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Global Warming Exposed: A Brief Summary

The global warming movement, fueled by hysteria about global flooding due to polar ice cap melting, has grown to the point at which a significant number of our elected officials are considering imposing a carbon cap and trade system in the United States. Such a system would stifle economic growth by increasing the cost of doing business. The cost of living would rise even more and even more good-paying jobs would be lost to other countries. The American people cannot afford this.

This brief summary highlights significant points made in my paper "Global Warming Exposed: A Critique of the Underlying Science and Method" in which I identify several mistakes made by scientists and academics in studying the global warming hypothesis. These mistakes make their work inconsistent with basic principles of science and, therefore, not applicable to the world in which we live.

Dispelling the Fear

It is physically impossible to melt all of the ice in Antarctica with its current orientation relative to the sun. See "How Long Would It Take to Melt the Antarctica Ice Mass" for a simple calculation showing this.

The Earth Does Not Have a Temperature in Science

The Thermodynamic Definition of Temperature defines the temperature property for science. By this definition, temperature only has meaning for a body or system that is in thermal equilibrium. A body or system in thermal equilibrium will have the same temperature throughout. Since temperatures vary throughout the Earth and its atmosphere, the Earth is not a body or system in thermal equilibrium and the notion of a global temperature has no meaning in science. Studies that claim to show a global warming or cooling, based upon an analysis of average temperatures, are meaningless manipulations of numbers because they are inconsistent with the thermodynamic definition of temperature. They do no apply to the world in which we live.

The Earth's Atmosphere Is More Like Insulation in a House than a Greenhouse

All bodies radiate energy at a rate that is directly proportional to their temperature raised to the fourth power. These basic principles of thermodynamics apply to all bodies, including molecules of carbon dioxide and other so-called greenhouse gases. A gas molecule also moves faster with random motion when it absorbs energy (Kinetic-Molecular Theory of Gases) and will collide with other gas molecules within the Earth's atmosphere (N_2, O_2, H_2O, etc.). Upon collision, energy is transferred from the high-energy molecule to the low-energy molecule by conduction.

These principles of science describe the transfer of energy in the world in which we live. Radiation energy received from the sun is continuously radiated back into space from the Earth (including its atmosphere) at a rate that is directly proportional to energy level. The Earth's warming and cooling is self-regulating by these principles. If the Earth absorbs too much energy (becomes too hot), the rate of radiation will accelerate until it cools. If it is too cool, the rate of radiation will slow until it warms.

Some of the energy radiated from the Earth's surface is absorbed by molecules within the atmosphere. These molecules then radiate energy at a faster rate, move faster with random motion, and transfer energy to other molecules by conduction through collisions. Absorbed energy takes a slower path out to space than energy that is not absorbed. This delay in releasing energy to space provides warmth, much like insulation in a house, a blanket, or clothing. Using the greenhouse analogy to represent this is highly inaccurate. The Earth's atmosphere is much more porous to radiation than a solid surface as in a greenhouse. Representing the Earth's atmosphere as an insulator with an R value is more accurate.

It Is Time to Stop the Nonsense and Put the People First

Our use of the greenhouse analogy has brought us to the point of obsession with carbon emissions. Out of an unfounded fear, we are on the verge of taking action that will undermine our economic might and standard of living, denying many Americans opportunity to rise out of poverty and imposing financial hardship on many others. The truth is that we could increase the amount of carbon dioxide in the atmosphere 10-fold and only increase the mass of the Earth's atmosphere, the capacity to hold energy, by 0.125% (one-eighth of one percent). This would be a minuscule increase in R value if we were to use an insulation analogy.

Global warming hysteria is based upon sloppy science and method and false assertions. The very notion of global warming is inconsistent with basic principles of science. It is time for scientists and academics to act like the professionals that others look to them to be; and it is time for politicians to put agenda-driven politics and personal political ambitions on the back burner. **IT IS TIME TO PUT THE PEOPLE FIRST!**

How Long Would It Take to Melt the Antarctica Ice Mass?

Amount of Energy Required to Melt the Ice Mass. The heat of fusion is the amount of energy required to change a solid to a liquid. The heat of fusion of ice is about 80 calories/gram (cal/g), or $8x10^4$ cal/kg. Scientists estimate that the volume of the Antarctica ice mass is about 27 million km^3. The density of ice is 0.92 g/cm^3, or $0.92x10^{12}$ kg/km^3, so the Antarctica ice mass is about $24.84x10^{18}$ kg. Therefore, the amount of energy required to melt the Antarctica ice mass is $8x10^4$ x $24.84x10^{18}$ = $1.987x10^{24}$ cal, or **$8.32x10^{24}$ joules** (J), since 1 cal = 4.186 J.

Amount of Energy Absorbed by the Ice Mass. Scientists estimate that the amount of radiation energy received from the sun at the Earth's outer atmosphere is 1,370 watts per square meter (W/m^2). This is called the solar constant, and only about 40% or so of this energy reaches the Earth's surface. HOWEVER, THIS ANALYSIS ASSUMES THAT ALL OF IT WOULD BE ABSORBED BY THE ICE MASS, as a point of demonstration. One (1) watt is a joule per second (J/sec), or $8.64x10^4$ J/day. One (1) m^2 is 10^{-6} km^2. Therefore, the amount of energy absorbed by the ice mass is 1370 x $8.64x10^4$ x 10^6 = $1.18x10^{14}$ J/day-km^2. Scientists estimate that the surface area of the Antarctica ice mass is 13.72 million km^2, so the ice mass will absorb **$1.62x10^{21}$ J/day** of energy.

Thus, it will take $8.32x10^{24}$ J/($1.62x10^{21}$ J/day) = **5,135 days** for the Antarctica ice mass to absorb the amount of energy required to melt all of the ice. That is over 14 years of constant sunlight. Antarctica only sees daylight 6 months at a time, absorbing energy during the daylight months and losing energy during the dark months. This 6-month cycling regulates melting and ensures that the ice mass will never absorb enough energy to totally melt. IT IS PHYSICALLY IMPOSSIBLE TO MELT ALL OF THE ICE IN ANTARCTICA WITH ITS CURRENT ORIENTATION RELATIVE TO THE SUN. Also, note that Antarctica contains about 90% of the Earth's ice.