

The Strategic Dimensions of the Fusion Energy Challenge

...

Dr. Florentino PORTERO

Neolithic Revolution (10000 BC-....)



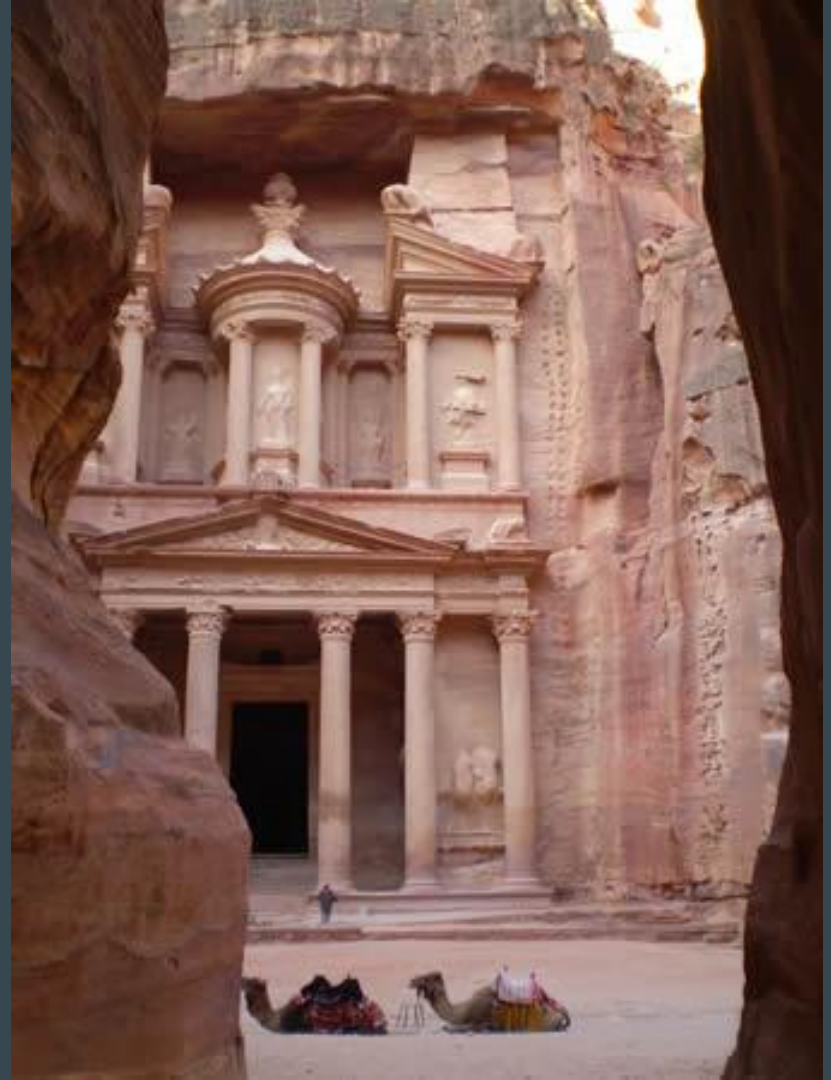
Egyptian ceramic pot (3400 BC)

Code of Hammurabi (1754 BC)



Petra (capital of the Nabataeans since 312 BC)

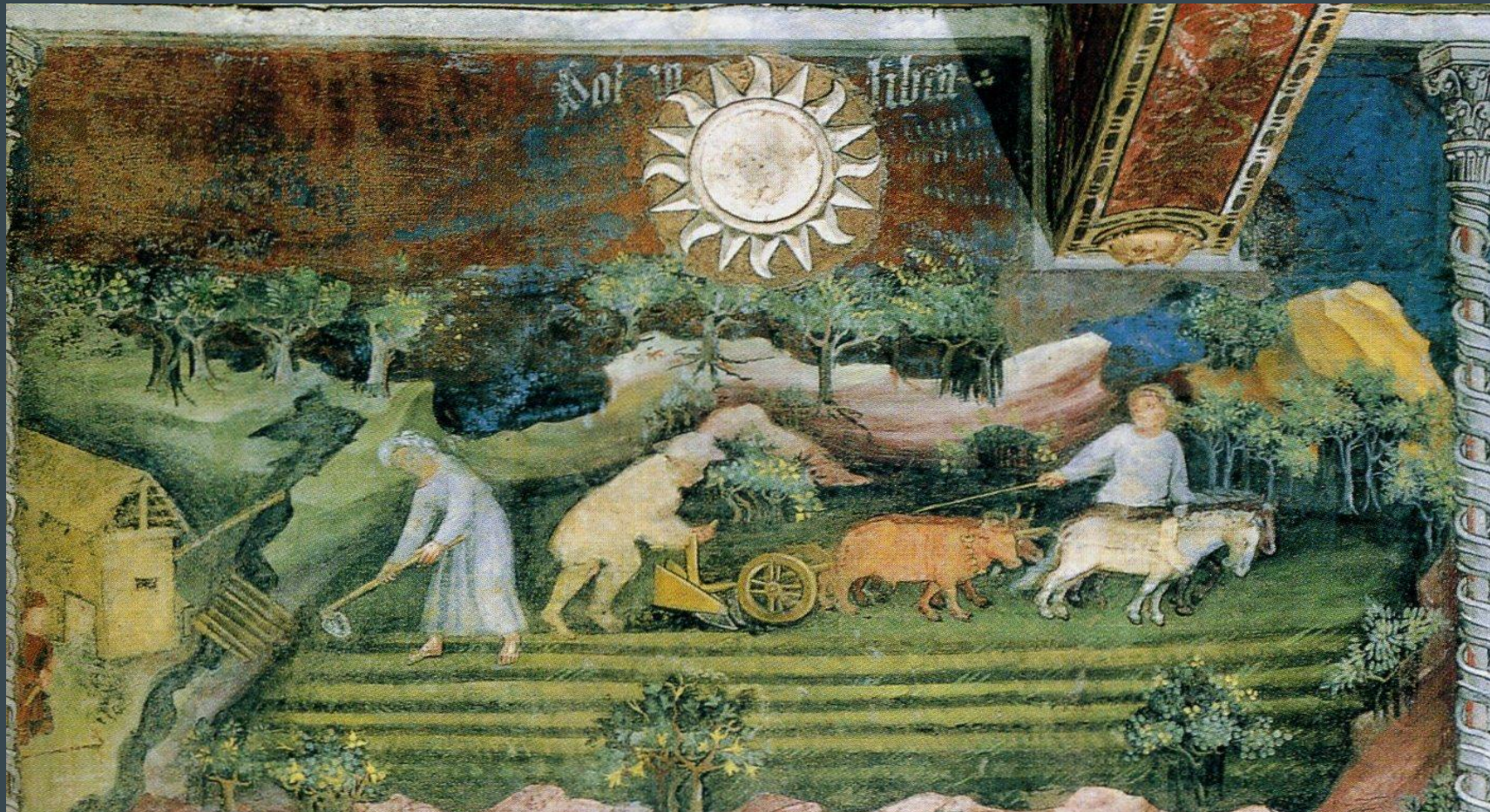
The Treasury, 1st c AD



Wind Power. Bayeux Tapestry (1070 A.D.)



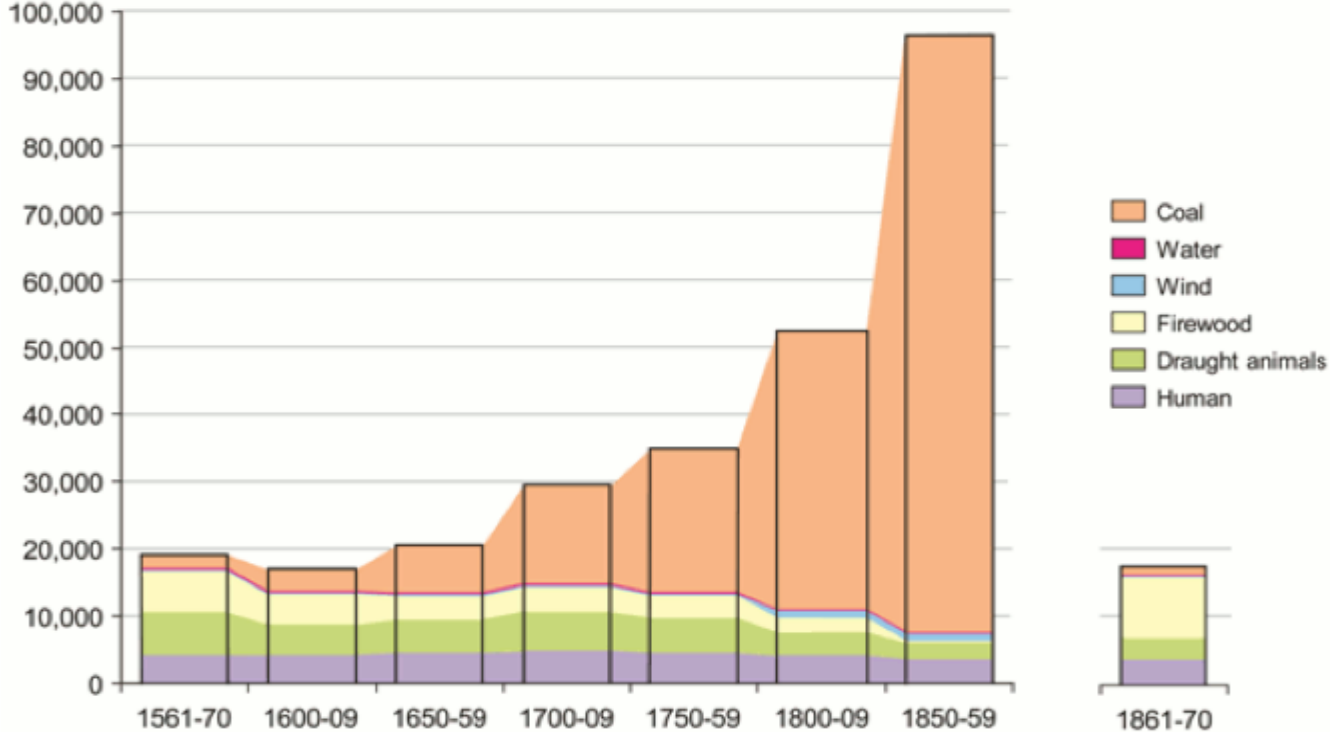
Animal Power (Ciclo dei mesi. Maestro Wenceslao, c. 1400. Trento)



Water power (Noria of Hama, Syria, Ayyubid period XII-XIII c)



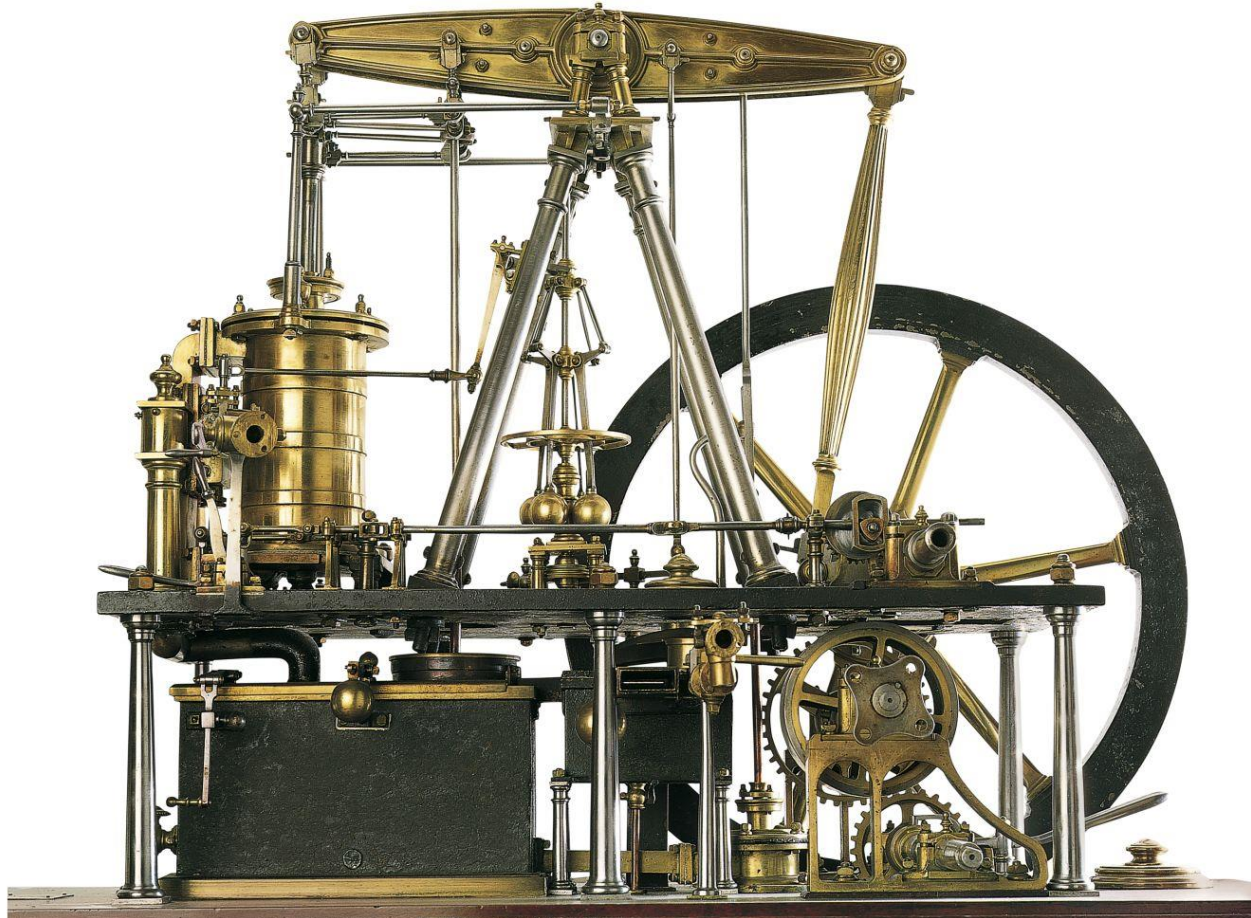
England's shift to coal as its primary energy source



England

Italy

Watt's Steam Engine (1774)



The Paddle Steamer "Britannia" (1840)



Population of Selected British Cities 1801–1891

Town	1801	1861	1891
Birmingham	74,000	296,000	523,000
Leeds	53,000	207,000	429,000
Liverpool	80,000	444,000	704,000
Manchester	90,000	339,000	645,000

Source: B.R. Mitchell, *International Historical Statistics: Europe, 1750–1988*, Stockton Press, Third Edition
(adapted)

Manchester (1870)



ALUMBRADO ELECTRICO DE AUTOMOVILES



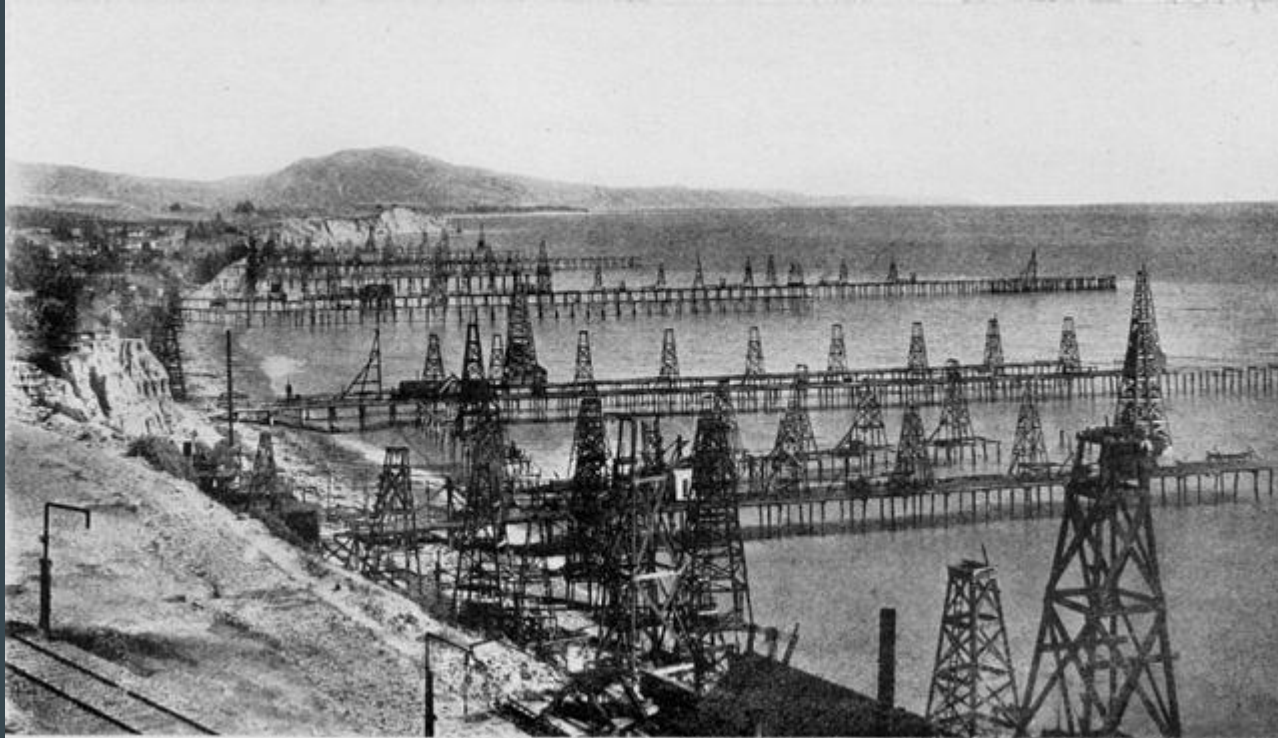
DYNAMO FARO EYQUEM

191 & 195 BOULEVARD PÉREIRE, PARIS.

1907



California's first offshore oil wells (Summerland Field before 1906)



ORGANIZED UNDER THE LAWS OF THE STATE OF NEW YORK.

NEW ENGLAND



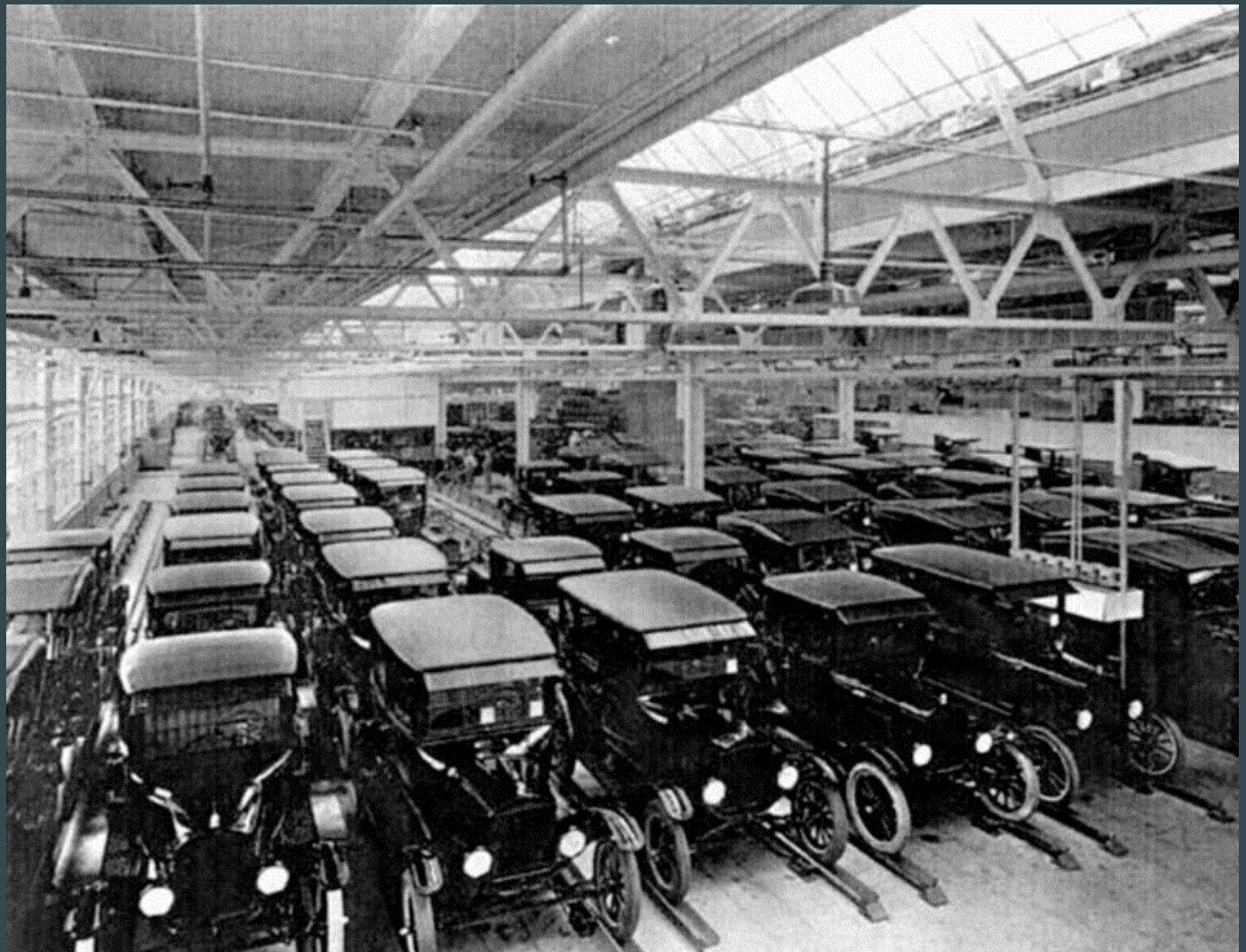
No.

100 Shares

TELEPHONE AND TELEGRAPH COMPANY.

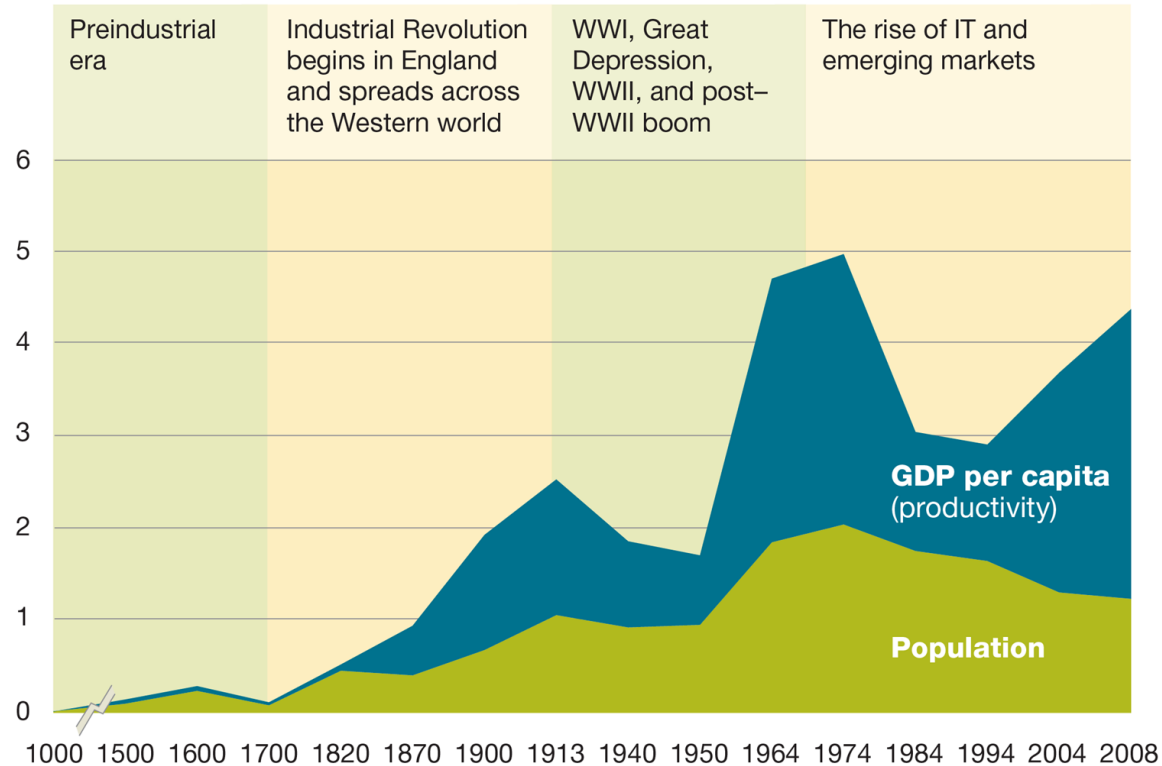
Return to

A Ford T
factory





Contribution to world GDP growth, GDP per capita vs population, years 1–2008,¹ compound annual growth rate (CAGR), %

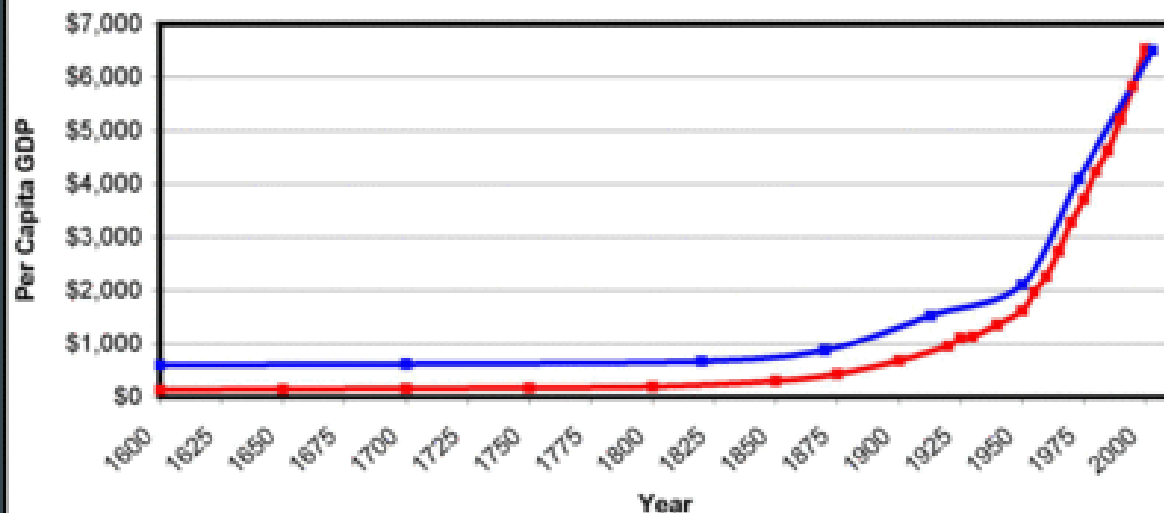


¹X-axis labels represent end points in ranges—eg, the range 1 to 1000 CE is labeled as 1000, 1000 to 1500 CE is labeled as 1500, and so on.

Source: McKinsey Global Institute analysis based on data from economist Angus Maddison

World Per Capita GDP 1600 - 2003 (1990 Int'l Dollars)

— Brad DeLong — Angus Maddison



Source: J. Bradford DeLong, "Estimating World GDP, One Million B.C. - Present" http://www.j-bradford-delong.net/TCDEH/1998_DraftWorld_GDP/Estimating_World_GDP.html. Accessed Mar 5, 2008; Angus Maddison, "Contours of the World Economy, 1-2000 AD: Essays in Macro-Economic History." New York: Oxford University Press, 2007. 362.

© 2008 MisesW.com



SUISSE
FRANCE

CMS

LHC 27 km

LHCb

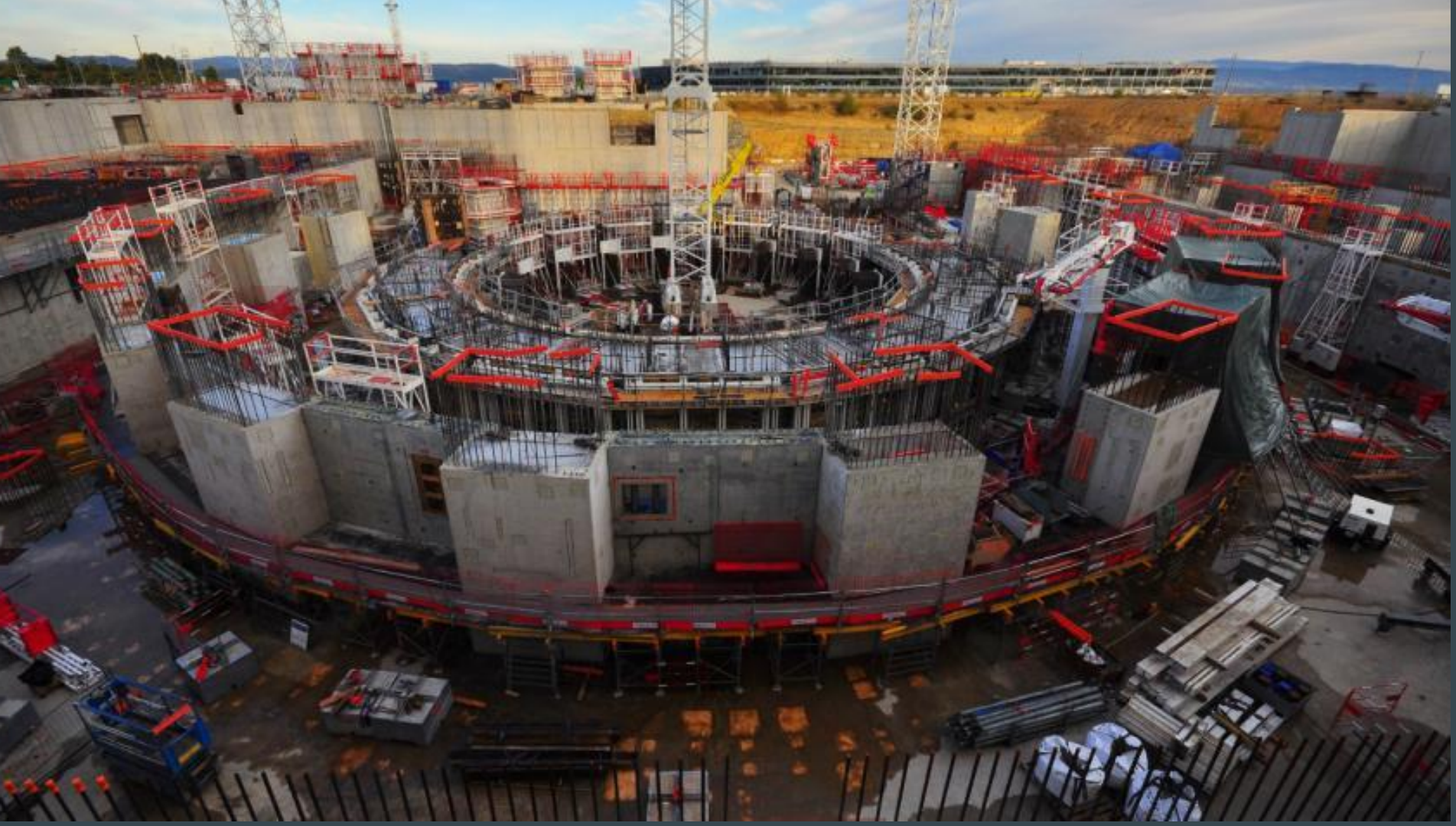
CERN Meyrin

ATLAS

CERN Meyrin II

SPS 7 km

ALICE



Conclusions

The consumption of energy is increasing, therefore clean sources of energies are required to keep the progress

Realization of fusion as energy source would imply a new revolution for the mankind and could fulfil part of those needs

It is an obligation of governments and society to provide the necessary tools to researcher and engineers to achieve Fusion as a source of energy

You, as Fusion experts, have the opportunity of transform the history of the mankind towards a new era!