



# Denying the Fossil Fuel Greenhouse: *The Real “Junk Science” of Global Warming*

Presented at 2nd Annual Conference on Corporate &  
Political Influence on Science-Based Policy-Making  
The International Trade Center  
Washington, DC  
July 12, 2004

by  
Marty Hoffert  
Physics Department  
New York University  
New York, NY  
[marty.hoffert@nyu.edu](mailto:marty.hoffert@nyu.edu)

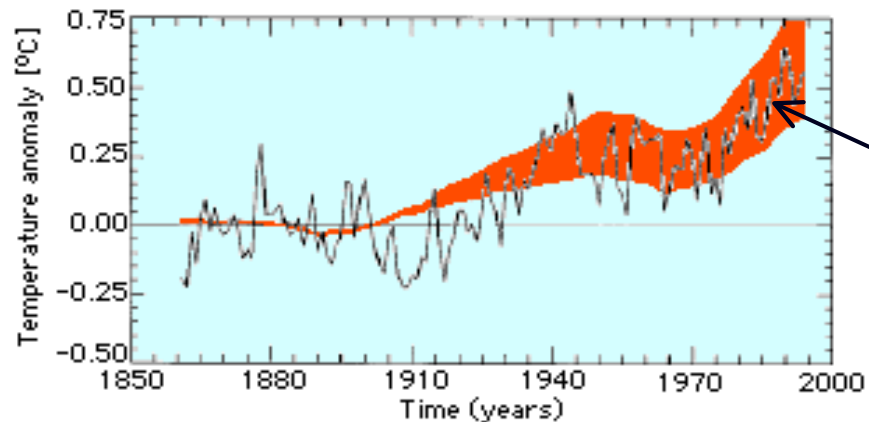
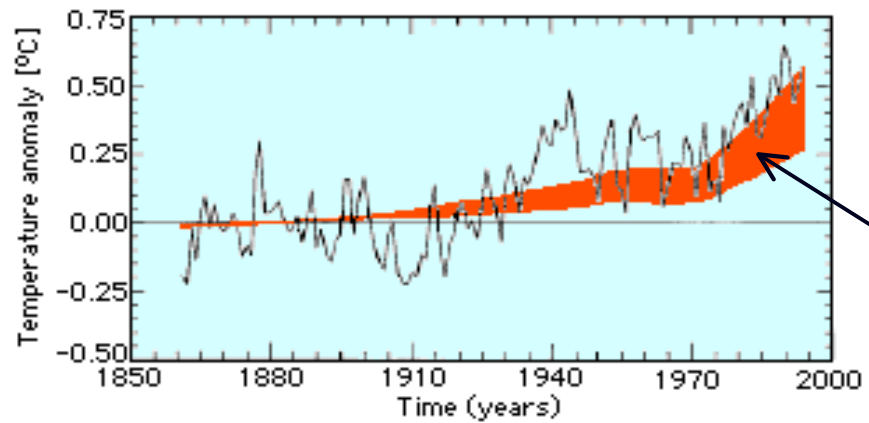
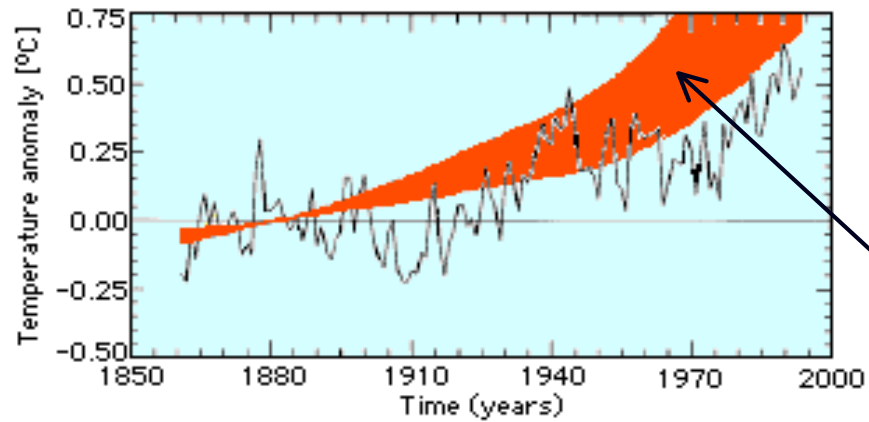
## *Uncertainty, Politics & Global Warming*

“Should the public come to believe that the scientific issues are settled, their views about global warming will change accordingly. Therefore, you need to continue to make the lack of scientific certainty a primary issue in the debate . . .”

Frank Luntz, GOP strategist in a confidential memo leaked to the press  
(The Guardian, March 4, 2003)

“This AEI conference seeks to restart the climate-change dialog by returning to the spirit of the Rio consensus . . . Panelists will discuss the the science of climate change, which has grown *more uncertain* (my italics), and more susceptible to political influence in recent years . . .”

Samuel Therstrom, AEI, Invitation to participate in  
American Enterprise Institute/Marshall Institute-sponsored Conference “Reexamining  
Climate Change Science, Economics & Policy”  
(E-Mailed to me, Nov. 4, 2003)



Historical Global Surface Temperature Change: IPCC Uncertainty range of climate models (orange zones) versus instrumental observations (black fluctuating curves)

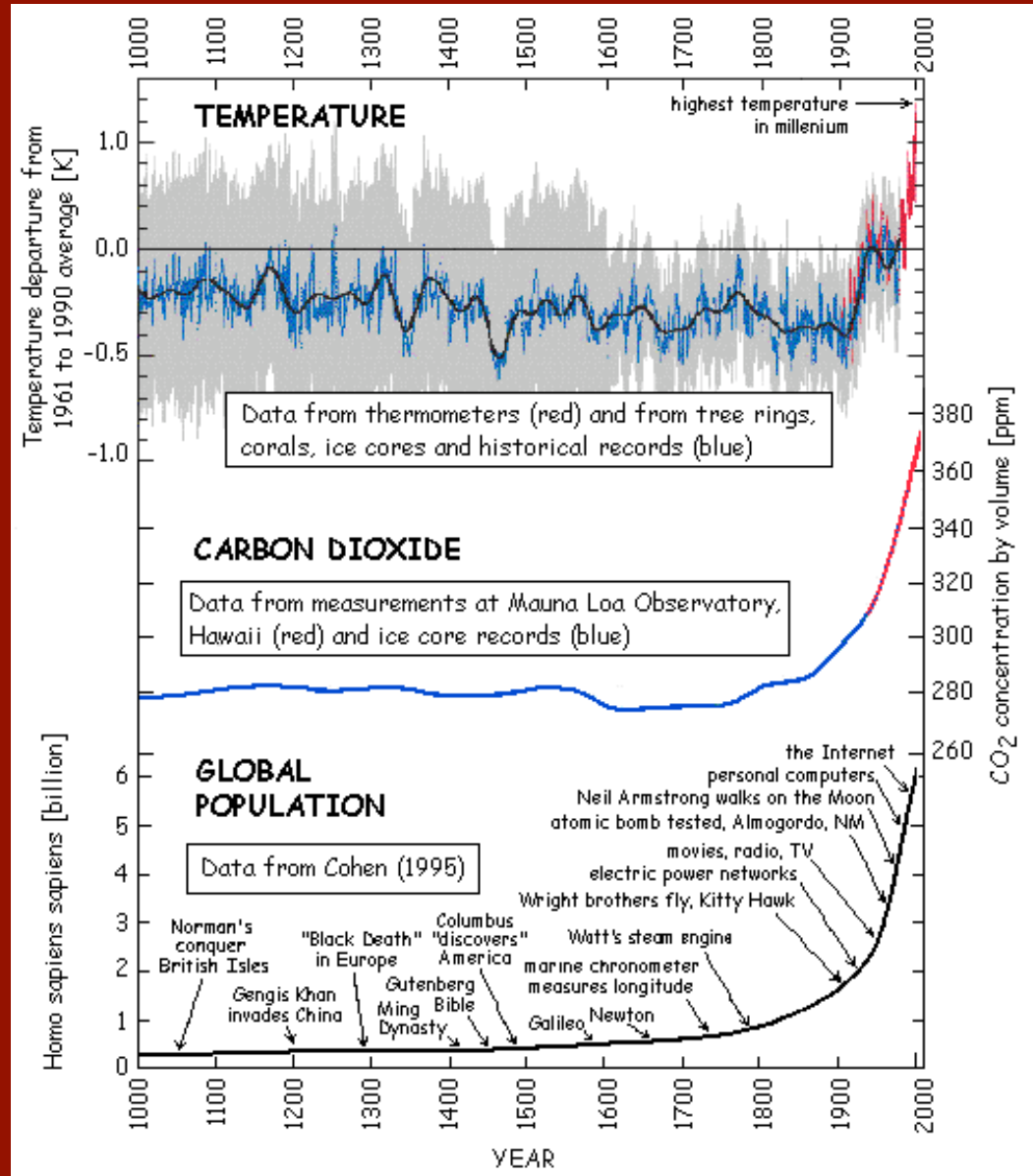
(TOP) Model with greenhouse gases only

(MIDDLE) Model with greenhouse gases + aerosols

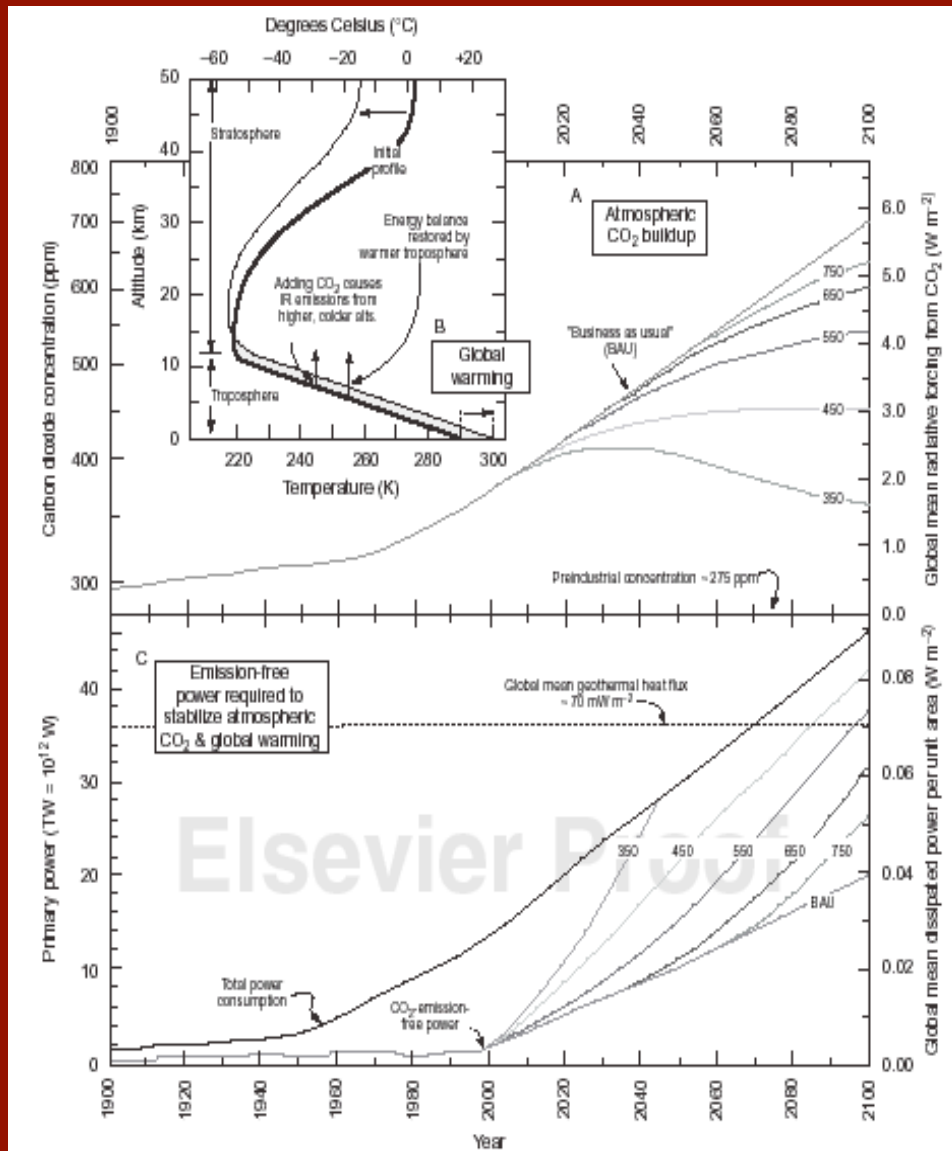
(BOTTOM) Model with greenhouse gases + aerosols + solar variations

# Global warming over the past millennium

Very rapidly we have entered uncharted territory -- what some call the *anthropocene* climate regime. Over the 20<sup>th</sup> century, human population quadrupled and energy consumption increased sixteenfold. Near the end of the last century, we crossed a critical threshold, and global warming from the fossil fuel greenhouse became a major, and increasingly dominant, factor in climate change. Global mean surface temperature is higher today than it's been for at least a millennium.



# Cutting CO<sub>2</sub> Emissions to Stabilize Climate Change: How Much Emission-Free Power Do We Need & When?



**(A) Atmospheric CO<sub>2</sub> concentration** (left-hand-scale) and radiative forcing (right-hand scale). The rise of CO<sub>2</sub> thus far is mainly from fossil fuel emissions. Future concentrations are for a “business as usual” and scenarios which stabilize atmospheric CO<sub>2</sub> (eventually) in the range of 350 to 750 parts per million (ppm).

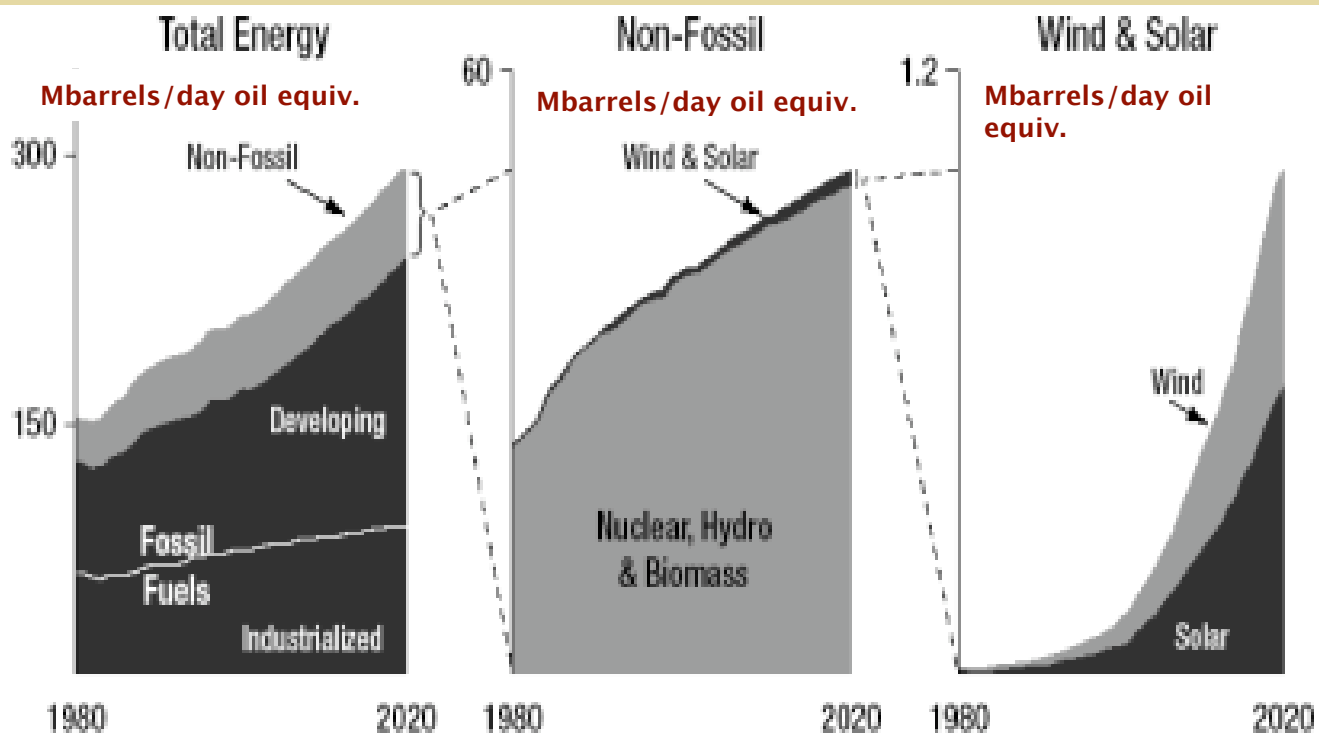
**(B) The CO<sub>2</sub> greenhouse** affects vertical temperature structure. Maintaining the planetary energy balance requires that the Earth radiate to space at Earth's effective temperature from higher in the atmosphere.. Best estimates of climate sensitive are that doubling CO<sub>2</sub> to 550 ppm, would cause 1.5 to 4.5 degrees Celsius global warming.

**(C) Total and emission-free power** to stabilize CO<sub>2</sub> at various concentration levels. This panel shows we could need 100 to 300 percent of present global power production by 2050 from sources that don't emit CO<sub>2</sub>, even with aggressive improvements in energy conversion efficiency.

# POLICY IMPLICATION FOR RENEWABLE ENERGY:

Some industry critics claim we will never power civilization with renewable energy. Fact: Wind & solar are fastest-growing primary power sources, but are unlikely to grow from present ~ 1% of supply to 10% by 2025 and >30% by 2050 without major incentives, R & D and demonstration of enabling technologies. There are no known show-stoppers

## Energy Demand 1980–2020 (BAU)



**déjà vu:** The double-finned beast on a microwave tower in the middle right of the collage at left is the Lebest Wind Turbine (LWT). The top is an image from an interview Jane Pauley of the NBC Today show did with me live from the Barney Building roof in the summer of '79 shortly after the LWT went up. The winning architectural design for the WTC reconstruction, the Freedom Tower by Daniel Liebeskin and David Child, is projected to contain wind turbines inside its open cable-tensioned upper structure, sufficient to generate 20% of the building's electricity -- the first wind turbine in lower Manhattan since we built the NYU LWT during the "Energy Crisis" of the 1970's. We don't have 25 years to wait for the next ones.

The author interviewed by Jane Pauley on NBC "Today" in 1979 on decentralized wind power on the roof of the NYU Barney Building



Daniel Libeskind & David Child's design for the 1776 ft tall "Freedom Tower"

