

Cap & Trade: *Earth Processes vs. Human Activity – Consider the Science*

On behalf of the **Ohio Geological Society**

Prepared by Steven P. Zody

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The U.S. House of Representatives, by a slim margin, passed the American Clean Energy and Security Act (aka Cap & Trade, aka Waxman-Markey) in June. The bill now heads to the Senate, scheduled for debate in September. The Ohio Geological Society strongly recommends the defeat of this legislation.

As a scientific organization, the notion that incomplete, uncorroborated representations of scientific fact will affect global public policy is objectionable. Unfortunately, this policy has lacked bona fide scientific debate. Our politicians should commit to being fully informed prior to trying to change human behavior through expensive mandates and taxation. To dismantle our current energy infrastructure and impose onerous costs on consumers to achieve negligible results is unwise policy.

The first and foremost fundamental flaw with this legislation is that it is based on the unproven theory of Anthropogenic Global Warming (AGW). This theory does not meet fundamental scientific principles of proof to be feasible speculation, let alone scientific fact. The media and political sound bites proclaiming “all experts agree” AGW exists are false. Hundreds of articles have been published in scientific journals which challenge and refute this theory.

It is well understood and documented that the earth has experienced many, many periods of warming and cooling cycles. It is a dynamic and continual process. Many small scale cycles (~40 years) exist within larger cycles (~400 years), which exist within even larger scale cycles (~20,000 years), and so on. The reports of the Intergovernmental Panel on Climate Change (IPCC), which are the primary basis of the AGW scenario, only include analyses of short-term trends which are essentially meaningless in the overall climate cycles. The IPCC’s infamous “hockey stick” chart - which claimed that the twentieth century was the warmest in the past 1000 years - is no longer featured in updated reports as it was proven to be plagued with methodological errors.

Think about the past 40 years. In the mid-1970’s the “consensus” was that the planet was cooling, and unless humans changed their habits, we were all going to freeze. The 30 year trend that prompted the global cooling scare was abruptly replaced with a 20 year warming trend that peaked in 1998. The past 10 years have returned to a cooling trend. Over the past 33 years mankind has consumed more than 3 times the world’s known oil reserves in 1976. The result? We’ve warmed a little, we’ve cooled a little. Short term trends are nothing more than irregular statistical variations of the long term data.

Another extremely problematic area is the primitive state of climate modeling which is utilized to create the AGW doomsday predictions. Temperature and CO₂ variations are dependent upon an extremely complex interaction of a myriad of variables. Changing just one variable, the number of variables, or how they relate to one another causes the model to change dramatically. Climate is an extraordinarily dynamic system with thousands of components that are not completely understood. Variables such as temperature, CO₂ input, water vapor, cloud feedback, cosmic rays, solar activity, magnetic effects, aerosols, and many others must be considered. IPCC has been highly criticized for neglecting many variables and “curve-fitting” by adjusting selected variables.

Are there variations in CO₂ and temperature? Absolutely. Is it a catastrophe? Absolutely not. Are humans to blame? Improbable. In recent earth history, over two-thirds of Ohio was buried beneath thousands of feet of glacial ice. That ice is now gone. Why? Climate change. And there were no SUV’s, cow flatulence, or power plants around to cause it. The earth has been experiencing a warming trend over the past 18,000 years since exiting the Pleistocene Ice Age. Many even argue that most of the warming has already occurred, earth is in a period of stabilization, and is on the brink of entering a major cooling trend.

Carbon dioxide is a minor greenhouse gas and comprises only about 0.038% of the earth's atmosphere. Water vapor is the major contributor (95%) to the greenhouse effect. Approximately 185 billion tons of CO₂ enter the earth's atmosphere each year – about 90 billion tons from biologic activity in the oceans and about 90 billion tons from such sources as volcanoes and decaying plants. Humans only contribute about 3% of the CO₂ and 0.28% of greenhouse gases, therefore, 99.72% of the greenhouse effect is due to natural causes.

The long term goal of Cap & Trade is “80 by 50”, or an 80% reduction in CO₂ emissions by 2050. This would require a reduction in the so called carbon footprint from about 20 tons per person per year to less than 2 tons per person per year (taking into account population growth). America's carbon footprint has not been as low as 2 tons per person per year for centuries. Even if full compliance could be achieved, this is an unobtainable goal.

Development of all sources of energy is a prudent policy, but not by mandating and subsidizing inefficient, otherwise uneconomic sources. Over the past two decades, taxpayers have spent \$30 billion dollars in subsidies to develop “alternative” energy. Today wind and solar combined account for less than one-half of one percent (0.005) of America's annual energy consumption. These are supplements, at best, not alternatives. To equal a 1000 MW natural gas fired power plant occupying about 10 acres would require a wind farm with 500 tall windmills occupying 40,000 acres. America's most productive utility-scale solar plant occupies 82 acres and has a capacity (assuming the sun is always shining) of 8.2 MW. It would require 250 similar plants occupying 20,000 acres to equal one natural gas fired plant. America's demand for electricity has been growing at about 2% per year, so we need to build 10-20,000 MW of new capacity every year just to keep pace with growth. That means hundreds of thousands of acres of solar/wind plants just to keep pace with growth, let alone become “alternatives”. As a side note - a single 3 MW wind turbine (blades made in Mexico) needs 2 tons of rare earth elements for the permanent magnet generator - 100% of which comes from mines outside our borders.

The debate around the hypothesis of AGW is far from over. A healthy, scientific debate is desperately needed to insure that the growing global demand for energy can be met in a sound, sensible manner that does not impede future prosperity.