

The Week That Was: 2019-05-25 (May 25, 2019)

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The Science and Environmental Policy Project

Quote of the Week: *“It is a pleasure to stand upon the shore, and to see ships tost [sic] upon the sea: a pleasure to stand in the window of the castle and to see the battle and the adventures thereof below: but no pleasure is comparable to the standing upon the vantage ground of truth (a hill not to be commanded and where the air is always clear and serene), and to see the errors, and wanderings, and mists, and tempests, in the vale below. – From Of Truth, Francis Bacon [H/t Numberwatch, hopefully returning]*

Number of the Week: 5 million tonnes per annum (MTPA) of LNG, which is equal to about 0.7 billion [standard, normal temperature and pressure] cubic feet per day (Bcf/d) of natural gas

THIS WEEK:

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

The Greenhouse Effect –Atmospheric Layers: The atmosphere is divided into distinct layers and the altitude of the layers depends on the latitude, the distance from the equator. One could think of an oval shape with the thickest (elongated) part being above the equator. (Seasonal variation will be ignored in this section.)

The lowest layer is the troposphere. The boundary between the troposphere and the next higher layer, the stratosphere, is called the tropopause. The dominant greenhouse gas in the troposphere is water vapor. By the top of the troposphere, the tropopause, water vapor freezes out of the atmosphere, and above the tropopause water vapor is no longer an important greenhouse gas, interfering with the earth’s loss of heat energy into space.

At the equator, the altitude of the tropopause is about 18 km (60,000 feet, 11 miles). In the mid-latitudes, the temperate regions, the altitude of the tropopause is about 11 km (36,000 feet, 7 miles) and at the poles the altitude of the tropopause is about 8 km (26,000 feet, 5 miles). As one travels higher in the troposphere, water vapor declines and the temperature drops. Pilots call this gradual decrease in temperature the lapse rate.

Above the tropopause, the temperature of the lower stratosphere remains roughly constant with increasing altitude, then gradually rises with altitude from ultraviolet light heating the ozone layer. Because there is little water vapor in this layer, there is little convection, transfer of heat by bulk movement of molecules in fluids, such as air or water circulation, winds or currents.

Understanding of what is occurring in the troposphere is important to understanding the greenhouse effect, and it is complicated. In the troposphere that what we call weather occurs. There is significant heat transfer from circulating air and from the evaporation/condensation cycle, whereby water vapor absorbs the huge amount of heat at the surface by evaporation of water and releases it up in the atmosphere where the vapor condenses into clouds

These complex processes are in addition to the influence of greenhouse gases including water vapor absorbing and re-emitting photons -- interfering with the cooling of the earth by long-wave infrared radiation. The most important region of the earth for greenhouse gases, especially water vapor, influencing the earth's climate is the tropics, where the troposphere is thickest, and which absorbs most of the incoming solar radiation and emits most of the infrared energy going to space.

As discussed below, John Christy, director of the Earth System Science Center at the University of Alabama in Huntsville, has established that the climate models used by the UN Intergovernmental Panel on Climate Change (IPCC) and the US Global Change Research Program (USGCRP) and their followers have failed to capture what is occurring in the atmosphere above the tropics. Thus, the models are of little value for policy purposes and may be harmful.

Blinded by Belief: The Global Warming Policy Foundation published a talk given by John Christy at the Palace of Westminster (UK) on May 8, 2019. It is a clear demonstration of the poor quality of the science held by the IPCC, the USGCRP, and their followers. The opening paragraph bears repeating:

When I grew up, science was defined as a method of discovering information. You would make a claim or a hypothesis, and then you would test that claim against independent data. If it failed, you rejected your claim and you started over again. In other words, your hypothesis was not good information. But nowadays, if someone makes a claim about the climate, and someone like me falsifies it, rather than abandoning the hypothesis, that person tends to just yell louder that their claim is right. They find it difficult to look at what data might say about their beloved hypothesis.

As Christy explains, the energy transfer from the sun to earth, including its atmosphere, and the transfer from the earth to space involve enormous amounts of energy in which the role of extra carbon dioxide (CO₂) is but a bit player, difficult to measure. The proper place to measure the influence of increasing CO₂ is in the troposphere. In 1990 Roy Spencer and Christy published their seminal work, demonstrating how one can estimate temperature trends from comprehensive satellite data, with the data going back to 1979. There were slight errors due to slightly decreasing satellite altitude, which were promptly corrected when revealed.

In 1994, Christy and his colleague Dick McNider tested Jim Hansen's climate model, and other models, against 15 years of tropospheric satellite data. Hansen was head of NASA-GISS (Goddard Institute for Space Studies). The models indicated a warming rate of 0.35°C per decade. The data indicated a greenhouse warming trend of 0.09°C per decade – one-fourth the rate indicated by the models. In 2017 McNider and Christy re-checked their work using current data which was 37.5 years long. They removed the effects of El Niños and volcanoes. The updated data indicated a warming trend of 0.095°C per decade. As Christy states:

“The warming trend we found suggests we are having a relatively minor impact on global temperatures. From the IPCC, we know what the forcing was over that 37.5 years – how many extra greenhouse gas molecules there were and what forcing they would represent. We also know about the effect of aerosols. Taking all this data together, we can calculate what I call – and we were the first to use this term – the ‘tropospheric transient climate response’. In other words: how much temperature actually changes due to extra greenhouse gas forcing. The calculation includes a major assumption, namely that there are no natural variations left in the temperature data, and

in particular that there are no long-term natural variations. It's a huge assumption, but it allows us to move on.

“Our result is that the transient climate response – the short-term warming – in the troposphere is 1.1°C at the point in time when carbon dioxide levels double. This is not a very alarming number. If we perform the same calculation on the climate models, you get a figure of 2.3°C, which is significantly different. The models' response to carbon dioxide is twice what we see in the real world. So, the evidence indicates the consensus range for climate sensitivity is incorrect.” [Study published in peer reviewed journal.]

Christy then discusses the important work he and Ross McKittrick did to test the climate models against observations from 1979 to 2017 in the important tropical troposphere. They chose the Canadian climate model and tested it against temperature trends of the atmosphere between 30,000 and 40,000 feet, in the tropics from 20°N to 20°S. They also tested the warming trends against 102 climate model runs (those publicly available). They found the models show a warming about three times what is occurring. [Study published in peer reviewed journal.]

As Christy points out, the climate establishment has been hiding the problems with the models for a long time. It is doubtful that the climate establishment will willingly correct their errors. Christy ends with the graph he inserted with difficulty into the later supplement of the IPCC Fifth Assessment Report (AR5, 2013). The graph shows that the models are better at describing what is occurring in the tropical troposphere if the models do not include the effects of greenhouse gases than if they include the claimed effects.

It's important to note that Christy realizes that his calculated trends assume that all the natural causes of climate variation are included in the period covered. The assumption may not be true, especially with the possibility of a future cooling. See links under Challenging the Orthodoxy.

Erroneous Method: One of the major errors made by the IPCC and its followers is an error in its method, the process used to collect information and data. When listing the greenhouse gas factors that may be causing global warming / climate change, the IPCC does not include water vapor. The argument is that water vapor falls out of the atmosphere as rain within a few days. This is absurd. It is similar to saying that the Mississippi is not flooding because the individual water drops do not stay over the land.

Water vapor is persistent in the atmosphere even though individual water droplets may fall out. The persistence can be seen in maps compiled by NASA's Earth Observatory. The maps are based on data collected by the Moderate Resolution Imaging Spectroradiometer (MODIS) sensor on NASA's Aqua satellite. What is especially important is the band of extremely humid air as it wobbles north and south of the equator as seasons change. The band is called the Intertropical Convergence Zone. The zone may vary with general warming and cooling as the earth goes into and recovers from Ice Ages. For example, it probably is the cause of drying and wetting of the Sahara. See link under Measurement Issues -- Atmosphere

Phantom Evidence? The U.S. Congress held hearings on the UN report that one million species may soon become extinct. Only a vague summary has been produced, no detailed report. As Judith Curry wrote:

“And of course, I haven’t read the full Biodiversity Report, since it is not yet available. I am appalled that they published the relatively short Summary for Policy Makers well in advance of publishing the full report (I haven’t even seen a publication date for the main report). This fact in itself supports Morano’s contention that the intention of this Report is propaganda. They got their headline regarding ‘1 million species at risk from extinction’ without providing the documentation that apparently can’t be very convincing.”

Participating in this hearing discussing phantom evidence was Robert Watson. Watson (UK) is a long-time foe of carbon dioxide emissions who chaired the IPCC from 1997 to 2002. Under his leadership the IPCC produced the Third Assessment Report (AR3, 2001), which claimed a false scientific consensus and featured Mr. Mann’s hockey-stick, rising sea levels, rising sea levels, increased frequency of heat waves, false confidence in the ability of climate models to project / predict, and stronger evidence (highly questionable) that global warming / climate change over the previous fifty years was caused by human activities, primarily use of fossil fuels. As Curry notes, Morano, also Patrick Moore, were not intimidated by Mr. Watson’s pedigree. See links under Challenging the Orthodoxy.

Miracle of Photosynthesis: Last week’s TWTW brought up the Miracle of Photosynthesis, where the simple, single-cell cyanobacteria developed the method of using energy from the sun in the presence of chlorophyll to chemically breakdown molecules of water and carbon dioxide and reform them, creating carbohydrates and oxygen. From this method of obtaining chemical energy, multicellular life and animal life developed.

The Moderate Resolution Imaging Spectroradiometer (MODIS) sensor on NASA's Aqua satellite is used to compile maps showing changes in amounts of single-celled algae and phytoplankton as they move seasonally through the seas. They are tracked by the green in chlorophyll. The growth in the polar seas is remarkable, which TWTW believes is the result of increasing CO2. As the NASA web site states:

“The highest chlorophyll concentrations, where tiny surface-dwelling ocean plants are thriving, are in cold polar waters or in places where ocean currents bring cold water to the surface, such as around the equator and along the shores of continents. It is not the cold water itself that stimulates the phytoplankton. Instead, the cool temperatures are often a sign that the water has welled up to the surface from deeper in the ocean, carrying nutrients that have built up over time. In polar waters, nutrients accumulate in surface waters during the dark winter months when plants can't grow. When sunlight returns in the spring and summer, the plants flourish in high concentrations.”

“A band of cool, plant-rich waters circles the globe at the Equator, with the strongest signal in the Atlantic Ocean and the open waters of the Pacific Ocean. This zone of enhanced phytoplankton growth comes from the frequent upwelling of cooler, deeper water as a result of the dominant easterly trade winds blowing across the ocean surface.”

Of course, some people find this flourishing of life undesirable, claiming that global warming / climate change is driving plankton towards the poles. See links under Social Benefits of Carbon Dioxide, Changing Seas, and Changing Cryosphere – Land / Sea Ice.

Time Warp: In a commencement speech for the 2019 graduates of Tulane University in New Orleans, Tim Cook, the CEO of Apple Inc. stated:

“In some important ways, my generation has failed you. We spent too much time debating, too focused on the fight and not enough on progress.”

Sadly, Mr. Cook talked about global warming / climate change and rising sea levels, and how the political system ignores such important issues.

When satellites first started compiling atmospheric data that could be converted into temperature trends in 1979, the state-of-the-art Apple computer was the Apple II, which had two floppy disks; when Roy Spencer and John Christy published the method of using this satellite data to calculate atmospheric temperature trends the state-of-the-art Apple computer was the Macintosh Classic, with a 9 inch (23 cm) monochrome CRT. Mr. Cook may be a great president of a technology company, but his scientific thinking in the topic of his commencement address has not advanced beyond the Macintosh Classic. See links under Defending the Orthodoxy.

Playing for Propaganda? NOAA has lowered its criteria for naming storms. Thus, names once reserved for hurricanes are now used for storms with far less intensity. The problem is that only hurricanes were named storms. Now NOAA names storms which would have largely been considered strong winds or gale force winds, etc. One can see the marked decline in wind speed for storms in the definitions. According to NOAA:

NOAA’s National Hurricane Center does not control the naming of tropical storms. Instead, there is a strict procedure established by the World Meteorological Organization.

“A tropical cyclone in which the maximum sustained surface wind speed (using the U.S. 1-minute average) ranges from 34 kt (39 mph or 63 km/hr) to 63 kt (73 mph or 118 km/hr).

“A tropical cyclone in which the maximum sustained surface wind (using the U.S. 1-minute average) is 64 kt (74 mph or 119 km/hr) or more.”

The current NOAA forecast is for 9 to 15 storms, 4 to 8 hurricanes, and 2 to 4 major hurricanes. The resulting headlines vary from “NOAA predicts near-normal 2019 Atlantic hurricane season” to “Weather forecasters predict up to 15 major storms this hurricane season” See links under Changing Weather, Communicating Better to the Public – Exaggerate, or be Vague? And <https://oceanservice.noaa.gov/facts/storm-names.html>

SEPP’S APRIL FOOLS AWARD THE JACKSON

SEPP is conducting its annual vote for the recipient of the coveted trophy, The Jackson, a lump of coal. Readers are asked to nominate and vote for who they think is most deserving, following these criteria:

- The nominee has advanced, or proposes to advance, significant expansion of governmental power, regulation, or control over the public or significant sections of the general economy.
- The nominee does so by declaring such measures are necessary to protect public health, welfare, or the environment.
- The nominee declares that physical science supports such measures.

- The physical science supporting the measures is flimsy at best, and possibly non-existent.

The seven past recipients, Lisa Jackson, Barrack Obama, John Kerry, Ernest Moniz, John Holdren, Gena McCarthy and Jerry Brown are not eligible. Generally, the committee that makes the selection prefers a candidate with a national or international presence. The voting will close on June 30. Please send your nominee and a brief reason why the person is qualified for the honor to Ken@SEPP.org. Thank you.

Number of the Week: 5 million tonnes per annum (MTPA) of LNG, which is equal to about 0.7 billion [standard] cubic feet per day (Bcf/d) of natural gas. Forty years ago, President Carter and most of Washington were convinced that the US was about to run out of oil and natural gas. The Department of Energy had state-of-the-art computer models supporting these claims. But the assumptions in the models were wrong.

The state-owned oil and gas company for Saudi Arabia, Saudi Aramco, has signed a 20-year deal to import liquified natural gas (LNG) delivered by an American company, Sempra. The LNG will probably come from the wells being developed in the Permian Basin, in Texas, and will be shipped through the LNG export terminal being developed in Port Arthur, Texas. A competitor with Saudi Aramco, Qatar Petroleum, has announced the building of another LNG export terminal, with ExxonMobil, about 9 miles (16km) south of Port Arthur.

It is clear that the assumptions made 40 years ago in the energy models were wrong. But the assumptions have been corrected. It is clear that the assumptions made 40 years ago in climate models are wrong. When will they be corrected? See links under Energy Issues -- US

NEWS YOU CAN USE:

Climategate Continued

Supreme Court Asked To Hear Case Involving Leaked ‘Climategate’ Emails

By Michael Bastasch, Daily Caller, May 24, 2019

<https://www.dailycaller.com/2019/05/24/supreme-court-climategate-emails/>

Challenging the Orthodoxy -- NIPCC

The NIPCC reports are actually amazing

By Luboš Motl, The Reference Frame, May 23, 2019

<https://motls.blogspot.com/2019/05/the-nipcc-reports-are-actually-amazing.html>

Climate Change Reconsidered II: Physical Science

Idso, Carter, and Singer, Lead Authors/Editors, Nongovernmental International Panel on Climate Change (NIPCC), 2013

<https://www.heartland.org/media-library/pdfs/CCR-II/CCR-II-Full.pdf>

Summary: <http://www.nipccreport.org/reports/ccr2a/pdf/Summary-for-Policymakers.pdf>

Climate Change Reconsidered II: Biological Impacts

Idso, Idso, Carter, and Singer, Lead Authors/Editors, Nongovernmental International Panel on Climate Change (NIPCC), 2014

<http://climatechangereconsidered.org/climate-change-reconsidered-ii-biological-impacts/>

Summary: <https://www.heartland.org/media-library/pdfs/CCR-IIb/Summary-for-Policymakers.pdf>

Climate Change Reconsidered II: Fossil Fuels

By Multiple Authors, Bezdek, Idso, Legates, and Singer eds., Nongovernmental International Panel on Climate Change, April 2019

<http://store.heartland.org/shop/ccr-ii-fossil-fuels/>

Download with no charge:

<http://climatechangereconsidered.org/wp-content/uploads/2019/01/Climate-Change-Reconsidered-II-Fossil-Fuels-FULL-Volume-with-covers.pdf>

Why Scientists Disagree About Global Warming

The NIPCC Report on the Scientific Consensus

By Craig D. Idso, Robert M. Carter, and S. Fred Singer, Nongovernmental International Panel on Climate Change (NIPCC), Nov 23, 2015

<http://climatechangereconsidered.org/>

Download with no charge:

<https://www.heartland.org/policy-documents/why-scientists-disagree-about-global-warming>

Nature, Not Human Activity, Rules the Climate

S. Fred Singer, Editor, NIPCC, 2008

http://www.sepp.org/publications/nipcc_final.pdf

Challenging the Orthodoxy

Climate Models Have Been Predicting Too Much Warming

Press Release, by Global Warming Policy Foundation, May 23, 2019 [H/t Paul Homewood]

<https://www.thegwpf.org/climate-models-have-been-predicting-too-much-warming/>

Link to paper: The Tropical Skies: Falsifying climate alarm

By John Christy, GWPF, 2019

<https://www.thegwpf.org/content/uploads/2019/05/JohnChristy-Parliament.pdf>

“This paper is based a talk given by Dr Christy at the Palace of Westminster on 8 May 2019.”

Climatologist Dr. Judith Curry: Climate Scientists’ “Apocalyptic Predictions Depend On Unrealistic Climate Model Simulations”

By P Gosselin, No Tricks Zone, May 24, 2019

<https://notrickszone.com/2019/05/24/climatologist-dr-judith-curry-climate-scientists-apocalyptic-predictions-depend-on-unrealistic-climate-model-simulations/>

Hearing on the Biodiversity Report

By Judith Curry, Climate Etc. May 22, 2019

https://judithcurry.com/2019/05/22/hearing-on-the-un-biodiversity-report/?fbclid=IwAR1XNWkct9m0p1nxQEvkf7ZxDSnvpF7REsfe8syR2otg9E44Rb3hsN_qQvg

Greenpeace Co-founder Tells Congress to Ignore UN’s Latest Extinction Warning

By Michael Bastasch, Daily Caller, May 22, 2019

<https://www.dailycaller.com/2019/05/22/greenpeace-moore-un-extinction/>

World Leaders’ Ignorance About Climate Change Continues Despite Simple, Obvious Evidence.

Guest opinion Tim Ball, WUWT, May 18, 2019

<https://wattsupwiththat.com/2019/05/18/world-leaders-ignorance-about-climate-change-continues-despite-simple-obvious-evidence/>

Heartland to anger the environmental left with ICC13

By Anthony Watts, WUWT, May 22, 2019

<https://wattsupwiththat.com/2019/05/22/heartland-to-anger-the-environmental-left-with-iccc13/>

Bringing Sound Science to the Climate Debate (Guest: Benny Peiser)

By H. Sterling Burnett, Heartland Institute, May 21, 2019

<https://www.heartland.org/multimedia/podcasts/bringing-sound-science-to-the-climate-debate-in-the-uk-and-europe-guest-benny-peiser>

Audio

Defending the Orthodoxy

Apple CEO Tim Cook's Message to 2019 Graduates: 'My Generation Has Failed You'

By Sissi Cao, Observer, May 20, 2019

<https://observer.com/2019/05/apple-ceo-tim-cook-tulane-2019-commencement-speech-climate-change/>

Guest post: Why natural cycles only play small role in rate of global warming

By Karsten Haustein, Friederike Otto, Zeke Hausfather, and Peter Jacobs, Carbon Brief, May 24, 2019

https://www.carbonbrief.org/guest-post-why-natural-cycles-only-play-small-role-in-rate-of-global-warming?utm_campaign=RevueCBWeeklyBriefing&utm_medium=email&utm_source=Revue%20newsletter

Link to paper: A limited role for unforced internal variability in 20th century warming.

By Karsten Haustein and Friederike Otto, AMS 100, May 16, 2019

<https://journals.ametsoc.org/doi/abs/10.1175/JCLI-D-18-0555.1?af=R>

“The scientific community overwhelmingly agrees that human activities are responsible for the observed increase in temperatures for the last half-century.”

[SEPP Comment: Based on polls in which the pollsters manipulated the data after the poll?]

Questioning the Orthodoxy

Greenland Has Been Cooling In Recent Years – 26 Of Its 47 Largest Glaciers Now Stable Or Gaining Ice

By Kenneth Richard, No Tricks Zone, May 20, 2019

<https://notrickszone.com/2019/05/20/greenland-has-been-cooling-in-recent-years-26-of-its-47-largest-glaciers-now-stable-or-gaining-ice/>

Link to report: Polar Portal Season Report 2018

By Staff Writers, DMI, November 30, 2018

http://polarportal.dk/fileadmin/user_upload/polarportal-saesonnrapport-2018-EN.pdf

“Over Greenland, however, the summer was cool and wet, which benefitted the Ice Sheet.

Glaciers have continued the development seen during the last six years in which they have more or less maintained their area. Sea ice, on the other hand, has been more vulnerable, with high sea temperatures and warm winds leading to a large area ice-free north of Greenland in February and again in August.”

After Paris!

No EU country on track for 2030 climate goal, Germany ranks second to last – report

By Benjamin Wehrmann, Clean Energy Wire, May 16, 2019 [H/t GWPF]

<https://www.cleanenergywire.org/news/no-eu-country-track-2030-climate-goal-germany-ranks-second-last-report>

China's green efforts hit by fake data and corruption among the grass roots

Local officials have devised creative ways to cover up their lack of action on tackling pollution. Falsified monitoring information risks directing clean-up efforts away from where they are needed most.

By Echo Xie, South China Morning Post, May 19, 2019

<https://www.scmp.com/news/china/politics/article/3010679/chinas-green-efforts-hit-fake-data-and-corruption-among-grass>

Change in US Administrations

Trump Admin Aims to Make Clean Air Rules 'More Effective' by Overhauling How EPA Creates Them

By Michael Bastasch, Daily Caller, May 21, 2019

<https://dailycaller.com/2019/05/21/epa-andrew-wheeler-regulations/>

Social Benefits of Carbon Dioxide

NASA Earth Observatory Measurements

By Staff Writers, NASA, Accessed May 22, 2019

Chlorophyll

https://earthobservatory.nasa.gov/global-maps/MY1DMM_CHLORA

Problems in the Orthodoxy

India's thermal coal output seen growing 4.3% annually till 2028: Report

It further said the surge in Chinese imports that occurred over 2015-2017 as a result of dramatic domestic production curbs was a temporary phenomenon.

By Staff Writers, Economic Times, India, May 22, 2019

<https://energy.economictimes.indiatimes.com/news/coal/indias-thermal-coal-output-seen-growing-4-3-annually-till-2028-report/69437697>

Science, Policy, and Evidence

A Policy Maker's Guide to Climate Change

By Marlo Lewis, Jr., Competitive Enterprise Institute, May 22, 2019

<https://cei.org/content/policy-makers-guide-climate-change>

Review of Recent Scientific Articles by CO2 Science

Elevated CO2 and Elevated Temperature Improve the Quantity and Quality of Soybean and Maize Yields

Qiao, Y., Miao, S., Li, Q., Jin, J., Luo, X. and Tang, C. 2019. Elevated CO2 and temperature increase grain oil concentration but their impacts on grain yield differ between soybean and maize grown in a temperate region. *Science of the Total Environment* 666: 405-413. May 23, 2019

<http://www.co2science.org/articles/V22/may/a11.php>

A Three-Century Record of Drought in Nepal

Gaire, N.P., Dhakal, Y.R., Shah, S.K., Fan, Z.-X., Bräuning, A., Thapa, U.K., Bhandari, S., Aryal, S. and Bhuju, D.R. 2019. Drought (scPDSI) reconstruction of trans-Himalayan region of central Himalaya using *Pinus wallichiana* tree-rings. *Palaeogeography, Palaeoclimatology, Palaeoecology* 514: 151-264. May 22, 2019

<http://www.co2science.org/articles/V22/may/a10.php>

The Interactive Effects of Elevated CO₂ and Nitrogen Supply on Two Rice Cultivars

Hasegawa, T., Sakai, H., Tokida, T., Usui, Y., Nakamura, H., Wakatsuki, H., Chen, C.P., Ikawa, H., Zhang, G., Nakano, H., Matsushima, M.Y. and Hayashi, K. 2019. A high-yielding rice cultivar "Takanari" shows no N constraints on CO₂ fertilization. *Frontiers in Plant Science* 10: Article 361, doi: 10.3389/fpls.2019.00361. May 20, 2019

<http://www.co2science.org/articles/V22/may/a9.php>

Measurement Issues -- Surface

Satellites yield insight into not so permanent permafrost

By European Space Agency. Via Phys.org, May 20, 2019

<https://phys.org/news/2019-05-satellites-yield-insight-permanent-permafrost.html>

Royal Meteorological Society Confirms Urban Heat Island Effect... "Significantly Increased" Daily Minimum UK Temperature By Up To 1.70 K!

By P Gosselin, No Tricks Zone, May 18, 2019

<https://notrickszone.com/2019/05/18/royal-meteorological-society-confirms-urban-heat-island-effect-significantly-increased-daily-minimum-uk-temperature-by-up-to-1-70%e2%80%89k/>

Measurement Issues -- Atmosphere

NASA Earth Observatory Measurements

By Staff Writers, NASA, Water Vapor, Accessed May 22, 2019

https://earthobservatory.nasa.gov/global-maps/MYDAL2_M_SKY_WV

Will 5G Undermine Weather Prediction?

By Cliff Mass, Weather and Climate Blog, May 18, 2019

<https://cliffmass.blogspot.com/2019/05/will-5g-undermine-weather-prediction.html>

"Improved forecast skill derived from weather satellites has had huge positive impact on saving lives and property, and in fostering economic growth. Reasonable actions must be taken to protect the value of weather observations from space."

Measurement Issues -- Energy Flow

An Analysis of the Earth's Energy Budget

Guest post by Philip Mulholland, WUWT, May 23, 2019

<https://wattsupwiththat.com/2019/05/23/an-analysis-of-the-earths-energy-budget/>

Changing Weather

Blockbuster: 178 years of Australian rain has nothing to do with CO₂, worst extremes 1849, 1925, 1950

By Jo Nova, Her Blog, May 22, 2019

<http://joannenova.com.au/2019/05/178-years-of-australian-rain-has-nothing-to-do-with-co2-worst-extremes-1849-1925-1950/>

Link to paper: Historical extreme rainfall events in southeastern Australia

By Linden Ashcroft, David J.Karolyac and Andrew J.Dowdy, Weather and Climate Extremes, September 2019

<https://www.sciencedirect.com/science/article/pii/S221209471930009X#fig1>

[SEPP Comment: No new extremes and no normal?]

NOAA predicts near-normal 2019 Atlantic hurricane season

By Anthony Watts, WUWT, May 23, 2019

<https://wattsupwiththat.com/2019/05/23/noaa-predicts-near-normal-2019-atlantic-hurricane-season/>

Changing Climate

Death In The Sahel

By Paul Homewood, Not a Lot of People Know That, May 23, 2019

<https://notalotofpeopleknowthat.wordpress.com/2019/05/23/death-in-the-sahel/#more-39568>

[SEPP Comment: Reminder of the fear of global cooling leading to droughts.]

140 Years to a PETM-Style Doomsday!!! Another PETM/Chicken Little of the Sea Epic Fail

By David Middleton, WUWT, May 18, 2019

<https://wattsupwiththat.com/2019/05/18/140-years-to-a-new-petm-another-petm-chicken-little-of-the-sea-epic-fail/>

[SEPP Comment: PETM = Paleocene-Eocene Thermal Maximum]

Changing Climate – Cultures & Civilizations

Eastern forests shaped more by Native Americans' burning than climate change

By Staff Writers, University Park PA (SPX), May 22, 2019

http://www.terraily.com/reports/Eastern_forests_shaped_more_by_Native_Americans_burning_than_climate_change_999.html

Link to paper: Global change impacts on forest and fire dynamics using paleoecology and tree census data for eastern North America

By Abrams and Nowacki, Annals of Forest Science, Mar 2019

<https://link.springer.com/article/10.1007%2Fs13595-018-0790-y>

Changing Seas

Mapping the global distribution of phytoplankton

By Charles the moderator, WUWT, May 22, 2019

<https://wattsupwiththat.com/2019/05/22/mapping-the-global-distribution-of-phytoplankton/>

Changing Cryosphere – Land / Sea Ice

Climate change is driving plankton towards the poles, study says

By Daisy Dunne, Carbon Brief, May 22, 2019

https://www.carbonbrief.org/climate-change-is-driving-plankton-towards-the-poles-study-says?utm_campaign=RevueCBWeeklyBriefing&utm_medium=email&utm_source=Revue%20newsletter

Link to paper: Global change drives modern plankton communities away from the pre-industrial state

By Lukas Jonkers, Helmut Hillebrand & Michal Kucera, Nature, May 22, 2019

<https://www.nature.com/articles/s41586-019-1230-3>

From the abstract: “These observations not only confirm the existing evidence for changes in marine zooplankton communities in historical times, but also demonstrate that Anthropocene communities of a globally distributed zooplankton group systematically differ from their **unperturbed pre-industrial state.**” [Boldface added.]

[SEPP Comment: Bunk! We do not know what the state was during earlier warm periods. Further, it confuses increased photosynthesis from increased CO2 with global warming.]

New Paper: Arctic Sea Ice Was Far Less Extensive Than Today During The ‘Ice Free’ Early Holocene

By Kenneth Richard, No Tricks Zone, May 23, 2019

<https://notrickszone.com/2019/05/23/new-paper-arctic-sea-ice-was-far-less-extensive-than-today-during-the-ice-free-early-holocene/>

Agriculture Issues & Fear of Famine

Warming World Will Need to Farm a Whole New Egypt to Feed Itself

Scientists say trade rules would have to loosen to balance food and water security with the needs of a growing population.

By Jonathan Tiron, Bloomberg, May 17, 2019

<https://www.bloomberg.com/news/articles/2019-05-17/commodity-traders-could-be-a-key-beneficiary-of-climate-change?srnd=markets-vp>

Link to paper: The global nexus of food–trade–water sustaining environmental flows by 2050

By A.V. Pastor, et al, Nature Sustainability, May 13, 2019

<https://www.nature.com/articles/s41893-019-0287-1>

“The amount of land being farmed needs to increase by about 50%, or 100 million hectares (247 million acres), by 2050, the scientists said. They modeled climate, land and water data to reach the conclusions. While that massive agricultural expansion could double global food production and ensure the world's population is fed, it will need policymakers to allow trade flows to make sure those commodities reach the right places.”

Un-Science or Non-Science?

2-metre sea level rise 'plausible' by 2100: study

By Staff Writers, Washington (AFP) May 21, 2019

<http://www.terraily.com/reports/2,-metre-sea-level-rise-plausible-by-2100-study-999.html>

Link to paper: Ice sheet contributions to future sea-level rise from structured expert judgment

By Jonathan L. Bamber, Michael Oppenheimer, Robert E. Kopp, Willy P. Aspinall, and Roger M. Cooke, PNAS, May 20, 2019

<https://www.pnas.org/content/early/2019/05/14/1817205116>

From abstract: “We find that a global total SLR exceeding 2 m by 2100 lies within the 90% uncertainty bounds for a high emission scenario.”

[SEPP Comment: Playing with numbers as if they are meaningful. An asteroid hitting the earth and eliminating all major life forms is also within 90% uncertainty bounds.]

Lowering Standards

Potsdam Institute Caught Up In Contradiction: Says North Atlantic Cooling, Yet Blames May Snow On Warming!

By P Gosselin, No Tricks Zone, May 22, 2019

<https://notrickszone.com/2019/05/22/potsdam-institute-caught-up-in-contradiction-says-north-atlantic-cooling-yet-blames-may-snow-on-warming/>

Zoos abrogate their position of trust by misleading the public about polar bears

By Susan Crockford, Polar Bear Science, May 23, 2019

<https://polarbearscience.com/2019/05/23/zoos-abrogate-their-position-of-trust-by-misleading-the-public-about-polar-bears/>

Communicating Better to the Public – Exaggerate, or be Vague?

Weather forecasters predict up to 15 major storms this hurricane season

By Chris Mills Rodrigo, The Hill, May 23, 2019

<https://thehill.com/policy/energy-environment/445269-weather-forecasters-predict-up-to-15-major-storms-this-hurricane>

[SEPP Comment: See “NOAA predicts near-normal 2019 Atlantic hurricane season” under changing weather.

Communicating Better to the Public – Make things up.

Activists hope that fake news about droughts will win

By Larry Kummer, Fabius Maximus website, May 19, 2019

<https://fabiusmaximus.com/2019/05/19/activists-hope-that-fake-news-about-drought-will-win/>

Titanic Sunk By Climate Change

By Tony Heller, The Deplorable Climate Science Blog, May 24, 2019

<https://realclimatescience.com/2019/05/titanic-sunk-by-climate-change/>

[SEPP Comment: According to Canadian Minister of Environment & Climate Change, the Honourable Catherine McKenna, more icebergs are coming south, and emergency funding is being provided to fishermen in Newfoundland & Labrador. The Titanic sank in on April 15, 1912 about 400 miles (650 km) south of Newfoundland.]

Communicating Better to the Public – Go Personal.

Defending My Honour

By Donna Laframoise, Big Picture News, May 20, 2019

<https://nofrackingconsensus.com/2019/05/20/defending-my-honour/>

“A reader has alerted me to the fact that a Washington, D.C. organization called the Government Accountability Project is bad-mouthing me. It says I’m part of the ‘global warming denial machine.’”

[SEPP Comment: To what government is the Government Accountability Project accountable?]

Refuting the Smear Machine – Part 1

By Donna Laframoise, Big Picture News, May 22, 2019

<https://nofrackingconsensus.com/2019/05/22/refuting-the-smear-machine-part-1/>

Communicating Better to the Public – Use Propaganda on Children

Norwich Councillors Discuss Climate Change With 3-Year Olds

By Paul Homewood, Not a Lot of People Know That, May 23, 2019

<https://notalotofpeopleknowthat.wordpress.com/2019/05/23/norwich-councillors-discuss-climate-change-with-3-year-olds/>

Swedes bullying a schoolgirl who doesn't want to skip classes

By Luboš Motl, The Reference Frame, May 24, 2019

<https://motls.blogspot.com/2019/05/swedes-bullying-schoolgirl-who-doesnt.html#more>

Expanding the Orthodoxy

Illegal ozone-depleting gases traced to China: study

By Marlowe Hood, AFP, May 22, 2019

http://www.spacedaily.com/reports/Illegal_ozone-depleting_gases_traced_to_China_study_999.html

Link to paper: Increase in CFC-11 emissions from eastern China based on atmospheric observations

By Rigby, M. et al., Nature, May 22, 2019

<https://www.nature.com/articles/s41586-019-1193-4>

[SEPP Comment: Nature publishes papers estimating measurements of trace atmospheric gases using instruments on satellites but does not publish papers estimating bulk temperature trends in the atmosphere using instruments on satellites.]

Questioning European Green

Brace yourself: EU faces “massive flood of plastic waste” after UN export restrictions

Finnish public health expert stresses the need for increased incineration capacity to prevent a disaster

Edited by Joshua Poole, Packaging Insights, May 16, 2019

<https://www.packaginginsights.com/news/brace-yourself-eu-faces-massive-flood-of-plastic-waste-after-un-export-restrictions.html>

“According to Paunio, the new restrictions will mean that exports of plastic consumer waste to developing countries will largely come to a halt and EU nations will “finally be left to face the reality” of a failed recycling system.”

Gummer’s Firm Making Money Out Of “Meaningless” Recycling Logo

By Paul Homewood, Not a Lot of People Know That, May 19, 2019

<https://notalotofpeopleknowthat.wordpress.com/2019/05/19/gummers-firm-making-money-out-of-meaningless-recycling-logo/>

“More disgrace for Gummer, who incredibly is still Chair of the Committee on Climate Change:”

[SEPP Comment: A monopolist for meaningless recycling?]

Questioning Green Elsewhere

Transport: The Missing Link in Decarbonization

By Donn Dears, Power For USA, May 21, 2019

<https://ddears.com/2019/05/21/transport-the-missing-link-in-decarbonization/>

The Political Games Continue

Michael Bennet proposes \$1 trillion climate change fund

By Staff Writers, AP, May 20, 2019

<https://www.thedenverchannel.com/news/politics/michael-bennet-proposes-1-trillion-climate-change-fund>

Litigation Issues

Trump admin backs oil firms in Calif. nuisance case

By Jennifer Hijazi, E&E News, May 20, 2019

<https://www.eenews.net/climatewire/stories/1060361285/feed>

[SEPP Comment: The cities of Oakland & San Francisco have appealed the decision they lost in suing oil companies -- Case: 18-16663.]

Cap-and-Trade and Carbon Taxes

Oil companies join blitz for carbon tax

By Miranda Green and Alex Gangitano, The Hill, May 22, 2019

<https://thehill.com/policy/energy-environment/445100-oil-companies-join-blitz-for-carbon-tax>

Alberta Introduces Carbon Tax Repeal Bill

By Irina Slav, Oil Price.com, May 23, 2019

<https://oilprice.com/Latest-Energy-News/World-News/Alberta-Introduces-Carbon-Tax-Repeal-Bill.html>

Subsidies and Mandates Forever

Maryland bill mandating 50% renewable energy by 2030 to become law, but without Gov. Larry Hogan's signature

By Scott Dance, Baltimore Sun, May 22, 2019 [H/t Cooler Heads]

<https://www.baltimoresun.com/news/maryland/environment/bs-md-renewable-energy-law-20190522-story.html>

“Because green energy sources are more costly, the policy is expected to make Marylanders’ electricity bills more expensive — an estimated **\$1.50 per month for the typical residential customer**, on average, according to state legislative analysts.” [Boldface added]
[SEPP Comment: *In what century did the analysts make these estimates?*]

EPA and other Regulators on the March

Getting to the Bottom of EPA Climate Fraud

By Paul Driessen, Townhall, May 18, 2019

<https://townhall.com/columnists/pauldriessen/2019/05/18/getting-to-the-bottom-of-epa-climate-fraud-n2546536?utm>

Wheeler's cost-benefit mandate confounds experts

By Nina Heikkinen, E & E News, May 23, 2019

<https://www.eenews.net/greenwire/2019/05/23/stories/1060385581>

[SEPP Comment: *What about global greening benefits of CO2?*]

Energy Issues – Non-US

Decarbonising European Gas

By Paul Homewood, Not a Lot of People Know That, May 20, 2019

<https://notalotofpeopleknowthat.wordpress.com/2019/05/20/decarbonising-european-gas/>

Link to Timera Energy Blog, Accessed May 22, 2019

Decarbonising European gas: the risks & options

Decarbonisation of European gas markets is no longer over the horizon. We explore risks, mitigation actions, new low carbon gas technologies & the way forward.

By Staff Writers, Timera Energy, May 20, 2019

<https://timera-energy.com/decarbonising-european-gas-risks-options/>

OPEC Founder Venezuela Pumps Less Oil Than Three of Its Neighbors

By Lucia Kassai, Bloomberg, May 20, 2019

https://www.bloomberg.com/news/articles/2019-05-20/opec-founder-venezuela-pumps-less-oil-than-3-of-its-neighbors?utm_source=google&utm_medium=bd&cmpId=google

Energy Issues – Australia

U-Turn: After Election Defeat, Labor Premier Now Calls for New Coal Mine

By Staff Writers, The Australian, Via GWPF, May 22, 2019

<https://www.thegwpf.com/green-no-more-after-election-defeat-labor-premier-now-calls-for-new-coal-mine/>

Australia: climate hysterical Labourists lose unlosable election

By Luboš Motl, The Reference Frame, May 18, 2019

<https://motls.blogspot.com/2019/05/australia-climate-hysterical-labourists.html#more>

In coal we trust: Australian voters back PM Morrison's faith in fossil fuel

By Sonali Paul, Reuters, May 19, 2019

<https://www.reuters.com/article/us-australia-election-energy/in-coal-we-trust-australias-voters-back-pm-morrison-faith-in-fossil-fuel-idUSKCN1SP06F>

How to lose the unloseable election: be anti-coal. The climate vote evaporated.

By Jo Nava, Her Blog, May 20, 2019

<http://joannenova.com.au/2019/05/how-to-lose-the-unloseable-election-be-anti-coal-how-the-climate-vote-evaporated/>

Rank denial: Australia spends \$5b but has “no climate plan”

By Jo Nova, Her Blog, May 23, 2019

<http://joannenova.com.au/2019/05/rank-denial-australia-spends-5b-but-has-no-climate-plan/>

After Another Defeat, Climate Policy Threatens to Devour Left Parties

Post-election press review down under, GWPF, May 19, 2019

<https://www.thegwpf.com/after-another-defeat-climate-policy-threatens-to-devour-left-parties/>

Australia’s Left Loses an Election It Was Sure to Win

Voters shock the media in a result that echoes the victories of Brexit and Donald Trump in 2016.

By Tom Switzer, The Wall Street Journal, Via GWPF, May 19, 2019

<https://www.thegwpf.com/tom-switzer-australias-left-loses-an-election-it-was-sure-to-win/>

Australia votes 2019: Shock! Climate action bombs. Pollsters crash. Skeptics Win

By Jo Nova, Her Blog, May 19, 2019

<http://joannenova.com.au/2019/05/it-was-a-climate-election-and-the-skeptics-won-australia-2019/>

“Labor was tipped to win decisively in every poll. Even in the exit polls. So thousands of people told pollsters one thing, then they voted the other way, and hid that again on the way out the polling door.”

It Was Supposed to Be Australia’s Climate Change Election. What Happened?

Why the Green Left Lost Australia’s Climate Change Election

By Staff Writers, NYT, Via GWPF, May 19, 2019

<https://www.thegwpf.com/why-the-green-left-lost-australias-climate-change-election/>

Energy Issues -- US

Sempra, Saudi Aramco Have 20-Year Deal for LNG

By Darrell Proctor, Power Mag, May 22, 2019

https://www.powermag.com/sempra-saudi-aramco-have-20-year-deal-for-lng/?mkt_tok=eyJpIjoiTkdlJmVlUTNlZmZlZWpNMCIiInQiOiJBUzJcLzdYblhjcTdkSnFHhH F6MjdDZVFIVWVS VGh1WmxuaHE0VE9LRm5KaFFNYjBQVGlpG82WUlyZ1RlV1ZwQTB XTzBZK1c4NlBnNUdlNE5xa2FIRHBlVZaODBKMWdOWE1hcGJZZzlyVFR5SGFFYmQzZ 3RkYmZMYXFBa3NCTVwvIn0%3D

Oil and Natural Gas – the Future or the Past?

Japan Moves To Take Over The World’s Largest LNG Market

By Tim Daiss, Oil Price.com, May 22, 2019

<https://oilprice.com/Energy/Natural-Gas/Japan-Moves-To-Take-Over-The-Worlds-Largest-LNG-Market.html>

“Japan, the world’s largest liquefied natural gas (LNG) **exporter**, has come a long way in just a few years in formulating an LNG markets playbook.” [boldface added]

[SEPP Comment: Japan is the world’s largest LNG importer, not exporter.]

Nuclear Energy and Fears

Belgium’s Nuclear Driven Capacity Crunch

By Paul Homewood, Not a Lot of People Know That, May 20, 2019

<https://notalotofpeopleknowthat.wordpress.com/2019/05/20/belgiums-nuclear-driven-capacity-crunch/>

Alternative, Green (“Clean”) Solar and Wind

Costly wind power menaces man and nature

By Jay Lehr and Tom Harris, WUWT, May 22, 2019

<https://wattsupwiththat.com/2019/05/22/costly-wind-power-menaces-man-and-nature/>

Alternative, Green (“Clean”) Energy -- Other

The hydrogen economy and jobs of the future

By Roger H. Bezdek, Renewable Energy and Environmental Sustainability, 2019

http://www.cavendish-e.com/uploads/7/5/7/3/75738781/h2_economy__jobs.pdf

Carbon Schemes

World's largest trap for airborne CO2 planned for West Texas

By Christa Marshall, E&E News, May 22, 2019

<https://www.eenews.net/energywire/2019/05/22/stories/1060375171>

“The plan, from Oxy Low Carbon Ventures LLC and Carbon Engineering Ltd., envisions starting construction in 2021 on a facility that would use the captured greenhouse gas for enhanced oil recovery in Texas' Permian Basin. The plant would remove 500,000 metric tons of CO2 annually. “The companies didn't disclose the cost of the plant but said they would tap federal tax credits to build it.”

California Dreaming

Should California Be Renamed the Evergreen State?

By Cliff Mass, Weather and Climate Blog, May 20, 2019

<https://cliffmass.blogspot.com/search?updated-max=2019-05-23T13:35:00-07:00&max-results=1>

Health, Energy, and Climate

The air we breathe

By Staff Writers, Paris (ESA), May 20, 2019

http://www.spacedaily.com/reports/The_air_we_breathe_999.html

Link to report: Air Quality in Europe – 2018 report

By Staff Writers, European Environment Agency, December 2018

<https://www.eea.europa.eu/publications/air-quality-in-europe-2018>

“According to the World Health Organization (WHO), around 8 million premature deaths per year are linked to air pollution, more than double of previous estimates.

“Folkert Boersma, Associate Professor at Wageningen University and Research Scientist from the Royal Netherlands Meteorological Institute (KNMI), comments, ‘The spatial resolution of the

satellite is so good, that we can pinpoint emissions in fine detail and also detect gradients of emissions in large cities.’”

Environmental Industry

Welsh Village To Be Sacrificed To Satisfy Global Warming Zealots

By Paul Homewood, Not a Lot of People Know That, May 22, 2019

<https://notalotofpeopleknowthat.wordpress.com/2019/05/22/welsh-village-to-be-sacrificed-to-satisfy-global-warming-zealots/#more-39514>

“Deep Green Resistance” (one spinoff from the Green New Deal)

By Robert Bradley Jr., Master Resource, May 21, 2019

<https://www.masterresource.org/deep-ecology/deep-green-resistance-energy-1/>

Rejecting Wind and Solar: Deep Green Resistance (Part II)

By Robert Bradley Jr. Master Resource, May 22, 2019

<https://www.masterresource.org/deep-ecology/deep-green-resistance-2/>

WWF Blame Climate Change For Bee Decline- But Their Report Says The Opposite

By Paul Homewood, Not a Lot of People Know That, May 24, 2019

<https://notalotofpeopleknowthat.wordpress.com/2019/05/24/wwf-blame-climate-change-for-bee-decline-but-their-report-says-the-opposite/>

Other Scientific News

A Waste of 1,000 Research Papers

Decades of early research on the genetics of depression were built on nonexistent foundations. How did that happen?

By Ed Young, The Atlantic, May 17, 2019 [H/t GWPF]

<https://www.theatlantic.com/science/archive/2019/05/waste-1000-studies/589684/>

Link to new paper: No Support for Historical Candidate Gene or Candidate Gene-by-Interaction Hypotheses for Major Depression Across Multiple Large Samples.

By Border, R. et al., American Journal of Psychiatry, May 1, 2019

<https://www.ncbi.nlm.nih.gov/pubmed/30845820>

Other News that May Be of Interest

One-billion-year old fungi found is Earth's oldest

By Staff Writers, AFP, May 22, 2019

http://www.terraily.com/reports/One_billion_year_old_fungi_found_is_Earths_oldest_999.html

Link to paper: Early fungi from the Proterozoic era in Arctic Canada

By Corentin Loron, et al., Nature, May 22, 2019

<https://www.nature.com/articles/s41586-019-1217-0>

[SEPP Comment: If confirmed, this may significantly change the estimates of earliest multi-cellular life and life on land.]

Influx of elephant seals restricts Point Reyes beach access

By Staff Writers, AP, May 23, 2019

<https://www.apnews.com/a5b46f67f2d549369dff3084c21bd1d4>

[SEPP Comment: Could it be because they no longer have sea ice off the coast of California?]

OPEC Founder Venezuela Pumps Less Oil Than Three of Its Neighbors

By Lucia Kassai, Bloomberg, May 20, 2019

https://www.bloomberg.com/news/articles/2019-05-20/opeac-founder-venezuela-pumps-less-oil-than-3-of-its-neighbors?utm_source=google&utm_medium=bd&cmpld=google

BELOW THE BOTTOM LINE:

Arctic To Be Ice-Free In 365 Days

By Tony Heller, The Deplorable Climate Science Blog, May 24, 2019

<https://realclimatescience.com/2019/05/arctic-to-be-ice-free-in-365-days/>

[SEPP Comment: Showing the absurdity of long-term projections of one year from short-term data.]

Building the Ultimate Carbon Capture Tree

By R.P. Siegel, ASME, May 2019 [H/t Toshio Fujita]

<https://www.asme.org/engineering-topics/articles/technology-and-society/building-ultimate-carbon-capture-tree>

This “tree” makes up in efficiency what it lacks in aesthetics. Right now, it’s more of a process than an actual product but it’s one that can extract carbon dioxide 1,000 times faster than a natural tree, said Klaus Lackner, founder and director of the Center for Negative Carbon Emissions at Arizona State.

[SEPP Comment: Will it stop photosynthesis in its tracks?]

ARTICLES

1. What if Green Energy Isn’t the Future?

There’s a reason Warren Buffett decided to bet \$10 billion on the future of oil and natural gas.

By Mark Mills, WSJ, May 19, 2019

<https://www.wsj.com/articles/what-if-green-energy-isnt-the-future-11558294830>

The senior fellow at the Manhattan Institute and a partner in Cottonwood Venture Partners, an energy-tech venture fund, begins by asking why Warren Buffet bet \$10 billion on oil and gas financing the purchase of Anadarko, a US shale leader; yet, the bond and stocks markets are clearly negative on oil and gas as compared with “clean tech?” Mills continues with:

A week doesn’t pass without a mayor, governor or policy maker joining the headlong rush to pledge or demand a green energy future. Some 100 U.S. cities have made such promises. Hydrocarbons may be the source of 80% of America’s and the world’s energy, but to say they are currently out of favor is a dramatic understatement.

Yet it’s both reasonable and, for contrarian investors, potentially lucrative to ask: What happens if renewables fail to deliver?

The prevailing wisdom has wind and solar, paired with batteries, adding 250% more energy to the world over the next two decades than American shale has added over the past 15 years. Is that realistic? The shale revolution has been the single biggest addition to the world energy supply in the past century. And even bullish green scenarios still see global demand for oil and gas rising, if more slowly.

If the favored alternatives fall short of delivering what growing economies need, will markets tolerate energy starvation? Not likely. Nations everywhere will necessarily turn to hydrocarbons. And just how big could the call on oil and natural gas—and coal, for that matter—become if, say, only half as much green-tech energy gets produced as is now forecast? Keep in mind that a 50% “haircut” would still mean unprecedented growth in green-tech.

If the three hydrocarbons were each to supply one-third of such a posited green shortfall, global petroleum output would have to increase by an amount equal to doubling the production of the Permian shale field (Anadarko’s home). And the world supply of liquid natural gas would need to increase by an amount equal to twice Qatar’s current exports, plus coal would have to almost double what the top global exporter, Australia, now ships.

Green forecasters are likely out over their skis. All the predictions assume that emerging economies—the least wealthy nations—will account for more nearly three-fourths of total new spending on renewables. That won’t happen unless the promised radical cost reductions occur.

For a bellwether reality-check, note that none of the wealthy nations that are parties to the Paris Accord—or any of the poor ones, for that matter—have come close to meeting the green pledges called for. In fact, let’s quote the International Energy Agency on what has actually happened: “Energy demand worldwide [in 2018] grew by . . . its fastest pace this decade . . . driven by a robust global economy . . . with fossil fuels meeting nearly 70% of the growth for the second year running.”

The reason? Using wind, solar and batteries as the primary sources of a nation’s energy supply remains far too expensive. You don’t need science or economics to know that. Simply propose taking away subsidies or mandates, and you’ll unleash the full fury of the green lobby.

Meanwhile, there are already signs that the green vision is losing luster. Sweden’s big shift to wind power has not only created alarm over inadequate electricity supplies; it’s depressing economic growth and may imperil that nation’s bid for the 2026 Winter Olympics. China, although adept at green virtue-signaling, has quietly restarted massive domestic coal-power construction and is building hundreds of coal plants for emerging economies around the world.

In the U.S., utilities, furiously but without fanfare, have been adding billions of dollars of massive oil- and natural-gas-burning diesel engines to the grid. Over the past two decades, three times as much grid-class reciprocating engine capacity has been added to the U.S. grid as in the entire half-century before. It’s the only practical way to produce grid-scale electricity fast enough when the wind dies off. Sweden will doubtless be forced to do the same.

A common response to all of the above: Make more electric cars. But mere arithmetic reveals that even the optimists’ 100-fold growth in electric vehicles wouldn’t displace more than 5% of global oil demand in two decades. Tepid growth in gasoline demand would be more than offset by growing economies’ appetites for air travel and manufactured goods. Goodness knows what would happen if Trump-like economic growth were to take hold in the rest of the developed world. As Mr. Buffett knows, the IEA foresees the U.S. supplying nearly three-fourths of the world’s net new demand for oil and gas.

Green advocates can hope to persuade governments—and thus taxpayers—to deploy a huge tax on hydrocarbons to ensure more green construction. But there's no chance that wealthy nations will agree to subsidize expensive green tech for the rest of the world. And we know where the Oracle of Omaha has placed a bet.