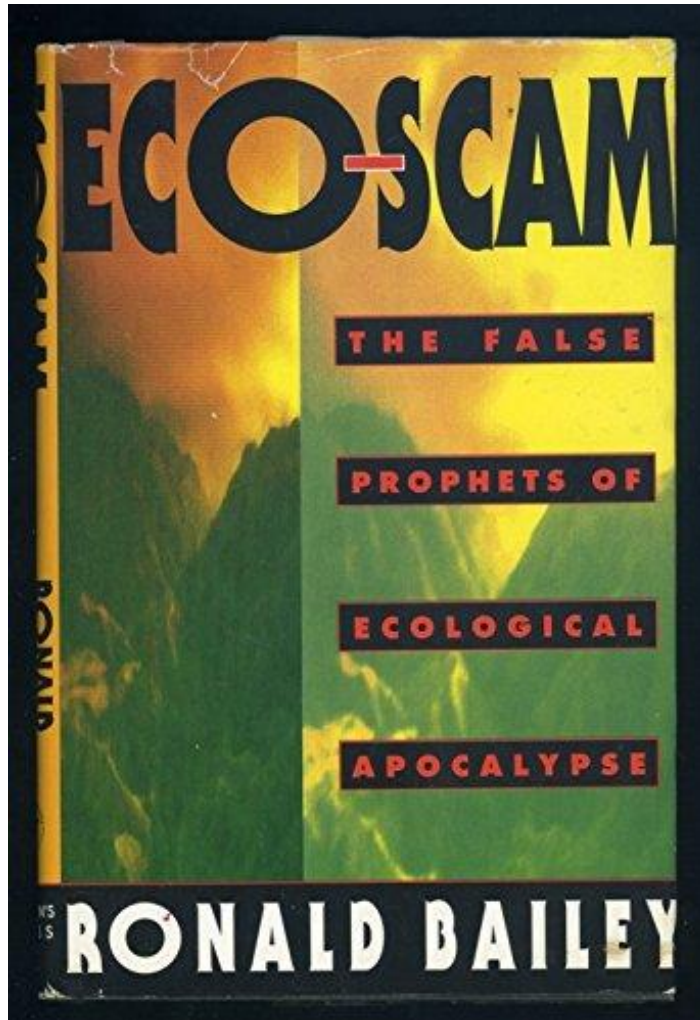
1976

1983



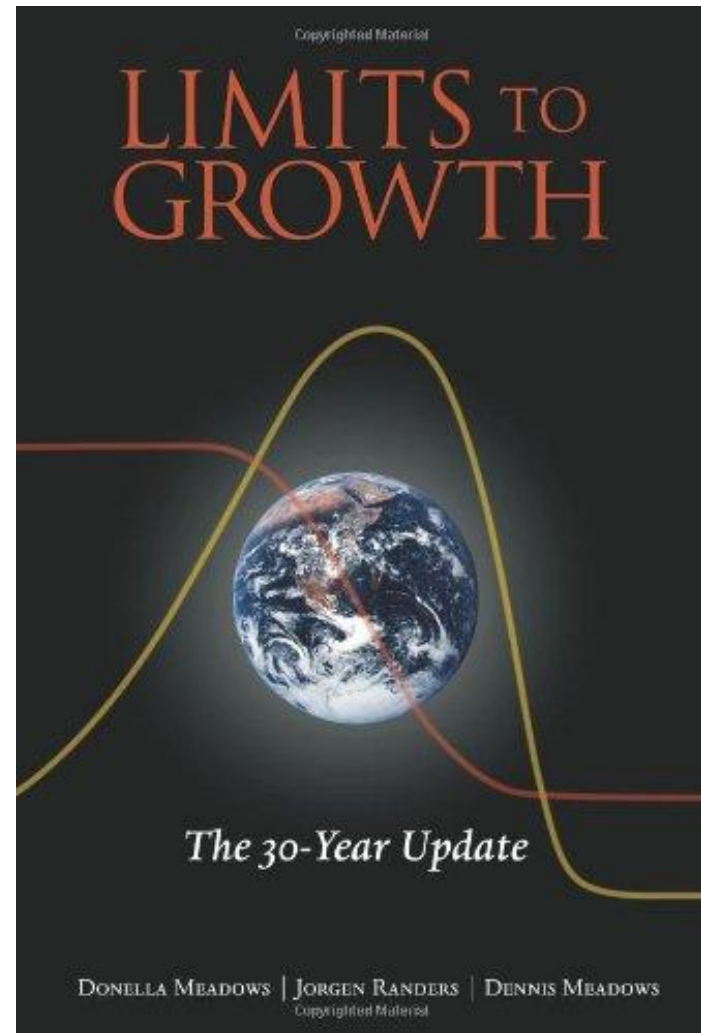
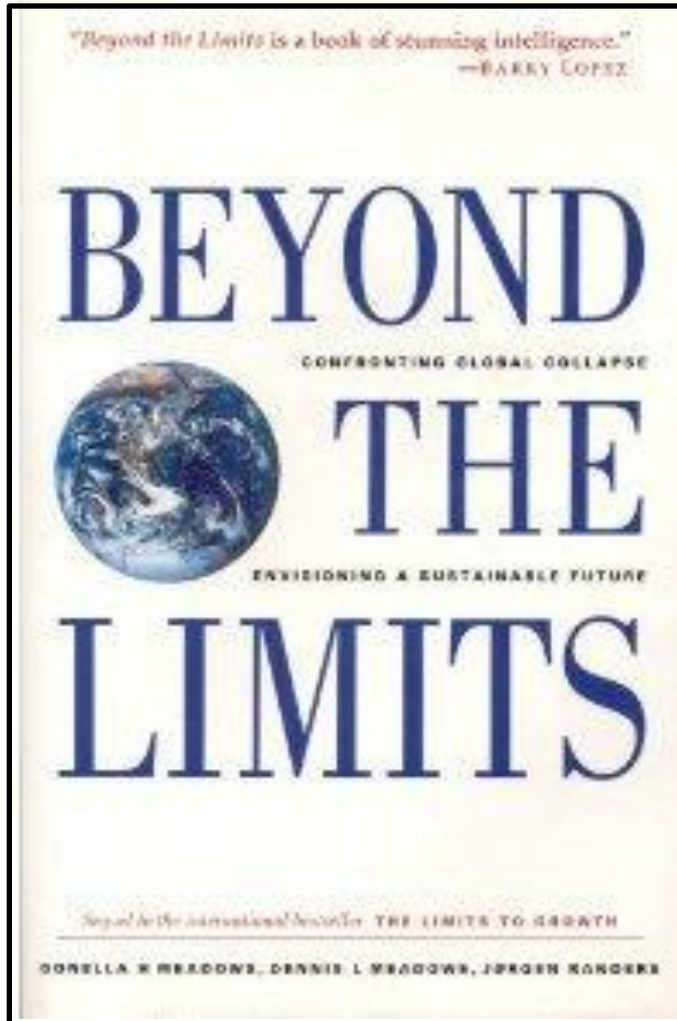
1993

1996



1992

2004



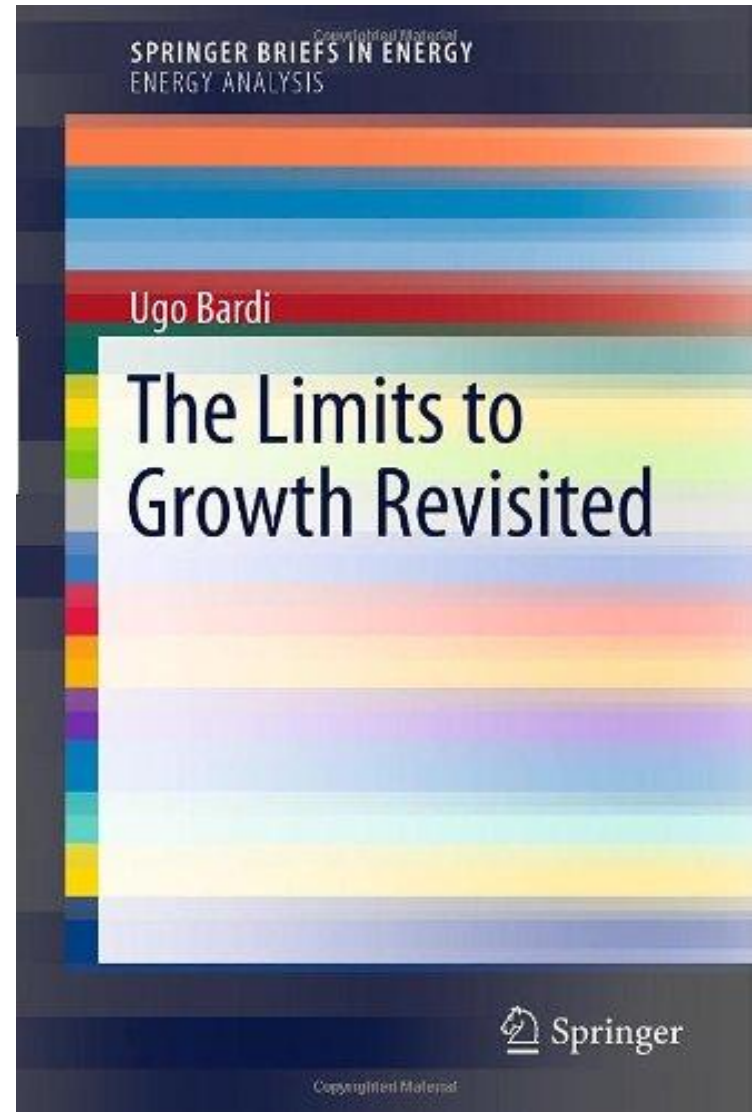
A COMPARISON OF THE LIMITS TO GROWTH WITH THIRTY YEARS OF REALITY

Graham Turner

Socio-Economics and the Environment in Discussion
CSIRO Working Paper Series 2008-09

June 2008

ISSN: 1834-5638



¿Qué dijeron otros?

WILLIAM D. NORDHAUS

Yale University

The Allocation of Energy Resources

ABUNDANT ENERGY AT LOW COST is fundamental to a highly industrialized economy like the United States. The American way of life is hard to visualize without commuters, television, overheated houses, aluminum cans, and jet setters; yet it is equally difficult to conceive of substitutes for these hallmarks of American society if cheap energy were no longer available.

Given the dependence on energy, there has been perennial anxiety over the adequacy of the nation's resources for meeting its apparently insatiable appetite for energy. More recently, the concern for adequacy of energy has been embedded in a more general pessimism about the viability of economic growth on a finite world.¹ This new and pessimistic view about economic growth holds that growth is limited by a finite amount of essential, depletable natural resources. In the process of consuming finite resources, the world standard of living descends inexorably toward that of Neanderthal man.

Note: The research underlying this paper was supported by the National Science Foundation. I am grateful for helpful comments by Gary Haller, Tjalling C. Koopmans, Alan S. Manne, and members of the Brookings panel. In addition, Paul Krugman provided research assistance extraordinary. Remaining errors are, of course, my responsibility.

1. See Paul R. Ehrlich and Anne H. Ehrlich, *Population, Resources, Environment: Issues in Human Ecology* (W. H. Freeman, 1970); Jay W. Forrester, *World Dynamics* (Wright-Allen, 1971); Donella H. Meadows and others, *The Limits to Growth: A Report for the Club of Rome's Project on the Predicament of Mankind* (Universe Books, 1972); "A Blueprint for Survival," *The Ecologist*, Vol. 2 (January 1972), pp. 1-22.

529

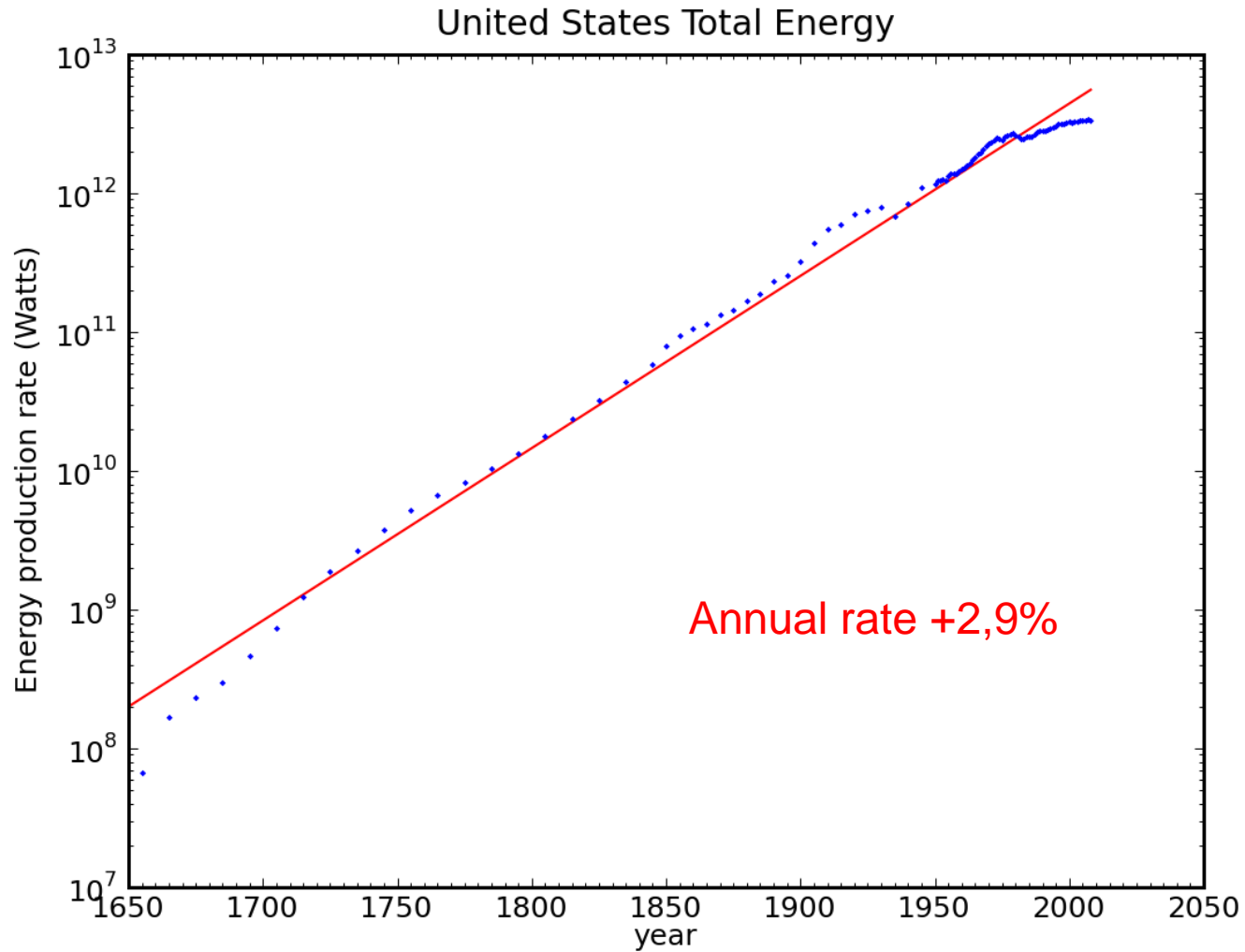
552

Brookings Papers on Economic Activity, 3:1973

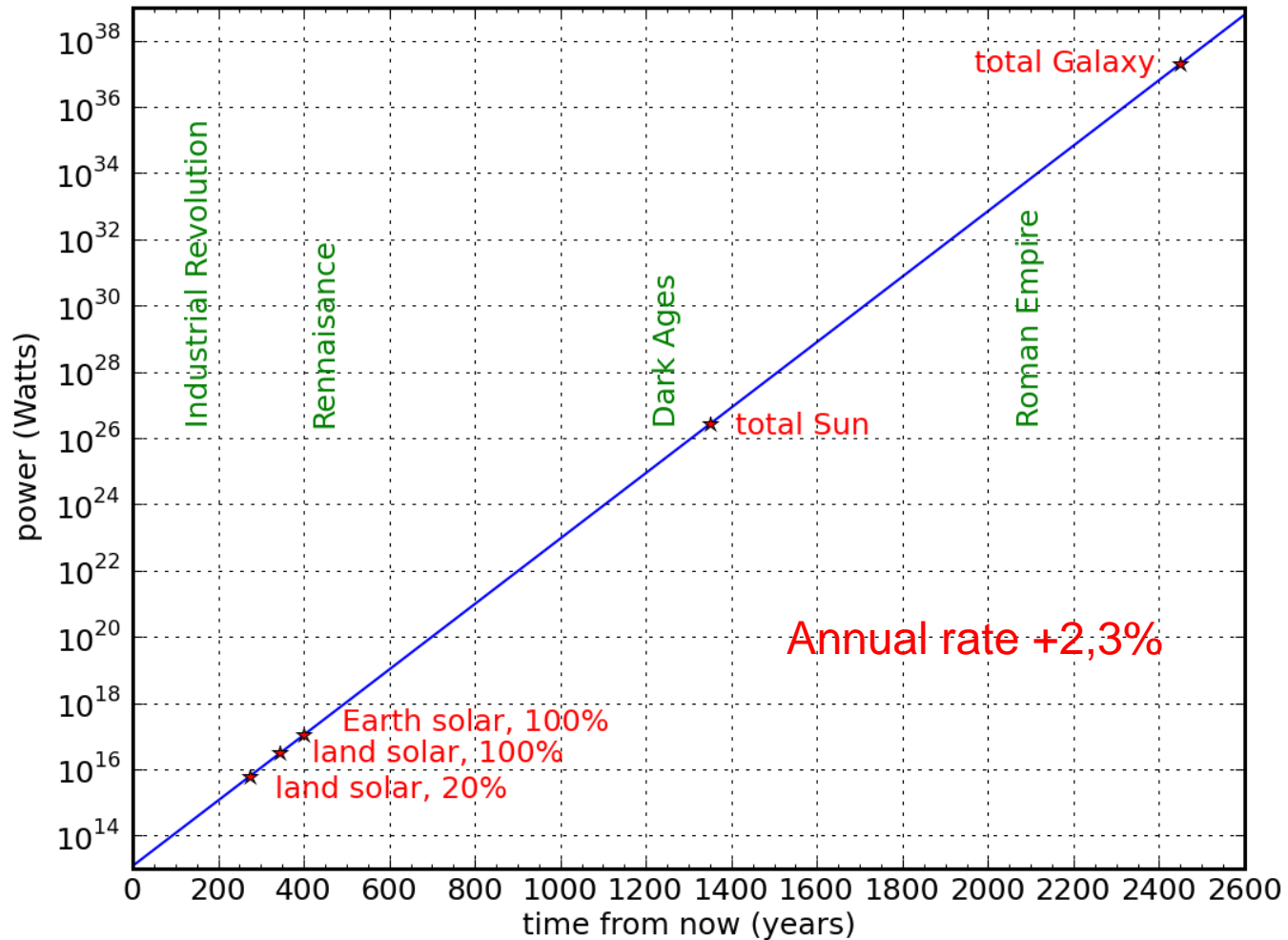
Table 5. Time Path of Optimal U.S. Technological Processes in Solving the Energy Problem, by Demand Categories, 1970-2120 and Beyond

Period	Fuel, by demand category					
	Electricity	Heat		Transportation*		
		Industrial	Residential	Substitutable	Nonsubstitutable	
1970-80	Domestic natural gas	Domestic petroleum and natural gas	Imported oil	Domestic and imported oil		
1980-90	Imported liquefied natural gas	Imported petroleum				
1990-2000			Imported liquefied natural gas			
2000-10	Light-water reactor	Domestic deep coal		Domestic high-cost natural gas	High-cost domestic and imported petroleum	
2010-20				Domestic gasified deep coal and natural gas	Domestic and imported low-cost shale oil and domestic liquefied coal	
2020-45				Light-water reactor	Domestic liquefied deep coal	
2045-70			Breeder reactor			
2070-2120	Breeder reactor				Domestic liquefied deep coal and high-cost shale oil	
2120 to indefinite future	Breeder reactor					

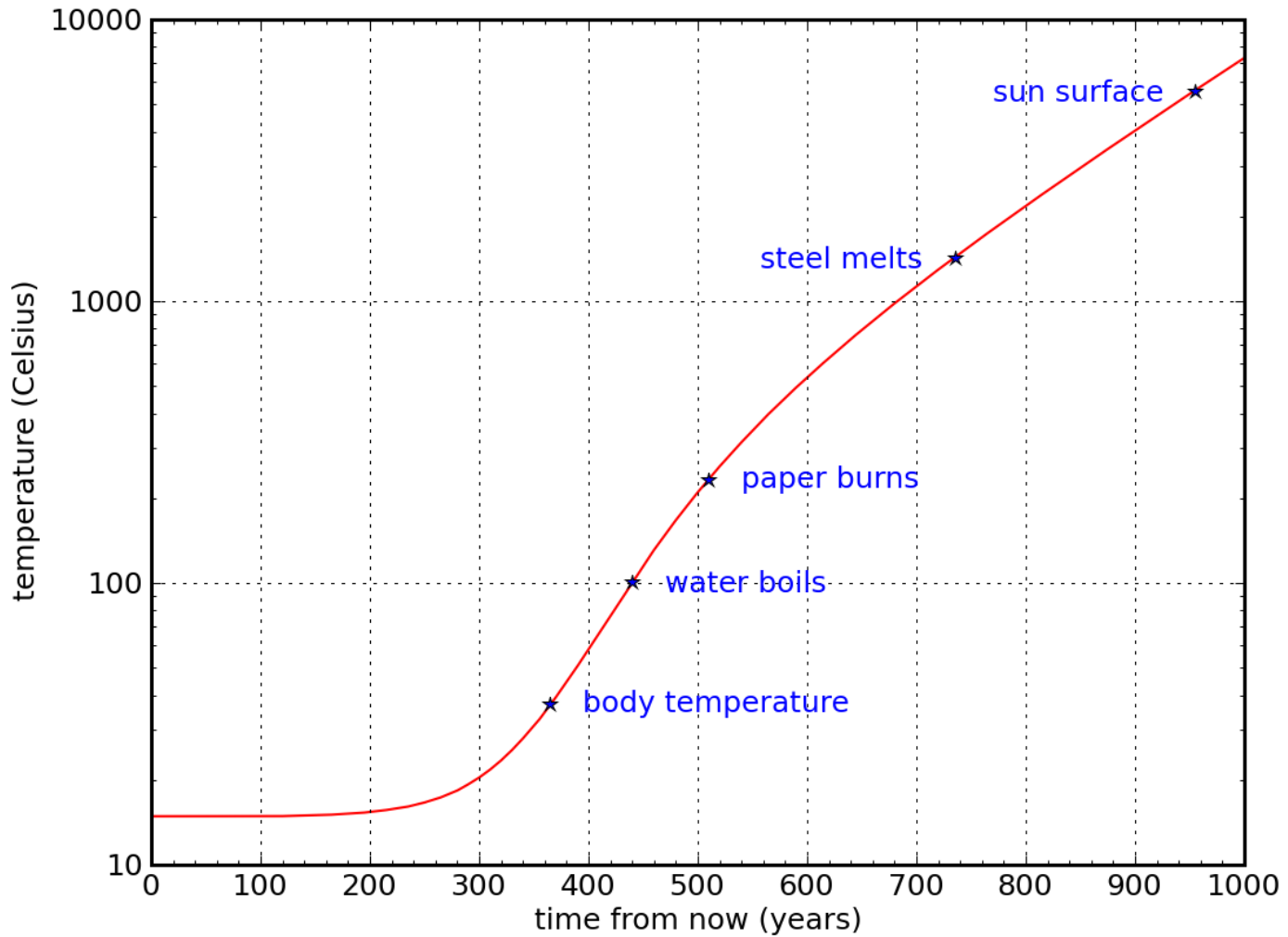
La energía: factor clave



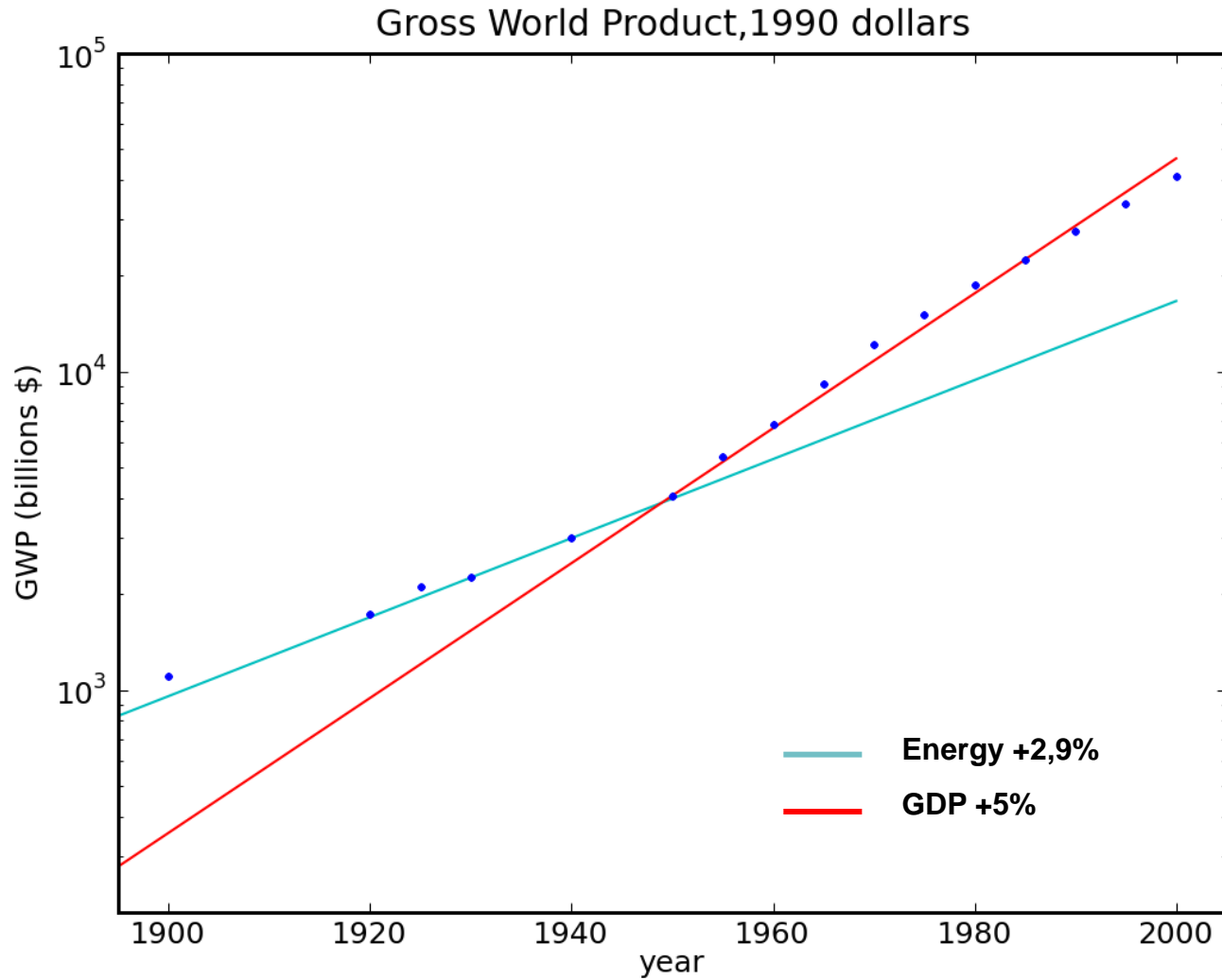
La energía: factor clave



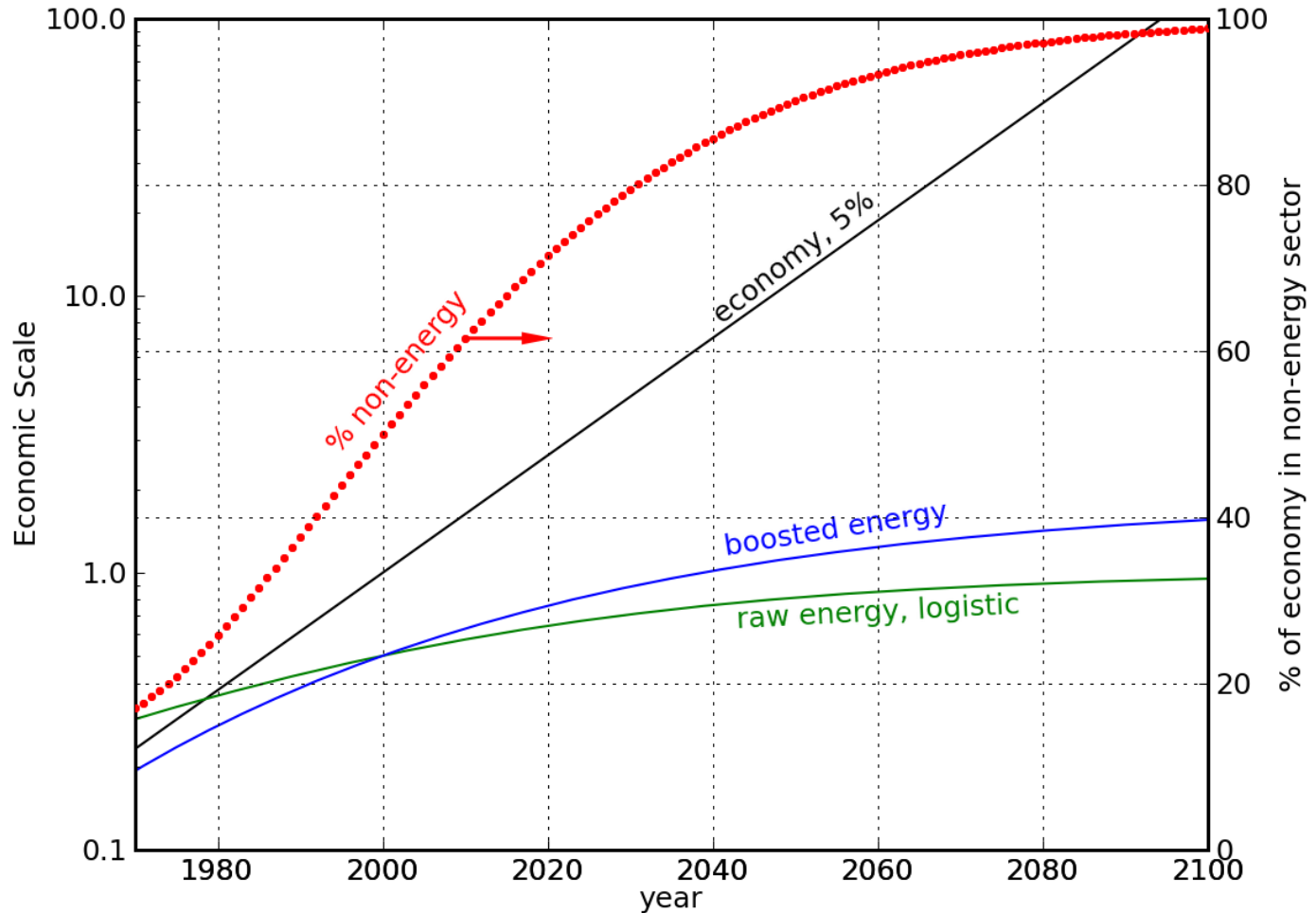
La energía: límites termodinámicos



¿Crecer sin más energía?



¿Crecer sin más energía?



Releamos el Génesis

Y creó Dios a los hombres a su imagen; a imagen de Dios los creó; varón y hembra los creó. Y los bendijo Dios diciéndoles:

Creced y multiplicaos, llenad la Tierra y sometedla; dominad sobre los peces del mar, las aves del cielo y todos los animales que se mueven por la tierra.