

ENVIRONMENTAL ENGINEERING

NEWSLETTER

18 MAY. 2015

This week's edition includes:

If you need older URLs contact George at ghh@att.net.

Please Note: This newsletter contains articles that offer differing points of view regarding climate change, energy and other environmental issues. Any opinions expressed in this publication are the responses of the editor alone and do not represent the positions of the Environmental Engineering Division or the ASME.

George Holliday

This week's edition includes:

ENVIRONMENT: A. NOBLE ENERGY COLORADO - EPA SETTLEMENT DETAILS

(Washington, DC - April 22, 2015) The U.S. Environmental Protection Agency, the Department of Justice, and the State of Colorado announced a settlement with Noble Energy, Inc. (Noble) that comprehensively identifies and addresses issues with vapor control systems at Noble's condensate storage tank batteries in the Denver-area 8-hour ozone marginal nonattainment area (nonattainment area).

Settlement Resources

- [Press Release](#)
- [Consent Decree](#)

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Overview of Company and Operations

Noble Energy, Inc. is an oil and natural gas exploration and production company based in Houston, Texas. Noble has extensive domestic and international oil and natural gas assets and production activities. Noble's U.S. onshore assets include operations in Colorado's Denver-Julesburg Basin and the Marcellus Shale in Pennsylvania and West Virginia. Noble's operations in the Denver-Julesburg Basin are located both inside and outside of the nonattainment area. Noble's Denver-Julesburg Basin operations include oil and gas wells, condensate storage tanks, and vapor control systems. A condensate storage tank collects liquid hydrocarbons that have been separated from natural gas after production from an oil and gas well. The liquid

hydrocarbons, or condensate, are stored in tanks – multiple tanks located together constitute a tank battery – until pickup and transfer for sale and transport in a tank truck. Vapor control systems are required at many tank batteries to capture and recover or combust the condensate’s hydrocarbon vapors. Multiple tank batteries can be served by the same vapor control system. Improperly or inadequately designed, sized, operated, or maintained vapor control systems can lead to uncontrolled emissions of volatile organic compounds (VOCs), which contribute to the formation of ground-level ozone and may contain hazardous air pollutants such as benzene. This settlement covers more than 3,400 tank batteries that are connected to approximately 2,400 vapor control systems, which represent essentially all of Noble’s vapor control systems in the nonattainment area operating pursuant to Colorado State Implementation Plan requirements. As defined in this settlement, a “tank system” refers to all of the tank batteries connected to a single vapor control system.

Violations

The settlement resolves past violations of Colorado’s Regulation 7, Section XII requirements for controlling VOC emissions from oil and gas operations. The 2008 version of the Section XII requirements is part of Colorado’s federally-approved State Implementation Plan. Federally-approved State Implementation Plan requirements are federally enforceable under the Clean Air Act. Specifically, the settlement resolves alleged past violations of Regulation 7, Section XII requirements relating to installation, operation, maintenance, design, and sizing of vapor control systems at condensate storage tanks. The settlement also resolves past liability for (i) system-wide emissions reduction requirements under Section XII and (ii) failures to mark identification numbers on storage tanks and combustors.

Injunctive Relief

The settlement requires the following actions to resolve the Clean Air Act violations:

- Noble will perform engineering evaluations addressing certain identified minimum considerations to ensure its vapor control systems are properly designed and sized to control VOC emissions.
- Following the engineering evaluations, Noble must make any necessary modifications to ensure each vapor control system is properly designed and sized, perform infrared camera inspections to ensure that the vapor control systems are controlling emissions and the tanks are not emitting VOCs, and then implement a directed inspection and preventative maintenance program to ensure proper upkeep and operation of the systems.
- A third-party auditor will review Noble’s engineering evaluations of the vapor control systems at all tank systems and perform infrared camera inspections at a cross-section of the tank systems.
- Noble will evaluate the condition of pressure relief valves, thief hatches, and mountings and gaskets on each condensate storage tank and address any evidence of VOC emissions from those devices.
- Noble will install Next Generation pressure monitors with continuous data reporting on a cross-section of the tank systems to verify that storage tanks are not experiencing increased pressure readings indicative of tank over-pressurization that could cause VOC emissions.
- Noble will prepare and publicly post reports containing useful information on its vapor control system engineering evaluations and modifications, intended to provide other companies with the opportunity to learn from Noble’s findings and apply them to their own storage tanks, helping to reduce emissions.

It is estimated that implementation of these actions will cost approximately \$60 million and reduce VOC emissions by over 2,400 tons per year in the nonattainment area.

Mitigation Projects

Noble will spend at least \$4.5 million on the following environmental mitigation projects that will reduce ozone precursor emissions – VOCs and nitrogen oxides (NO_x) – by an estimated combined total of 800 or more tons per year:

- Loading condensate from storage tanks into tanker trucks in a closed system consisting of pipes and hoses designed to prevent vapors from being emitted to the atmosphere;
- Drill rig diesel engine retrofits to reduce emissions of NO_x and/or other ozone precursors;
- Fracturing equipment – pressure pump – diesel engine retrofits to reduce emissions of NO_x and/or other ozone precursors; and
- Changeout of gas lawn mowers for electric mowers to reduce VOC emissions during the summer ozone season.

Noble will also require its tank truck contractors to implement an alternative oil measurement standard for product loadout if and when the American Petroleum Institute approves of the alternate method and relevant regulatory authorities adopt or endorse that method. This alternative standard would reduce or eliminate thief hatch opening during the sampling process for tank truck loadout and further reduce VOC emissions by an estimated 250 tons per year.

Supplemental Environmental Projects (SEPs)

- Noble will spend no less than \$1 million on a federally-approved wood stove changeout SEP in the nonattainment area. This project will reduce emissions of particulate matter with a diameter of 2.5 microns or less (PM_{2.5}), carbon monoxide (CO), VOCs, and hazardous air pollutants (HAPs) from woodstove appliances in the nonattainment area.
- Noble will spend no less than \$1 million on a federally-approved SEP aimed at improving the reliability of hydrocarbon liquids sampling and analysis procedures, which can be used to estimate emissions and properly size condensate storage tanks' vapor control systems. By identifying techniques that eliminate potential sources of error, the study should facilitate more accurate and reliable sampling results that provide better emission estimates for properly engineering and sizing vapor control systems. This SEP is likely to lead to future emission reductions.
- Noble will spend \$2 million on additional State-approved SEPs. Noble will propose projects for State approval after the court concludes its review of the settlement.

Pollutant Impacts

Ozone is not emitted directly from air pollution sources. Instead, it is a photochemical oxidant formed when certain chemicals – VOCs and NO_x – in the ambient air react with oxygen in the presence of sunlight. VOCs and NO_x are called “ozone precursors.” Sources that emit ozone precursors are regulated to reduce ground-level ozone in the ambient air. The Denver-area is currently classified as marginal nonattainment for the 8-hour ozone National Ambient Air Quality Standard. The nonattainment area spans Adams, Arapahoe, Boulder, Broomfield, Denver, Douglas, Jefferson, and parts of Larimer and Weld counties.

The Denver-area's location next to the Rocky Mountains makes it prone to temperature inversions, in which warm air traps cooler air near the ground such that pollutants do not rise into the atmosphere. These inversion conditions can lead to an unhealthy – and even visible – air pollution buildup.

Noble's oil and gas exploration and production operations in the Denver-Julesburg Basin emit VOCs, NO_x, and other pollutants. As a result of the settlement's injunctive relief, mitigation projects, and SEPs, the following emissions reductions will be achieved:

- VOCs: Greater than 3,270 tons per year;
- CO: An estimated 450 tons per year;
- NO_x: An estimated 60 tons per year;
- PM_{2.5}: An estimated 60 tons per year; and
- HAPs: An estimated 10 tons per year.

Health Effects and Environmental Benefits

Ground-level ozone and PM_{2.5} cause a wide variety of health and environmental impacts. Ground-level ozone can cause temporary breathing difficulty for people with asthma, airway inflammation, and even permanent scarring of lung tissue from repeated exposure. PM_{2.5} has been linked to premature death in people with heart or lung disease, nonfatal heart attacks, aggravated asthma, and increased coughing or difficulty breathing. Additionally, fine particles (PM_{2.5}) are the main cause of reduced visibility (haze) in parts of the United States, including many of our national parks and wilderness areas. This settlement's emissions reductions will help address the Denver-area's ozone marginal nonattainment status generally, as well as the visible buildup of air pollution during inversion conditions.

Civil Penalty

Noble will pay a \$4.95 million civil penalty divided as follows: \$3.475 million to the United States; and \$1.475 million to Colorado.

Comment Period

The proposed settlement, lodged in the U.S. District Court for the District of Colorado, is subject to a 30-day public comment period and final court approval. Information on submitting comments is available at the [Department of Justice website](#).

For More Information, Contact:

Virginia Sorrell
U.S. Environmental Protection Agency (ENF-L)
1595 Wynkoop St.
Denver, CO 80202
(303) 312-6669
sorrell.virginia@epa.gov

Roger Zygmunt

B. CALIFORNIA GOVERNOR BROWN ORDERS 40% DECREASE IN CARBON EMISSIONS BY 2030 MAY 01, 2015.

California's new greenhouse gas target requires California agencies to take implementing actions and aligns California with the European Union's recently adopted standard. On April 29, Governor Brown ordered a 40% reduction in California's greenhouse gas emissions from 1990 levels, to be achieved by 2030. While Executive Order B-30-15[1] does not create enforceable emission requirements, it obligates all state agencies to exercise their respective jurisdiction to achieve the new 2030 target. California's landmark climate protection law, AB 32 (formally known as the Global Warming Solutions Act of 2006),[2] requires greenhouse gas emissions to be capped at 1990 levels by 2020. California officials expect the state to achieve the AB 32 mandate on time, thanks to the combination of tools comprised in the Air Resources Board's

Climate Change Scoping Plan, including its cap-and-trade program. California has 12% of the country's population and the largest economy of all of the states but is currently only the second-largest in greenhouse gas releases, representing 6.9% of total US emissions.[3] AB 32's 2020 standard was itself first established in an executive order. Executive Order S-3-05, issued by Governor Schwarzenegger in 2005,[4] set a much more ambitious ultimate goal as well: an 80% reduction from 1990 levels, to be achieved by 2050. The 2050 target remains the policy of the state but has not been codified to date. With the 2020 standard in sight as well as in reach, the 2050 standard has been the subject of increasing focus and increasing concern. The technical capability to achieve an 80% reduction, while requiring significant innovation yet to come, has been less in question than the ability to manage the cost and disruption to the economy. Without the additional interim milestone adopted by Governor Brown's order, the temptation to put off necessary implementing measures could well have turned a steady 35-year climb to an 80% emissions reduction into an impossibly steep ascent, with costs and complexities too great to overcome in the years leading up to 2050. Governor Brown's action, establishing a new target just beyond the 2020 horizon, provides for a less severe rate of change and increases the likelihood of success in reaching the 2050 goal. Executive Order B-30-15 is also well-timed to contribute to the upcoming 21st United Nations Climate Change Conference of the Parties (COP 21) in Paris, which Governor Brown is expected to attend. The governor's order aligns California's climate protection targets with the 2030 standard adopted by the European Union in October 2015, and with the EU's own long-term goal of an 80–95% reduction in emissions by 2050.[5] Under the new order, every California agency with authority over greenhouse gas emissions sources is required to adopt measures that will contribute toward achieving the new 40% interim reduction target, as well as to the ultimate 80% reduction target. As the energy sector is responsible for approximately 21% of overall California greenhouse gas emissions,[6] the California Public Utilities Commission (CPUC) and the California Energy Commission (CEC) can both be expected to incorporate the requirements of this order in a variety of proceedings, including the CPUC's Long-Term Procurement Plan and the CEC's approval of thermal power plants and promulgation of energy efficiency standards. The California Air Resources Board is expressly required to update its Climate Change Scoping Plan,[7] the California Natural Resources Agency must update its climate adaptation and preparedness plans (known as "Safeguarding California"),[8] and all state agencies must incorporate climate change costs and considerations in planning and investment, particularly respecting infrastructure decisions. The order also requires the governor's Office of Planning and Research to convene a technical advisory group to assist state agencies in their implementation of climate protection measures. The new executive order is the latest in a series of climate protection and clean energy initiatives undertaken by the governor. Proposed legislation and new administrative measures are now being developed to implement Governor Brown's call for 50% of California's energy supply to come from renewable sources, a 50% reduction in fossil fuels used by the transportation sector, and the doubling of the energy efficiency of existing buildings.[9] - See more at: <http://www.morganlewis.com/pubs/california-governor-brown-orders-40-decrease-in-carbon-emissions-by-2030#sthash.IbrORAqi.dpuf>
<http://www.morganlewis.com/pubs/california-governor-brown-orders-40-decrease-in-carbon-emissions-by-2030>

C. LETS GET NASA BACK ON TRACK

Wonder why we have fallen behind on Space technology and now need to hitch a ride on the Russian space ships and pay them to get our Astronauts and supplies to the space station. Unfortunately their priorities and mission have been diverted to climate change and global warming at the expense of space science. Let's hope that this House initiative goes through.
Don Shaw

<http://wattsupwiththat.com/2015/05/02/tough-times-for-nasa-giss/>

Tough times for NASA GISS?

[Eric Worrall](#) / 30 mins ago



Guest essay by Eric Worrall

h/t Daily Caller – The House Science, Space, and Technology Committee has just approved a bill which directs NASA to spend more resources exploring space, and less money on Earth sciences, such as climate research.

According to the [official government committee website](#);

“Today’s bill is a step in the right direction to ensure that NASA will continue to innovate and inspire,” stated Chairman Lamar Smith. “The Authorization levels for FY16 and FY17 included in this bill provide NASA with the resources necessary to remain a leader in space exploration in a time of tight budget realities. For more than 50 years, the U.S. has led the world in space exploration. We must restore balance to NASA’s budget if we want to ensure the U.S. continues to lead in space for the next 50 years. And we must continue to invest in NASA as the only government agency responsible for space exploration.”

[Read more: http://science.house.gov/press-release/committee-approves-nasa-bill-supporting-us-space-leadership](http://science.house.gov/press-release/committee-approves-nasa-bill-supporting-us-space-leadership)

The [Congressional Bill](#) contains the following intriguing statement:

The Administrator shall carry out a scientific assessment of the Administration’s Earth science global datasets for the purpose of identifying those datasets that are useful for understanding regional changes and variability, and for informing applied science research. The Administrator shall complete and transmit the assessment to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate not later than 180 days after the date of enactment of this Act.

[Read more: NASA Authorization Act for 16 and 17.pdf](#)

My impression is that there is concern NASA is encroaching on NOAA’s turf – that NOAA should do the climate research, and NASA should focus on space research. The alternative, that some of NOAA’s responsibilities and budget could be formally transferred to NASA, is also mentioned.

HEALTH: A. E. COLI EHEC - USA (03): (WASHINGTON) PETTING ZOO

A ProMED-mail post

<<http://www.promedmail.org>>

ProMED-mail is a program of the

International Society for Infectious Diseases <<http://www.isid.org>>

Date: Thu 30 Apr 2015

Source: The Bellingham Herald [edited]

<http://www.bellinghamherald.com/2015/04/30/4269507_more-cases-in-e-coli-outbreak.html>

The number of people sickened in an E. coli outbreak linked to the Milk Makers Fest [21-23 Apr 2015] has jumped to 32, the Whatcom County Health Department reported Thu 30 Apr 2015. 4 were hospitalized, said Greg Stern, Whatcom County health officer.

About 1325 Whatcom County 1st-graders, plus the teachers and parents who accompanied them, went to the event 21-23 Apr 2015 at the Northwest Washington Fair & Event Center in Lynden. The 22nd annual event was sponsored by the Whatcom County Dairy Women. In addition to the investigation, the health department will see if there are ways to improve safety at such events. "We want to work with them to improve safety and still have people engaging with these educational activities and learning more about farming," Stern said. "We want people to experience it safely, and so does the agriculture industry."

The event introduced young students to farming. It also gave them a chance to pet farm animals, including small horses, sheep, rabbits, chickens and a calf. There also was a hay maze and scavenger hunt. The health department is looking for the cause of the outbreak of Shiga toxin-producing E. coli. Most of those reported ill were 1st-graders. Some adults and older children who were at the event also became sickened, according to the health department.

Of the 32 cases traced to the festival, 17 have been confirmed by the state's public health lab or tested positive at local labs -- or were people with E. coli symptoms who had been in close contact with someone in the first two groups and 15 additional people had been at the festival and were sick but lab results, some of which were pending, weren't available yet.

The health department has been interviewing the sick students and their parents to find out whether there was a common food or water source or activity, such as the petting zoo or other contact with livestock. Students from the Bellingham, Blaine, Ferndale, Lynden, and Nooksack school districts attended.

Symptoms of the bacterial illness include severe stomach cramps, diarrhea that is often bloody, and vomiting. Illness occurs up to 10 days [but usually 3-4 days - Mod.LL] after people are infected, which happens when they swallow minute amounts of feces, usually not visible to the naked eye. The main sources for [this disease-causing type of] E. coli are contaminated food, water and surfaces, along with contact with livestock. It is common for this type of E. coli to be spread to others living in the same household.

As for the event, the children there were given pasteurized chocolate milk and they brought sack lunches from home. The Milk Makers Fest had places for people to clean their hands with soap and water or hand sanitizer. Volunteers and parents manned them, according to the Whatcom County Dairy Women. The group said all the children and adults who attended were required to wash their hands with soap and water at the exit/entry to the dairy barn before they received their chocolate milk. There also were 3 hand-sanitation stations at the entrance and exit of the trailer for the petting zoo and hay maze, the group said.

Health officials are reminding people that they should wash their hands carefully with soap and running water, especially after using the bathroom and before preparing food for eating. If soap and water aren't available, people can use alcohol-based hand sanitizers to reduce the number of germs in some instances. But they aren't a substitute for hand-washing, according to the CDC.

[Byline: Kie Relyea]

Communicated by:

ProMED-mail

<promed@promedmail.org>

The number of suspected or proven cases of the enter hemorrhagic E.coli has jumped from 6 to 32 so far and appears to involve adults and secondary cases as well as the children who attended the agricultural fair. While the petting zoo remains the primary suspect as the source of the EHEC, other sources are also being investigated.

The serotype of the EHEC has not been stated.

C. SAFETY: PIPELINE COMPANIES PROBE AERIAL LEAK MONITORING

EDMONTON, Alberta, April 29 (UPI) -- Three of the biggest pipeline companies in North America signed a partnership agreement to find ways to monitor for leaks using aerial technology.

Pipeline companies [Kinder Morgan](#), Enbridge and TransCanada each committed \$200,000 to fund laboratory research and field trials to find ways to discover crude oil or other hydrocarbon leaks. Technologies under consideration include infrared camera and other [detection systems](#) that are suitable for mounting on light aircraft or helicopters.

In early April, French energy company ENGIE, formerly [GDF Suez](#), said it was investing in Redbird, a civilian [drone](#) company, to monitor natural gas infrastructures.

The French company's venture capital subsidiary invested \$2.1 million in Redbird to facilitate drone monitoring of natural gas infrastructure, survey topography and monitor "security for public institutions."

The collaboration from the North American pipeline companies includes an agreement for data analysis from C-FER Technologies in Edmonton.

"The challenge with airborne leak detection systems is not with the aircraft, but with selecting appropriate sensors to detect liquid hydrocarbon leaks before they reach the surface," Brian Wagg, director of business planning for C-FER Technologies, said in a statement.

Research into aerial leak monitoring is expected to begin in the third quarter of the year.

A 2010 pipeline spill in Michigan from an Enbridge pipeline system was among the worst onshore incidents of its kind.

http://www.upi.com/Business_News/Energy-Resources/2015/04/29/Pipeline-companies-probe-aerial-leak-monitoring/4161430303477/

Roger Zygmunt

COMMENTS

A. THE WEEK THAT WAS: 2015-05-11 (MAY 11, 2015)

By Ken Haapala, President, Science and Environmental Policy Project (SEPP)

Controversial Points: On her web site, Climate Etc., Judith Curry explores what she considers the most controversial points in climate science. The points must be agreed upon in order to resolve the controversies. To her, the two general issues are: 1) whether the warming since 1950 has been dominated by human causes and 2) how much the planet will warm in the 21st century? From these general issues she develops the specific technical issues that need to be resolved, including:

- “Causes of the 1900-1940 warming; the cooling from 1940-1976; and the recent hiatus in warming since 1998. How are these explained in context of AGW being the dominant influence since 1950?”*
- Solar impacts on climate (including indirect effects). What are the magnitudes and nature of the range of physical mechanisms?*
- Nature and mechanisms of multi-decadal and century scale natural internal variability. How do these modes of internal variability interact with external forcing, and to what extent are these modes separable from externally forced climate change?*
- Deep ocean heat content variations and mechanisms of vertical heat transfer between the surface and deep-ocean.*
- Sensitivity of the climate system to external forcing, including fast thermodynamic feedbacks (water vapor, clouds, lapse rate).*
- Climate dynamics of clouds: Could changes in cloud distribution or optical properties contribute to the global surface temperature hiatus? How do cloud patterns (and TOA and surface radiative fluxes) change with shifts in atmospheric circulation and teleconnection regimes (e.g. AO, NAO, PDO)? How do feedbacks between clouds, surface temperature, and atmospheric thermodynamics/circulations interact with global warming and the atmospheric circulation and teleconnection regimes?”*

Curry discusses what she considers to be the areas of uncertainty in the UN Intergovernmental Panel for Climate Change (IPCC) Fifth Assessment Report (FAR), which are Clouds, Oceans, Greenhouse gases and Polar ice sheets. Although all areas need better understanding, the role of clouds and oceans in influencing global warming/climate change remain the least understood. She articulates the data that provide the greatest challenges to the dominant view of AGW (Anthropogenic (Human caused) Global Warming). These data include the hiatus (pause, plateau) in both the surface and atmospheric temperature sets; Antarctic sea ice (expanding), sea level trends (no acceleration in the gradual rise), recent assessments that aerosol forcing is less than stated in the IPCC-FAR, leading to an overestimate of the influence of carbon dioxide (CO₂) on global temperatures, and the divergence between observed surface temperatures and those derived from tree rings (Mr. Mann, where are you?)

Curry suggests those areas of research that would provide significant progress in understanding the climate system. She states: “*I have argued that the current path of climate model*

development (higher resolution, more chemistry) is not going to improve the present situation whereby the climate models are useless for regional climate variability, decadal variability, and are too sensitive to CO2 forcing.”

With such a view, there is little doubt why Curry is considered an outcast by the Climate Establishment. Her views are similar to the conclusions of the Apollo veterans who make up the Right Climate Stuff Team who stated that we cannot hope to model climate change without being able to model the natural influences on climate. See links under Challenging the Orthodoxy and <http://www.therightclimatestuff.com/>

Federal Funding and Bias: In a different post, Curry discusses a paper by David Wojick and Pat Michaels, which was published by the CATO Institute, “Is the Government Buying Science or Support? A Framework Analysis of Federal Funding-induced Biases.” She relates this issue to a letter sent by Christopher Monckton to Harvard University concerning a recent study by researchers at Harvard, and other institutions, in which the authors of the recent study failed to disclose money (tens of millions of dollars) some of the researchers (including those at Harvard) received in the past from the EPA.

The study in question, published in *Nature Climate Change*, asserts that by reducing emissions of carbon dioxide from coal-fired power plants the EPA will reduce emissions of sulfur dioxide, nitrous oxides, particulates (PM 2.5), and ozone. According to the paper, the reduction of these specific pollutants will have an important effect in improving health.

What is conveniently ignored is that these specific pollutants are among the six common air pollutants, called criteria pollutants, which are already regulated by the EPA under the Clean Air Act through the National Ambient Air Quality Standards (for ozone, particulate matter, carbon monoxide, nitrogen oxides, sulfur dioxide and lead). According to the EPA, the aggregate emissions for these six air pollutants are down by 62 percent from 1970 to 2013. The study in question is attributing benefits from a reduction of carbon dioxide emissions that are occurring under a different set of regulations, unrelated to the EPA “Clean Power Plan.” Contrary to the headlines, there is no evidence that a reduction in carbon dioxide emissions will result in health benefits to humans.

The source of funding of research may or may not have a bearing on the quality of research. The research should stand on its own. However, Willie Soon was denounced in the press, and he, and others, were investigated by Congress for not fully disclosing all sources of private funding, which was called a conflict of interest. If this is to be the standard, then the Harvard episode illustrates that government-funded researchers should disclose the sources of their funding as well. Further, if the research is used to influence public policy, the research should be made available to the public. Sadly, that is not the case for all the researchers involved in the *Nature Climate Change* paper. See links under Funding Issues, Health, Energy, and Climate, and <http://www.epa.gov/airtrends/aqtrends.html#comparison>

Fads –Denialism: It has become very common in the press and in some studies, particularly social science studies, to accuse those who question the claim that greenhouse gas emissions, particularly carbon dioxide emissions, are the control knob (a NASA-GISS term) of the earth’s temperatures of denying science or some form of denialism (denying reality as a way of avoiding dealing with it). Those making such accusations frequently avoid the issue –the empirical evidence that carbon dioxide is the primary influence on earth’s temperatures is very weak. Those engaged in such name calling are making things up and engaged in *ad hominem* attacks.

They should produce the empirical evidence, not assume it exists. See links under Communicating Better to the Public –Go Personal

Fads –GMO: GMOs (Genetically Modified Organisms) are a popular topic for those who consider themselves health conscious. This questionable health concern has reached the point where GMO ingredients are publically banned in some restaurants in Europe and in a popular Mexican-American restaurant chain. Many fruit trees and vines possess a characteristic called heterozygosity, where the offspring may bear a glancing resemblance to the parent. Heterozygosity applies to apples as well as wine grapes. By contrast, common corn (maize) has been hybridizedina plant that required extensive human processing to be edible to one that is edible when picked ripe. Restaurants banning such fruits and vegetables may be on the way of having dull offerings, such as highly processed corn, small yellow tomatoes, and questionable wines.

Research in cultivated sweet potatoes (cultivated for over 5,000 years) shows that all the clones tested (291) have mutated naturally, aided and abetted by gene transfers from microbes (bacteria). This is a naturally occurring variant of what occurs with genetic-engineering. No doubt it will be difficult for some who oppose GMOs to explain natural GMOs. See links under Agriculture Issues & Fear of Famine

Fear of Peak Oil, Peaked? Peak oil has been a popular theme for several decades, usually referring to the time when oil production will reach maximum physical, natural limits, then decline. The recent run-up and decline in oil prices demonstrated that no one knows what these limits are. The Persian Gulf, including Saudi Arabia, have given no indication of reaching physical, natural limits of production. There are enormous oil resources in the Gulf of Mexico and elsewhere off-shore. The increase of US oil production from shale may decline with a decline in price, but the physical limits have not been established. In short, the world oil issue is not one of physical limits, but price. See links under Energy Issues and Oil and Natural Gas –the Future or the Past?

Integrity? *Nature* magazine contained an odd article stating that if the UNFCCC (UN-Framework Convention on Climate Change) conference in Paris in December does not go as well as the UN leaders hope, Climate policy advisers of the various countries must maintain integrity. What integrity? In the European Union and the US, climate advisers insist that their science is solid. Yet, nature refuses to match the forecasts from the models. Almost weekly new ideas appear trying to explain why the globe is not warming as the IPCC claimed. Would adjusting the models to fit what is actually occurring violate integrity? See comments under Controversial Points (above) and links under On to Paris!

Has Fracking Gone Too Far? A study in PNAS claimed that chemicals common to hydraulic fracking were found in the ground water supply to several households in the Marcellus Shale development area, where hydraulic fracturing is used to extract natural gas. As with similar assertions in Texas and Wyoming, the headlines may be overblown with little substance. The chemical in question is abbreviated as 2BE, and is found in paint and cosmetics. A number of common household chemicals are used in fracking, and one combination is made entirely from edible foodstuffs, which the governor of Colorado drank.

In a moment of humor, Andrew Montford takes the hunt for fracking chemicals further and asserts that fracking chemicals are found in space. See links under Energy Issues --US

Number of the Week: 5,000%. According to an article on the Keystone XL Pipeline in the *Wall Street Journal* shipments of oil by rail have grown by 5,000% from 2008 to 2014. In 2008, 9,500 rail car loads were sent. In 2014, 493,126 rail car loads were sent. The data is from the Association of American Railroads. The increase is largely from the increase of oil production from shale. Pipelines are a safer way to transport oil than rail, but Washington has hamstrung efforts to build pipelines and the Administration has approved zero cross-border pipelines.
<http://www.sepp.org/twtwfiles/2015/TWTW%205-9-15.pdf>

B. THE SUN IS ALMOST COMPLETELY BLANK

Weakest Solar Cycle In More Than A Century The sun is almost completely blank. The main driver of all weather and climate, the entity which occupies 99.86% of all of the mass in our solar system, the great ball of fire in the sky has gone quiet again during what is likely to be the...
<http://wattsupwiththat.com/2015/05/02/the-sun-is-almost-completely-blank/>

C. TOUGH TIMES FOR NASA GISS?

Guest essay by Eric Worrall h/t Daily Caller – The House Science, Space, and Technology Committee has just approved a bill which directs NASA to spend more resources exploring space, and less money on Earth sciences, such as climate research. According to the official government committee website; “Today’s bill is a step in the right...
<http://wattsupwiththat.com/2015/05/02/tough-times-for-nasa-giss/>

D. SILENCING SKEPTICS, CONSERVATIVES AND FREE SPEECH

Congressional Democrats and Vatican join White House and Leftist assaults on basic rights
Guest essay by Paul Driessen
Our scientific method and traditions of free speech and open debate are under assault as never before, by intolerant inquisitors in our media, universities, government agencies, and even Congress and the Vatican. They threaten our most basic...
<http://wattsupwiththat.com/2015/05/03/silencing-skeptics-conservatives-and-free-speech/>

E. CLAIM: GLOBAL WARMING WILL CAUSE A COFFEE “CATASTROPHE”

Guest essay by Eric Worrall
Coffee drinkers face a climate catastrophe, reports The Guardian, reporting on a study published by the International Center for Tropical Agriculture (CIAT) under the CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS). According to the Guardian, interviewing Dr Peter Läderach, a CCAFS climate change specialist and co-author...
<http://wattsupwiththat.com/2015/05/02/claim-global-warming-will-cause-a-coffee-catastrophe/>

F. CLAIM: GRAVITY DATA SHOW THAT ANTARCTIC ICE SHEET IS MELTING INCREASINGLY FASTER – BUT NEVER MIND THE ACTIVE VOLCANIC REGION UNDER THE ICE

From Princeton University, where they may not have read this paper that just happens to talk about the same area: West Antarctica. Numerous volcanoes exist in Marie Byrd Land, a highland region of West Antarctica. High heat flow through the crust in this region may influence the stability of the West Antarctic Ice Sheet The...

<http://wattsupwiththat.com/2015/05/01/claim-gravity-data-show-that-antarctic-ice-sheet-is-melting-increasingly-faster-but-never-mind-the-active-volcanic-region-under-the-ice/>

G. A BENEFIT OF INCREASED CARBON DIOXIDE: INCREASED EFFICIENCY IN TREE GROWTH, NO “MIKE’S NATURE TRICK” NEEDED

Gosh, whouda thunk it? There goes Mann’s hockey stick. No wonder he had to truncate all the data after 1960 and splice on the instrumental record. Of course, as I’ve said before, Mann ignored Liebig’s Law to make the “big lies” called “Mikes Nature trick” and “hide the decline“. Trees simply can’t be just a...

<http://wattsupwiththat.com/2015/05/11/a-benefit-of-increased-carbon-dioxide-increased-efficiency-in-tree-growth-no-mikes-nature-trick-needed/>

H. CONSENSUS-SMENSUS: 97% OF UK VOTERS HIDING IN THE DEEP OCEAN

Josh writes: One of the main things we learned from the recent UK General Election was that the forecasters got it catastrophically wrong – catastrophic in that the pollsters’ reputations are now in shreds. The collective narrative was that it had to be a hung parliament, nothing else was possible – even Nate Silver agreed...

<http://wattsupwiththat.com/2015/05/11/consensus-smensus-97-of-uk-voters-hiding-in-the-deep-ocean/>

I. WELL, AT LEAST THE DAPHNIA WILL SURVIVE ‘CLIMATE CHANGE’

There are lots of worries about “species extinction” due to climate change, and so far the track record on those predictions isn’t doing so good, such as the First animal claimed extinct due to ‘climate change’ found ‘alive and well’. From KU Leuven Water fleas genetically adapt to climate change. The water flea has genetically adapted...

<http://wattsupwiththat.com/2015/05/11/well-at-least-the-daphnia-will-survive-climate-change/>

J. PROMOTERS OF RENEWABLE ENERGY FAILED TO ACCOUNT FOR THE RETURN OF CHEAP OIL

By Stephen Moore - - Sunday, May 10, 2015

"The green energy movement in America is dead. May it rest in peace? No, a majority of American energy over the next 20 years is not going to come from windmills and solar panels.

One important lesson to be learned from the green energy fad's rapid and expensive demise is that central planning doesn't work.

What crushed green energy was the boom in shale oil and gas along with the steep decline in the price of fossil fuel that few saw coming just a few years ago."

"An International Energy Agency report concedes that green energy is in fast retreat and is getting crushed by "the recent drop in fossil fuel prices." It finds that the huge price advantage for oil and natural gas means "fossil plants still dominate recent [electric power] capacity additions."

"Oil was expected to stay way over \$100 a barrel and potentially soon hit \$200 a barrel. National Geographic infamously advertised on its cover in 2004: "The End of Cheap Oil."

"[Barack Obama](#) told voters that green energy was necessary because oil is a "finite resource" and we would eventually run out."

"When fracking and horizontal drilling technologies burst onto the scene, U.S. oil and gas reserves nearly doubled almost overnight. Oil production from 2007 to 2014 grew by more than 70 percent and natural gas production by nearly 30 percent."

"Washington suffers from what F.A. Hayek called the "fatal conceit." Like the 1950s central planners in the Politburo, Congress and the White House thought they knew where the future was headed. According to a 2015 report by the Taxpayers Protection Alliance, over the past five years, the U.S. government spent \$150 billion on "solar power and other renewable energy projects."

"Meanwhile, the return of \$2.50-a-gallon gasoline at the pump is flattening the battery car market. A recent report from the trade publication Fusion notes: "Electric vehicle purchases in the U.S. have stagnated."

"Edmunds.com says that "never before have loyalty rates for alt-fuel vehicles fallen below 50 percent" and it speculated that "many hybrid and EV owners are driven more by financial motives rather than a responsibility to the environment." That's what happens when the world is awash in cheap fossil fuels."

"Harold Hamm, chairman and CEO of Continental Resources and one of the discoverers of the Bakken Shale in North Dakota, tells the story of meeting with [Mr. Obama](#) at the White House in 2010 to tell him about the fracking revolution. [Mr. Obama](#) arrogantly responded that electric cars would soon replace fossil fuels. Was he ever wrong."

Complete [Story](#) at:

Read more: <http://www.washingtontimes.com/news/2015/may/10/stephen-moore-green-energy-movement-dies-failed-to/#ixzz3ZsDeePpl>

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Don Shaw

K. LEWANDOWSKY'S COMPETING THEORIES FOR SOURCE OF BIAS IN SCIENTIFIC RESEARCH

[Guest Blogger](#) / [3 mins ago](#)

You Ought to Have a Look:



By Patrick J.

Michaels and Paul C. “Chip” Knappenberger

Two papers were announced this week that sought to examine the sources of bias in the scientific literature. They could not be more starkly opposed.

First off is a doozy of a new paper by Stephan Lewandowsky, Naomi Oreskes and colleagues that complains that skeptical viewpoints are disproportionately influencing the science of climate change. Recall that Lewandowsky and Oreskes are quixotic climate change denial slayers—conspiracy theorists of somewhat [ill-repute](#).

According to a [story](#) in *Science Dail* (the Lewandowsky et al. paper was not available at the time of this writing) Lewandowsky and Oreskes argue that:

Climate change denial in public discourse may encourage climate scientists to over-emphasize scientific uncertainty and is also affecting how they themselves speak – and perhaps even think – about their own research.

Lewandowsky and Oreskes fret:

The idea that ‘global warming has stopped’ has been promoted in contrarian blogs and media articles for many years, and ultimately the idea of a ‘pause’ or ‘hiatus’ has become ensconced in the scientific literature, including in the latest assessment report of the Intergovernmental Panel on Climate Change (IPCC).

The *Science Dail* article continues:

Recent warming has been slower than the long term trend, but this fluctuation differs little from past fluctuations in warming rate, including past periods of more rapid than average warming. Crucially, on previous occasions when decadal warming was particularly rapid, the scientific community did not give short-term climate variability the attention it has now received, when decadal warming was slower. During earlier rapid warming there was no additional research effort directed at explaining ‘catastrophic’ warming. By contrast, the recent modest decrease in the rate of warming has elicited numerous articles and special issues of leading journals. This asymmetry in response to fluctuations in the decadal warming trend likely reflects what the study’s authors call the ‘seepage’ of contrarian claims into scientific work.

And according the Lewandowsky, this is a problem because:

“It seems reasonable to conclude that the pressure of climate contrarians has contributed, at least to some degree, to scientists re-examining their own theory, data and models, even though

all of them permit – indeed, expect – changes in the rate of warming over any arbitrarily chosen period.”

So why might scientists be affected by contrarian public discourse? The study argues that three recognised psychological mechanisms are at work: ‘stereotype threat’, ‘pluralistic ignorance’ and the ‘third-person effect’.

‘Stereotype threat’ refers to the emotional and behaviour responses when a person is reminded of an adverse stereotype against a group to which they belong. Thus, when scientists are stereotyped as ‘alarmists’, a predicted response would be for them to try to avoid seeming alarmist by downplaying the degree of threat. Several studies have indeed shown that scientists tend to avoid highlighting risks, lest they be seen as ‘alarmist’.

‘Pluralistic ignorance’ describes the phenomenon which arises when a minority opinion is given disproportionate prominence in public debate, resulting in the majority of people incorrectly assuming their opinion is marginalised. Thus, a public discourse that asserts that the IPCC has exaggerated the threat of climate change may cause scientists who disagree to think their views are in the minority, and they may therefore feel inhibited from speaking out in public.

Research shows that people generally believe that persuasive communications exert a stronger effect on others than on themselves: this is known as the ‘third-person effect’. However, in actual fact, people tend to be more affected by persuasive messages than they think. This suggests the scientific community may be susceptible to arguments against climate change even when they know them to be false.

We humbly assert that Lewandowsky, Oreskes, and colleagues have this completely backwards. When global warming was occurring faster than climate models expected during the 1990s, there was little effort by the mainstream climate science community to look into why, despite plenty of skeptic voices (such as our [own](#)) pointing to the influence of natural variability. Instead, headlines proclaimed “Global warming worse than expected,” which fueled the human-caused climate change hysteria (favored by the 1990s White House) and helped build the push for calls to regulate greenhouse gas emissions from fossil fuels. But since the late 1990s, there has been no statistically significant warming trend in the highly-cited HadCRU4 temperature record, and both the RSS and UAH satellite records are now in their 21st consecutive year without a significant trend. This behavior contrasted with, and called into question, the veracity of climate model projections. And it was these projections upon which rested the case for a dangerous human influence on the climate. Again, skeptic voices were raised in objection to the mainstream view of climate change and the need for government intervention. But this time, the skeptic voices were accompanied by data that clearly showed that rather than “worse than expected,” climate change was actually proceeding at a quite modest pace.

It was only then, with the threat of losing support for actions to mitigate climate change—actions that a top U.N. climate official, Christine Figueres, [described](#) as an effort “to intentionally transform the economic development model, for the first time in human history” —that the mainstream climate community started to pay attention and began investigating the “hiatus” or “pause”—the words so despised by Lewandowsky and Oreskes.

Through these research efforts, we have learned a lot about the role of natural variability in the broader climate system and how such variability impacts of projections of human-caused climate change (such as through a better understanding of the equilibrium climate sensitivity—how much warming results from a doubling of atmospheric carbon dioxide concentration).

In other words, science has been moved forward, propelled by folks who didn't take the mainstream climate science at face value, and instead questioned it—i.e., Lewandowsky's and Oreskes' "deniers."

The outcome of all of this is, in fact, the opposite of what Lewandowsky and Oreskes assert has occurred. Rather than "skeptical" ideas "seeping" into science and leading to a false narrative, skeptical ideas instead have spurred new research and therefore new knowledge. Such was not the case when skeptics were being shut out. The only thing different now vs. 20 years ago, is that this time around, the existence of a profoundly inconvenient truth (a "hiatus" in global warming) gave public credence to the skeptics which forced them to be taken seriously by the scientific consensus-keepers. Incontrovertible evidence that threatened to tear down the meme of climate alarmism clearly required some sort of response.

Science is biased not by the inclusion of skeptical voices, but rather the exclusion of them. In fact, this week, we announced the framework for an investigation into the existence of such bias.

We teamed with Dr. David Wojick to produce a Cato Working Paper titled "[Is the Government Buying Science or Support? A Framework Analysis of Federal Funding-induced Biases](#)" we describe:

The purpose of this report is to provide a framework for doing research on the problem of bias in science, especially bias induced by Federal funding of research. In recent years the issue of bias in science has come under increasing scrutiny, including within the scientific community. Much of this scrutiny is focused on the potential for bias induced by the commercial funding of research. However, relatively little attention has been given to the potential role of Federal funding in fostering bias. The research question is clear: does biased funding skew research in a preferred direction, one that supports an agency mission, policy or paradigm?

An interested reader may want to review the [fifteen bias-inducing scientific practices that we identify](#) and compare them with the "three recognised psychological mechanisms" that Lewandowsky and Oreskes assert are at work to see which seem to make the most sense. Essentially, our project seeks to determine if the dog is wagging the tail. Lewandowsky and Oreskes propose the tail is wagging the dog.

Hopefully, in the not too distant future, we'll be able to report back what we find in our investigations. We'll be surprised if we find that exclusionary practices drive science forward more efficiently than inclusive ones!

Don Shaw

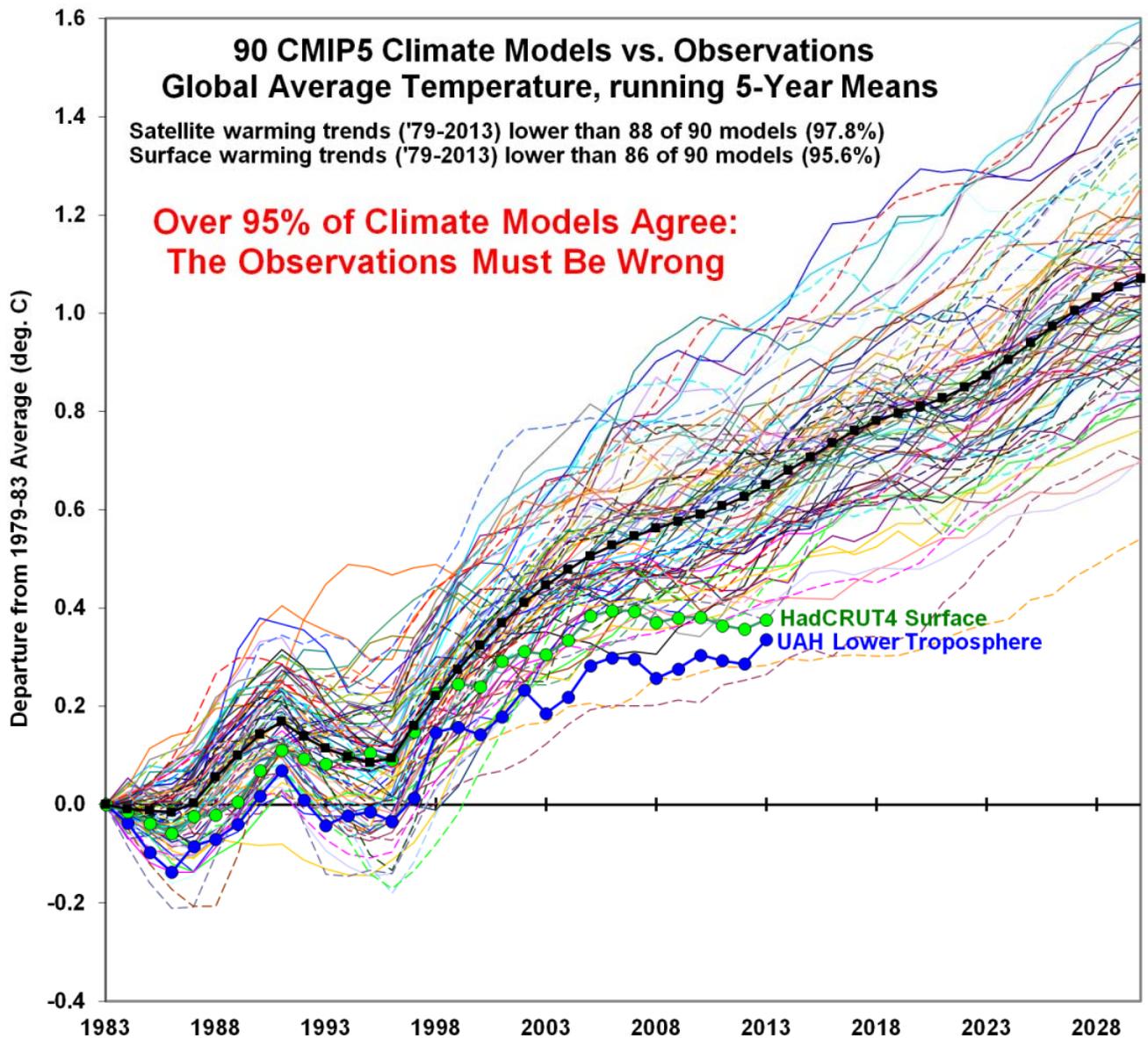
L. ARTICLE FROM THE UK GUARDIAN ATTEMPTS TO JUSTIFY FAILED CLIMATE COMPUTER MODEL

The facts seem to escape those in the MSM who attempt to sell global warming despite the unexplained 18 year period of no warming.

Don Shaw

A few models wandered over the pause...

[Eric Worrall](#) / [4 hours ago](#)



"Dana Nuccitelli has written a defence of climate models, in which he appears to claim that a few models randomly replicating the pause should be considered evidence that climate modeling is producing valid results.

According to The Guardian;

... There's also no evidence that our expectations of future global warming are inaccurate. For example [a paper published in Nature Climate Change](#) last week by a team from the University of New South Wales led by Matthew England showed that climate models that accurately captured the surface warming slowdown (dark red & blue in the figure below) project essentially the same amount of warming by the end of the century as those that didn't (lighter red & blue).

There's also been substantial climate research examining the causes behind the short-term surface warming slowdown. Essentially it boils down to a combination of natural variability

storing more heat in the deep oceans, and an increase in volcanic activity combined with a decrease in solar activity. These are all temporary effects that won't last. In fact, we may already be at the cusp of an acceleration in surface warming, with 2014 being a record-hot year and 2015 on pace to break the record yet again.

[Read more: http://www.theguardian.com/environment/climate-consensus-97-percent/2015/may/06/pause-needed-in-global-warming-optimism-new-research-shows](http://www.theguardian.com/environment/climate-consensus-97-percent/2015/may/06/pause-needed-in-global-warming-optimism-new-research-shows)

The problem I've got with this line of reasoning, can best be illustrated with an analogy.

Say your uncle came to you and said "I've got an infallible horse betting system. Every time I plug in the results of previous races, plug in last year's racing data, it gets most of the winners right, which proves the system works."

Would you:

- a. Bet your life savings on the next race?
- b. Wait and see whether the model produced good predictions, when applied to future races?
- c. Humour the old fool and make him a nice mug of chocolate?

Anyone with an ounce of common sense would go for option b) or c). We instinctively intuit that it is much easier to fit a model to the past, than to produce genuinely skilful predictions. If your uncle was a professor of mathematics or statistics, someone with some kind of credibility in the numbers game, you might not dismiss his claim out of hand – occasionally skilled people [really do find a way to beat the system](#). But you would surely want to see whether the model could demonstrate real predictive skill.

What if a few months later, your uncle came back to you and said:

"I know my model didn't pick the winners of the last few months races. But you see, the model doesn't actually predict exactly which horse will win each race – it produces a lot of predictions and assigns a probability to each prediction. I work out which horse to pick, by kind of averaging the different predictions. The good news though is one of the hundreds of model runs *did* predict the right horses, in the last 4 races – which proves the model is fundamentally sound. According to my calculations, all the models end up predicting the same outcome – that if we stick with the programme, we will end up getting rich"

I don't know about you, but at this point I would definitely be tending towards option c)."

Don Shaw

M. INTERESTING ECONOMIC AND CARBON FOOTPRINT EVALUATION. OBVIOUSLY AN ADVOCATE OF NUCLEAR, SO ONE NEEDS TO KEEP THAT IN MIND.

<http://energyrealityproject.com/lets-run-the-numbers-nuclear-energy-vs-wind-and-solar/>

Let's Run the Numbers

Nuclear Energy vs. Wind and Solar

by

Mike Conley & Tim Maloney

April 17, 2015

(NOTE: This is a work in progress.

It will be a chapter in the forthcoming book

"Power to the Planet" by Mike Conley.)

"Four bottom lines up front:

- It would cost over \$29 Trillion to generate America's baseload electric power with a 50 / 50 mix of wind and solar farms, on parcels of land totaling the area of Indiana. Or:
- It would cost over \$18 Trillion with Concentrated Solar Power (CSP) farms in the southwest deserts, on parcels of land totaling the area of West Virginia. Or:
- We could do it for less than \$3 Trillion with AP-1000 Light Water Reactors, on parcels totaling a few square miles. Or:
- We could do it for \$1 Trillion with liquid-fueled Molten Salt Reactors, on the same amount of land, but with no water cooling, no risk of meltdowns, and the ability to use our stockpiles of nuclear "waste" as a secondary fuel."

Also note that they are not fans of any carbon based fuel.

"A word or two about natural gas.

Gas-fired plants are far less expensive than nuclear plants, or even coal plants, which typically go for about \$2 an installed watt. Nuclear plants, even in America, could be as cheap as coal plants if the regulatory and construction process were streamlined—assembly-line fabrication alone will be an enormous advance. Still, a gas plant is about a third the price of a coal plant, which sounds great. But the problem with a gas-fired plant is the gas.

CO2 emissions from burning "natural gas" (the polite term for "methane") are 50% less than coal, which is a substantial improvement, but it's still contributing to global warming. It's been said that natural gas is just a slower, cheaper way to kill the planet, and it is. But it's even worse than most folks realize, because when methane escapes before you can burn it (and *any* gas infrastructure will leak) it's a greenhouse gas that's 105 times more potent than CO2. (If it's any consolation, that number drops to "only" about 20 times after a few decades.)

Another problem with natural gas is that it's more expensive overseas. Which at first glance doesn't seem like much of a problem, since we've always wanted a cheap, abundant source of domestic energy. But once we start exporting methane in volume (the specialized ports and tankers are on the drawing board), why would gas farmers sell it here for \$3 when they can sell it over there for \$12?

A final note on natural gas: Even if all of our shale gas was recoverable (which it's not), it would only last 80-100 years. But we have enough thorium, an easily mined and cheaply refined nuclear fuel, to last for literally thousands of years.

Natural gas is a cotton candy high. The industry might have 10 years of good times on the horizon, but I wouldn't convert my car if I were you. Go electric, but when you do, realize that your tailpipe is down at the power plant. So insist on plugging into a carbon-free grid. Otherwise you'll just be driving a coal burner."

More at the website

Don Shaw

N. THE ICEMAN COMETH?

[Guest Blogger](#) / [2 hours ago](#)

Could a quiescent sun portend a new little ice age: a chilly era for humanity and agriculture?

Guest opinion by Paul Driessen

President Obama, Al Gore and other alarmists continue to prophesy manmade global warming crises, brought on by our "unsustainable" reliance on fossil fuels. Modelers like Mike Mann and Gavin Schmidt conjure up illusory crisis "scenarios" based on the assumption that carbon

dioxide emissions now drive climate change. A trillion-dollar Climate Crisis industry self-servingly echoes their claims.

But what if these merchants of fear are wrong? What if the sun refuses to cooperate with the alarmists?

“The sun is almost completely blank,” meteorologist [Paul Dorian notes](#). Virtually no sunspots darken the blinding yellow orb. “The main driver of all weather and climate ... has gone quiet again during what is likely to be the weakest sunspot cycle in more than a century. Not since February 1906 has there been a solar cycle with fewer sunspots.”

“Going back to 1755, there have been only a few solar cycles that have had a lower number of sunspots during their maximum phase,” Dorian continues. This continued downward trend in solar sunspot cycles began over 20 years ago, when Earth stopped warming. If it continues for a couple more cycles, Earth could be entering another “grand minimum,” an extended period of low solar activity.

That would mean less incoming solar radiation, which could have a marked cooling effect – as happened during previous decades-long episodes of low solar activity. The “Maunder Minimum” lasted 70 years (1645-1715), the “Dalton Minimum” 40 years (1790-1830); they brought even colder global temperatures to the “Little Ice Age.”

Solar activity is in free fall, Reading University (UK) space physicist Mike Lockwood confirms, perhaps “faster than at any time in the last 9,300 years.” He raised the likelihood of another grand minimum to 25% (from 10% three years previously). However, he claims a new little ice age is unlikely.

“Human-induced global warming is already a more important force in global temperatures than even major solar cycles,” Professor Lockwood insists. That warmist mantra may keep him from getting excoriated for even mentioning solar influences. But it ignores Earth’s long history of climate change.

And what if Lockwood is wrong about human influences and the extent of a coming cold era? Habibullo Abdussamatov, director of Russia’s space research laboratory and its global warming research team, is convinced another little ice age is on its way. (See pages 18-21 of [this report](#).) That would be LIA #19.

A couple degrees warmer, with more carbon dioxide in the air, would be good for humanity and planet. Crops, forests and grasslands would grow faster and better, longer growing seasons over larger areas of land would support more habitats, wildlife, agriculture and people – especially if everyone has access to ample, reliable, affordable energy, especially electricity, and modern farming technologies. Most people, including the elderly, can easily handle such warmth, especially if they have [air conditioning](#).

But a couple degrees *colder* would bring serious adverse consequences for habitats, wildlife, agriculture and humanity. Though geologists say we are overdue for one, this does not mean another Pleistocene ice age – with glaciers obliterating forests and cities under mile-thick walls of ice across North America, Europe, Asia and beyond. Maybe Lockwood is right, and it won’t be a full-blown Little Ice Age déjà vu.

However, [Antarctic sea ice](#) just set a new April record. Ice conditions are back to normal in the Arctic. Winters have become [longer](#), [colder](#) and snowier. With less meltwater, sea levels are barely rising.

Moreover, a 2-degree drop in average global temperatures would shrink growing seasons, cropland and wildlife habitats. Agriculture would be curtailed across Canada, northern Europe and Russia, putting greater pressure on remaining land to feed hungry families without turning

more habitats into cropland. Governments might even have to stop mandating [corn for ethanol](#) and devote the land to food crops.

Our ability to feed Earth's growing population would be seriously impaired, especially since the same factions that wail about fossil fuels, fracking and "dangerous manmade climate change" also despise the chemical fertilizers, insecticides, biotechnology and mechanized farming that would enable us to get far more food per acre under colder conditions, even if crops are starved for plant-fertilizing CO₂.

Generally colder conditions can also bring more unpredictable storms and cold snaps during shortened growing seasons. That happened frequently during the last Little Ice Age (1350-1850), resulting in frequent crop failures and bouts of hunger, malnutrition, starvation and disease in much of Europe.

Worst of all, cold kills. Modern homes and buildings with affordable heat make it easy to survive even brutal winters in comfort. However, carbon taxes, restrictions on coal and natural gas, renewable energy mandates and other ill-conceived programs have sent electricity and home heating prices soaring.

When energy is rationed, expensive and unpredictable, businesses lay people off or close their doors. Forced to go on welfare, people's health and well-being suffer. The elderly are especially susceptible. In Britain, many pensioners now ride buses or sit in libraries all day to stay warm, while others burn used books in stoves (they are cheaper than coal or wood). Thousands [die of hypothermia](#), because they can no longer afford proper heat.

In Germany, Greece and other countries, rising energy costs have caused a surge in illegal tree cutting, as desperate families try to stay warm. Hungry, unemployed families are also poaching wildlife. Meanwhile, forests of wind turbines generate minimal expensive electricity but do slaughter millions of birds and bats every year, leaving crops to be eaten by hordes of insects, across Europe and the United States.

These realities portend what will likely happen on a far larger scale, if we do enter another prolonged cold era under anti-fossil fuel rules imposed in response to global warming hysteria. The specter of widespread turmoil, rising death tolls and climate refugees by the millions could become reality.

And still [alarmists say](#), even if temperatures aren't rising, we should force developed nations to curtail their energy use and living standards – and modernize developing countries in a "sustainable" manner. We should use the "climate crisis" to "move the world in a greener, more equitable direction."

Though wind, solar and biofuel energy and widespread organic farming are [sustainable](#), under any objective standard. As though government elites have a right to tell poor countries what level of development, what energy technologies, what farming methods they will be "permitted" to have – and what level of poverty, disease, malnutrition and early death they must continue to suffer.

Ending this insanity must begin with the climate scientists and modelers. They are taking our tax dollars and promoting constant scare stories. They owe it to us to be objective, transparent and willing to discuss and debate these issues with those who question human influences on climate change. They owe it to us to get the predictions right, so that we can be properly prepared, especially if the iceman cometh again.

That means basing their models on *all* the forces that determine global temperature and climate fluctuations: the sun, cosmic rays, deep ocean currents, volcanoes and other natural forces, as well as the 0.04% of Earth's atmosphere that is carbon dioxide. It means comparing predictions

with actual (non-averaged, non-manipulated) real-world observations and data. If the improved models still do not predict accurately, it means revising hypotheses and methodologies yet again, until they square with reality.

Meanwhile, our politicians owe it to us to start basing energy and environmental policies on reality: on how Earth's climate and weather actually behave – and on how their policies, laws and regulations affect job creation and preservation, economic growth and opportunities, and human health and welfare, especially for poor and minority families, and even more so for the poorest people on our planet.

Paul Driessen is senior policy analyst for the Committee For A Constructive Tomorrow (www.CFACT.org), author of *Eco-Imperialism : Green power – Black death*, and coauthor of *Cracking Big Green : Saving the world from the Save-the-Earth money machine*.
Don Shaw

O. PLANTS ENCOURAGED AS CO2 LEVELS REACH 400 PPM

[Anthony Watts](#) / [17 hours ago](#)

Guest Opinion: Dr. Tim Ball is writing on behalf of the plants.

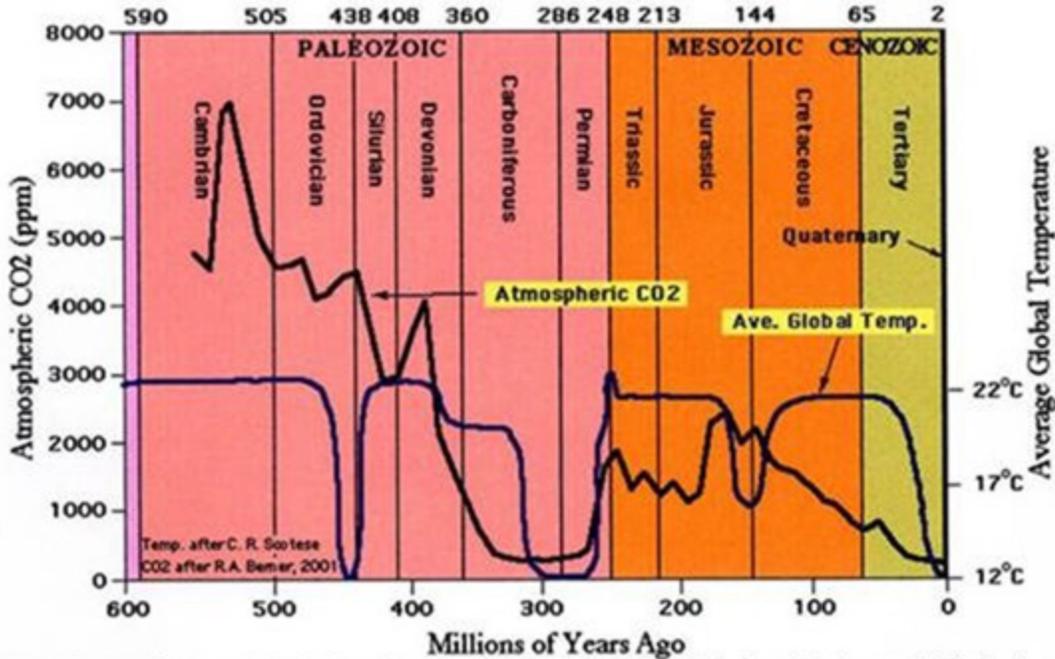
The National Oceanographic and Atmospheric Administration (NOAA) [reports](#) that global monthly CO2 levels reached 400 ppm. They present this as threatening news, but it is good news for plants and animals. I was involved in a brief to the US Supreme Court opposing the EPA actions on CO2. I proposed we seek Power of Attorney (POA) for the plants. We would vote on behalf of the plants against any attempts to reduce atmospheric CO2 from the current claimed 400 ppm and for any increase, at least to a level of 1200 ppm.

Seeking POA sounds like an environmental stunt for the Sierra Club, or all those who claim to care about plants and animals. Why aren't they doing it? Why aren't they proclaiming the good news for the plants and animals they say they care about? The answer is because the facts they have selected for their political agenda on the environment and climate puts them in a completely contradictory position. They know CO2 is critical for plant growth, but only promote planting more trees to reduce atmospheric levels because they have chosen to label CO2 a pollutant. It doesn't occur to them that increasing the CO2 level enhances plant growth. It creates a moral and philosophical conflict, as they want plants to succeed, but want to reduce the input that makes them successful. They can't see the forest for the trees.

All life on Earth exists because of CO2. It is essential to flora, which then produce oxygen essential to fauna. Gore and others claim current levels are the highest ever. Others modify that claim arguing it is the highest in [650,000 years](#). That figure is convenient because it sounds like a long time. The levels are based Antarctic ice core data, which are clearly created artificially low to achieve the slope necessary for the political agenda against post-industrial CO2.

The longer geologic record produced by Scotese and Bernier ([Figure 1](#)) shows that for most of Earth's history the level was well above the current level. The only time when levels were commensurate with today was from 315 million years ago (mya) to 270 mya, yet for over half of that period temperature was similar to today.

Most plants, especially the [complex vascular plants](#) evolved in the last 300 million years. The average level of atmospheric CO2 over that period was approximately 1200 ppm.



Late Carboniferous to Early Permian time (315 mya -- 270 mya) is the only time period in the last 600 million years when both atmospheric CO₂ and temperatures were as low as they are today (Quaternary Period).

Temperature after C.R. Scotese
CO₂ after R.A. Berner, 2001 (GEOCARB III)

Figure 12

This suggests that most plants evolved with an optimum level of 1200 ppm.

The work of Sherwood and Craig Idso supports this value as reported extensively in their research at their [web site](#). Commercial greenhouse operators also use this information as they pump in CO₂ to enhance yields. Figure 2 shows a commercial CO₂ generator advertised as follows:

Normally there are approximately 300 parts per million (PPM) of CO₂ in the atmosphere; when this level is increased to over 1000 PPM, it results in higher production and better plant quality. The Johnson Generator provides up to 1500 PPM per unit in a 4800 square foot (446 square meter) greenhouse. By adding CO₂, especially during the winter months when greenhouse ventilators are closed and when low CO₂ concentration becomes a limiting factor in growth, growers are obtaining yield and bloom quality similar to that which is normally associated with spring and summer conditions.



Commercial CO2 Generator

[Figure 2](#)

It's possible the company is promoting a product merely to enhance sales but consider the benefits set out by the [Ontario government](#)

During particular times of the year in new greenhouses, and especially in double-glazed structures that have reduced air exchange rates, the carbon dioxide levels can easily drop below 340 ppm which has a significant negative effect on the crop. Ventilation during the day can raise the CO2 levels closer to ambient but never back to ambient levels of 340 ppm. Supplementation of CO2 is seen as the only method to overcome this deficiency and increasing the level above 340 ppm is beneficial for most crops. The level to which the CO2 concentration should be raised depends on the crop, light intensity, temperature, ventilation, stage of the crop growth and the economics of the crop. For most crops the saturation point will be reached at about 1,000–1,300 ppm under ideal circumstances. A lower level (800–1,000 ppm) is recommended for raising seedlings (tomatoes, cucumbers and peppers) as well as for lettuce production. Even lower levels (500–800 ppm) are recommended for African violets and some Gerbera varieties. Increased CO2 levels will shorten the growing period (5%–10%), improve crop quality and yield, as well as, increase leaf size and leaf thickness. The increase in yield of tomato, cucumber and pepper crops is a result of increased numbers and faster flowering per plant.

The irony is this comes from a government [planning a carbon tax](#) to reduce atmospheric CO2 levels. In their “climate change solution,” they introduced a [cap and trade](#) designed to “set a limit on the amount of greenhouse gas pollution that can be emitted .”

The phrase “greenhouse gas pollution” is false. CO2 is not a pollutant. However, once that assumption is made emotion rather than facts produce policy that contradicts reality.

If someone had POA for the plants, they could speak against the insane claim of the US Environmental Protection Agency (EPA) that CO2 is a “harmful substance”. EPA even convinced the US Supreme Court, supposedly the wisest people in the land, of this falsity. Plants are delighted that CO2 levels are now 400 ppm and rising. They would also vote, with numbers well in excess of the human vote of approximately 6.5 billion, to oppose any legislation or attempts to reduce those levels. They also hope you enjoy the oxygen they provide for a life, not just a better life.

Don Shaw

<http://wattsupwiththat.com/2015/05/09/plants-encouraged-as-co2-levels-reach-400-ppm/>

P. GIGANTIC ASTEROID NEAR MISS COMING THIS THURSDAY (05 – 14)

Guest essay by Eric Worrall

The Express reports that a colossal one mile wide asteroid will brush past the Earth this Thursday, with a closest approach of 3 million kilometres – far too close for comfort, with a rock that big. According to The Express; the gigantic missile thought to measure almost a mile across...

<http://wattsupwiththat.com/2015/05/11/dinosaur-killer-asteroid-near-miss-this-thursday/>

Regards

George