

The Week That Was: 2019-10-19 (October 19, 2019)

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The Science and Environmental Policy Project

Quote of the Week – *“The human mind is not capable of grasping the universe. We are like a little child entering a huge library. The walls are covered to the ceilings with books in many different tongues. The child knows that someone must have written these books. It does not know who or how. It does not understand the languages in which they are written. But the child notes a definite plan in the arrangement of the books ... a mysterious order which it does not comprehend, but only dimly suspects.”*— Albert Einstein

Number of the Week: 2,352 cubic feet about 30 tons, with 20,000 vacuum tubes using 150 kilowatts of power and with five million hand-soldered connections.

THIS WEEK:

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

NASA-GISS Audit: A search of the web sites of the major US government-funded global modeling entities revealed an April 5, 2018 audit of NASA’s management of the Goddard Institute for Space Studies by the Office of Inspector General (IG) of NASA. Under the heading “What We Found” the IG report states, in part:

“GISS is a major contributor in helping NASA meet its Earth science research goals, in particular the Agency’s effort to improve the ability to predict climate change by better understanding the roles and interactions of the ocean, atmosphere, land, and ice in the climate system. In addition to climate modeling and maintenance of publically available climate-related datasets, the Institute’s major efforts include research in atmospheric chemistry, astrobiology, aerosols, and water isotopes.

“Apart from its substantial scientific contributions and contrary to NASA policy, we found that 43 of 66 (65 percent) new GISS scientific publications publicly released from October 2015 through September 2017 were not approved by GISS or Goddard officials prior to release. NASA policy requires numerous reviews and approvals before scientific information can be publically released. These procedures – which include a technical review, export control review, a series of supervisory approvals and, if needed, a legal review – are designed to ensure the accuracy of scientific information released to the public and to prevent inadvertent release of sensitive information. Moreover, we found inadequate NASA guidance related to the independence and qualifications of the initial approver in the technical review process and other practices not in conformance with best practices.”

Under the Heading of “What We Recommended” the report states, in part:

“In order to ensure accurate scientific information is released to the public and to prevent sensitive information from inadvertent release, we recommended NASA’s Chief Information Officer and the Chief of GISS ensure all NASA and GISS generated publications complete a thorough and independent pre-publication review and approval process prior to release.”

The IG also found funding irregularities, but for purposes of TWTW that is not important. Note that the report only discusses publications released from October 2015 through September 2017 on whether or not they have undergone extensive review by NASA. The findings of the IG prompted a search of GISS web site for updates of several important and highly questionable studies by GISS – mainly sea level rise and incorporation of space age technology in understanding the atmosphere in the GISS global climate model. See links under Challenging the Orthodoxy.

NASA-GISS Increasing Sea Level Rise: As discussed in the 2008 report of the Nongovernmental International Panel on Climate Change (NIPCC) on pages 16 to 19, James Hansen, then director of NASA-GISS, came out with some wild predictions of 21st century sea level rise. In his essay “The Threat to the Planet” in The New York Review, July 13, 2006, Hansen asserted a sea level rise of up to 600 cm (20 feet) by the end of the century. Eventually sea levels would rise by up to four times that amount, 2400 cm (80 feet) higher. He claimed that was the height about 3 million years ago (before our current period of ice ages). Hansen claims the sea level increases are driven by increases in carbon dioxide (CO₂).

The current NASA-GISS web site links to Hansen’s essay and to a GISS paper by Russell et al, projecting increases in the rate of sea level rise. The abstract of the Russell paper states:

“Sea level has been rising for the past century, and coastal residents of the Earth will want to understand and predict future sea level changes. In this study we present sea level changes from new simulations of the Goddard Institute for Space Studies (GISS) global atmosphere-ocean model from 1950 to 2099. The free surface, mass conserving ocean model leads to a straightforward calculation of these changes. Using observed levels of greenhouse gases between 1950 and 1990 and a compounded 0.5% increase in CO₂ after 1990, model projections show that the global sea level measured from 1950 will rise by 61 mm in the year 2000, by 212 mm in 2050, and by 408 mm in 2089. By 2089, 64% of the global sea level rise will be due to thermal expansion and 36% will be due to ocean mass changes. The Arctic Ocean will show a greater than average sea level rise, while the Antarctic circumpolar regions will show a smaller rise in agreement with other models. Model results are also compared with observed sea level changes during the past 40 years at 12 coastal stations around the world.”

In 50 years from 1950 to 2000 sea levels will increase by 61 mm, or 2.4 inches; in the next 50 years they will increase by another 151 mm, 6 inches, in the next 40 years they will increase by another 196 mm, 7.7 inches. They will increase at an ever-increasing rate, according to the Russell paper. The earth has not experienced such an increase in sea level rise since the earth was coming out of the last Ice Age when the great ice sheets covering the northern part of the northern hemisphere melted. Does NASA continue to endorse such papers? See links under Defending the Orthodoxy and https://pubs.giss.nasa.gov/docs/2006/2006_Hansen_ha06110e.pdf

NASA-GISS – Atmospheric CO₂: Principal Control Knob Governing Earth's Temperature: More disturbing is that NASA-GISS still references a 2010 paper published in Science claiming that the earth’s temperatures are principally controlled by CO₂. In part, the entry on the NASA-GISS web site reads:

The bottom line is that atmospheric carbon dioxide acts as a thermostat in regulating the temperature of Earth. The rapid increase in atmospheric carbon dioxide due to human industrial activity is therefore setting the course for continued global warming. Because of the large heat

*capacity of the climate system, the global surface temperature does not respond instantaneously to the sharp upturn of the carbon dioxide thermostat, which at this moment stands at 386.80 ppm compared to the normal interglacial maximum level of 280 ppm. Since humans are responsible for changing the level of atmospheric carbon dioxide, they then also have control over the global temperature of the Earth. Humans are at a difficult crossroad. **Carbon dioxide is the lifeblood of civilization as we know it. It is also the direct cause fueling an impending climate disaster.** There is no viable alternative to counteract global warming except through direct human effort to reduce the atmospheric CO₂ level.*

The basic physics for the present study is rooted in the high precision measurements documenting the rise of atmospheric carbon dioxide and other greenhouse gases as fully described in the IPCC AR4 report, and in the comprehensive HITRAN database (Rothman et al. 2009) of atmospheric absorption data. The radiative transfer calculations involve well-understood physics that is applied to the global energy balance of the Earth, which is maintained by radiative processes only, since the global net energy transports must equal zero. This demonstrates the nature of the terrestrial greenhouse effect as being sustained by the non-condensing GHGs, with magnification of the greenhouse effect by water vapor and cloud feedbacks and leaves no doubt that increasing GHGs cause global warming. [Boldface added.]

At best, the study is dated, worse it is misleading. We are not seeing a significant, steady rise in atmospheric temperatures over the past 40 years as the atmospheric concentration of CO₂, as measured at Mauna Loa Observatory, has gone from 337 parts per million (ppm) to about 410 ppm, about a 22% increase. This is not to say that CO₂ does not have a greenhouse effect, but the temperature effect of the rise in CO₂ over the past 40 years has been modest. Prior to that, we simply do not know because there were no comprehensive measurements of atmospheric temperatures. Surface temperatures are poor proxies for the influence of CO₂, they are far from complete and altered by other influences, such as change in land use.

However, the paper is interesting for two reasons: 1) the temperature forcing mechanism it presents and 2) recognition of the HITRAN database.

“It is this sustained warming [from CO₂] that enables water vapor and clouds to maintain their atmospheric distributions as the so-called feedback effects that amplify the initial warming provided by the non-condensing GHGs, and in the process, account for the bulk of the total terrestrial greenhouse effect.”

As the graphic describes, both clouds and water vapor have a strong positive greenhouse effect which increases significantly as warming from CO₂ (or any other reason) increases. The positive feedback from water vapor is described as twice that from clouds. Yet, atmospheric measures are not picking up the strong positive influence from water vapor and from clouds. Thus, the paper is highly questionable and should be so marked.

That the paper recognizes the HITRAN database is important because it is one of the two libraries of compiled data from actual measurements of the greenhouse effect, the other being MODTRAN. Described in the June 22 and other TWTWs, the HITRAN database, though not perfect, are far superior for gaining knowledge of the greenhouse effect than the use of surface temperatures. NASA-GISS has no excuse for not updating its research using HITRAN and adjusting its models accordingly. See links under Defending the Orthodoxy and previous TWTWs on The Greenhouse Effect.

US Modeling Efforts: In addition to GISS, the IG report lists five other major US Climate Modeling Efforts. They are: 1) Department of Energy, ACME V1, which “Supports the Department of Energy’s energy planning and computational resource needs.” This model is being upgraded to E3SM, Exascale Earth System Model; 2) NOAA GFDL, CM3, which focuses on “Long-term climate change research advancing NOAA’s mission goal to understand and predict changes in climate,” and has been discussed previously; 3) NASA GMAO, GEOS5, which focuses on “Data assimilation products for short-term weather, longer seasonal forecasts, and re-analyses”; 4) NCAR, CESM1, which focuses on “Long-term climate change research”, and was discussed in the August 31 TWTW; and 5) NCEP, CFS V1 & V2, which focuses on “Operational data assimilation products for short-term weather, longer seasonal forecasts, and re-analyses.”

The weather models are important because they give an idea of the limitations of using modified weather models for modeling climate. In upcoming TWTWs, NCAR, GISS, and DOE models will be discussed to evaluate how well they incorporate space age technology – that is data that has been gathered since the 1979 Charney Report, which presented no physical evidence justifying its speculations of what was occurring in the atmosphere because there were no comprehensive measurements of the atmosphere. We have far more systematic information on the atmosphere today, and to ignore this information is to ignore the principles of the Scientific Method. See links under Model Issues.

Climate Limits: Writing for her website, Climate Etc., Judith Curry presents her reasoned responses to questions from a reporter. Her conclusion to the essay needs repeating:

“Bottom line is that these [Intergovernmental Panel on Climate Change (IPCC)] timelines are meaningless. While we have confidence in the sign of the temperature change, we have no idea what its magnitude will turn out to be. Apart from uncertainties in emissions and the Earth’s carbon cycle, we are still facing a factor of 3 or more uncertainty in the sensitivity of the Earth’s climate to CO₂, and we have no idea how natural climate variability (solar, volcanoes, ocean oscillations) will play out in the 21st century. And even if we did have significant confidence in the amount of global warming, we still don’t have much of a handle on how this will change extreme weather events. With regards to species and ecosystems, land use and exploitation is a far bigger issue.

“Cleaner sources of energy have several different threads of justification but thinking that sending CO₂ emissions to zero by 2050 or whenever is going to improve the weather and the environment by 2100 is a pipe dream. If such reductions come at the expense of economic development, then vulnerability to extreme weather events will increase.

“There is a reason that the so-called climate change problem has been referred to as a ‘wicked mess.’” See link under Challenging the Orthodoxy.

Is There a Statistician in the House? Since the notorious hockey-stick by Mr. Mann, climate advocates and publications which favor them have been published that contain important statistical errors, often disguised in the statistical morass. Ross McKittrick, one of the two statisticians who exposed the hockey-stick, has advocated that important statistical work include a review by a statistician competent in the type of statistics being used. That competence is necessary to be able to clearly identify the errors and correct them if possible.

For example, last week, Gregory et al. published a paper claiming that the sensitivity of earth to changing CO2 can be derived from studies of historic climate change. This week, statistician Nic Lewis, writing in Climate Etc., explains why the study is bunk. The mistakes may be honest, but it is clear the authors that the did not understand the weaknesses of the approaches they took.

On another statistical issue, Anthony Watts has an hour-long audio interview, with Steve McIntyre, the other statistician who helped expose Mr. Mann's hockey-stick. The interview reflects the caliber of the man. See links under Challenging the Orthodoxy.

Regulated Utilities: Often US citizens forget that their electricity and natural gas probably come from a regulated utility. In regulated states, utilities must abide by electricity rates set by state public utility commissions with the regulators appointed by politicians. This type system is often considered a monopoly due to its limitations on consumer choice. However, its benefits include stable prices and long-term certainty.

Many investors like regulated utilities because it assures long-term profits, thus, virtually, a guaranteed return on investment. A significant problem arises when regulators, or politicians, place other burdens on the utility, such as not allowing sufficient expenses for maintenance, or making other concerns, such as the environment, a priority over safe delivery of reliable electricity or natural gas at the lowest possible price. Such a problem is occurring in California. See links under California Dreaming and Article #1.

Number of the Week: 2,352 cubic feet, the size of a large school bus, about 30 tons with 20,000 vacuum tubes using 150 kilowatts of power and with five million hand-soldered connections – Eniac, the first programmable computer. What's in your smartphone? See Article # 2.

NEWS YOU CAN USE:

Censorship

Was this zoologist punished for telling school kids politically incorrect facts about polar bears?

Opinion: Dr. Susan Crockford describes her expulsion from the University of Victoria as 'an academic hanging without a trial, conducted behind closed doors'

By Donna Laframboise, Financial Post, Can, Oct 16, 2019

<https://business.financialpost.com/opinion/was-this-zoologist-punished-for-telling-school-kids-politically-incorrect-facts-about-polar-bears>

Institute of Economic Affairs vs. Climate Censorship

By Robert Bradley Jr., Master Resource, Oct 16, 2019

<https://www.masterresource.org/climate-alarmism-reconsidered-booklet/iea-vs-guardian/>

Suppressing Scientific Inquiry

Sierra Club Chickens on Wind Infrasound (deep-six commissioned study)

By Donald Deever, Master Resource, Oct 17, 2019

<https://www.masterresource.org/sierra-club-environmental-pressure-groups/sierra-club-infrasound-study-iii/>

Challenging the Orthodoxy -- NIPCC

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

Global Sea-Level Rise: An Evaluation of the Data

By Craig D. Idso, David Legates, and S. Fred Singer, Heartland Policy Brief, May 20, 2019

<https://www.heartland.org/template-assets/documents/publications/SeaLevelRiseCCRII.pdf>

Challenging the Orthodoxy

NASA's Management of GISS: The Goddard Institute for Space Studies

NASA, Office of Inspector General, Office of Audits, April 5, 2018

<https://oig.nasa.gov/docs/IG-18-015.pdf>

[SEPP Comment: GISS's total available funding in FY 2016 was approximately \$19.1 million, of which \$18.3 million (96 percent) comes from NASA.]

Gregory et al 2019: Unsound claims about bias in climate feedback and climate sensitivity estimation

By Nic Lewis, Climate Etc. Oct 18, 2019

<https://judithcurry.com/2019/10/18/gregory-et-al-2019-unsound-claims-about-bias-in-climate-feedback-and-climate-sensitivity-estimation/>

Link to paper: How accurately can the climate sensitivity to CO2 be estimated from historical climate change?

By J. M. Gregory, T. Andrews, P. Ceppi, T. Mauritsen and M. J. Webb, Climate Dynamics, Oct 10, 2019

Climate ‘limits’ and timelines

By Judith Curry, Climate Etc. Oct 16, 2019

<https://judithcurry.com/2019/10/16/climate-limits-and-timelines/>

Facts About Methane Ignored to Support Climate Narrative

Guest essay by Walter Starck, WUWT, Oct 14, 2019

<https://wattsupwiththat.com/2019/10/14/facts-about-methane-ignored-to-support-climate-narrative/>

“No matter how little or how much methane is in the atmosphere, all the IR in its absorption spectrum is still going to be absorbed, if not by methane, then by water vapor. More methane adds nothing to the effect on temperature.”

“A recent study has found that the Amazon rainforest is a major global source of methane.”

McIntyre speaks: on Mann, sticks, and data manipulation

By Anthony Watts, WUWT, Oct 15, 2019

<https://wattsupwiththat.com/2019/10/15/mcintyre-speaks-on-mann-sticks-and-data-mannipulation/>

Renowned German Geologist Shocks Audience: “Climate Change Totally Exaggerated”...”Warming Least Of Our Problems”

By P Gosselin, No Tricks Zone, Oct 12, 2019

<https://notrickszone.com/2019/10/12/renowned-german-geologist-shocks-audience-climate-change-totally-exaggerated-warming-least-of-our-problems/>

Defending the Orthodoxy

Major US Modeling Efforts: (Based on NASA-GISS Audit, NASA Office of Inspector General)

<https://oig.nasa.gov/docs/IG-18-015.pdf>

Source: Schmidt, G.A., D. Bader, L.J. Donner, G.S. Elsaesser, J.-C. Golaz, C. Hannay, A. Molod, R. Neale, and S. Saha, 2017: Practice and philosophy of climate model tuning across six U.S. modeling centers. Geosci. Model Dev., 10, 3207-3223, <https://doi.org/10.5194/gmd-10-3207-2017>.

Publication Abstracts

Russell et al. 2000

By Staff, NASA-GISS, Page updated Oct 31, 2018, Accessed Oct 17, 2019

<https://pubs.giss.nasa.gov/abs/ru05000n.html>

Regional sea-level changes projected by the NASA/GISS Atmosphere-Ocean Model

By Russell, G.L., V. Gornitz, and J.R. Miller, 2000:. Clim. Dyn., 16, 789-797, doi:10.1007/s003820000090.

CO2: The Thermostat that Controls Earth's Temperature

By Andrew Lacis, October 2010, Page updated Apr 10, 2018, Accessed Oct 17, 2019

NASA-GISS, https://www.giss.nasa.gov/research/briefs/lacis_01/

Reference

Lacis, A.A., G.A. Schmidt, D. Rind, and R.A. Ruedy, 2010: Atmospheric CO₂: Principal control knob governing Earth's temperature Science, 330, 356-359, doi:10.1126/science.1190653.

Tale of 2 climate crises gives clues to the present

By Staff Writers, Phoenix AZ (SPX), Oct 17, 2019

http://www.terraily.com/reports/Tale_of_2_climate_crisis_gives_clues_to_the_present_999.html

Link to paper: Mass Extinctions and Climate Change: Analogs of Today's Rapid Climate Warming and Potential Biotic Catastrophe

By Paula Mateo and Gerta Keller, Geological Society of America, Sep 25, 2019

<https://gsa.confex.com/gsa/2019AM/meetingapp.cgi/Paper/334464>

[SEPP Comment: The opening sentences of the Abstract says more than enough: "Anthropocene climate change is leading to an imminent biotic catastrophe that may be comparable to the five major mass extinctions in Earth's history. We test this hypothesis based on faunal and environmental records of the Cretaceous-Paleogene boundary (KPB) mass extinction ~66.0 Ma and the Paleocene-Eocene Thermal Maximum (PETM) ~55.8 Ma," How about testing the assertion in the first clause: "Anthropocene climate change is leading to an imminent biotic catastrophe..." Where is the physical evidence?]

Marshall Islands declares national climate crisis

By Miranda Green, The Hill, Oct 11, 2019

<https://thehill.com/policy/energy-environment/465422-marshall-islands-declares-national-climate-crisis>

Lakes worldwide are experiencing more severe algal blooms

Climate change is likely hampering recovery efforts

Press Release, Carnegie Institution for Science, EurekAlert, Oct 14, 2019

https://www.eurekalert.org/pub_releases/2019-10/cifs-lwa101019.php

[SEPP Comment: So are farming and the use of fertilizers.]

Open Letter: Extinction Rebellion Climate Celebrities Admit Their Hypocrisy – But Blame Everyone Else

By Eric Worrall, WUWT, Oct 17, 2019

<https://wattsupwiththat.com/2019/10/17/extinction-rebellion-admit-climate-hypocrisy-but-blame-the-system/>

The necessity for this natural gas pipeline is a sham - Opinion

By Ronald Fraser, Penn Life, Oct 10, 2019

<https://www.pennlive.com/opinion/2019/08/the-necessity-for-a-natural-gas-pipeline-is-a-sham-opinion.html>

Questioning the Orthodoxy

My Gift To Climate Alarmists

By Tony Heller, Real Climate Science, Sep 20, 2019

<https://www.youtube.com/watch?v=8455KEDitpU&feature=youtu.be&app=desktop>

[SEPP Comment: Includes data the IPCC and the USGCRP ignore.]

How dare you steal my dreams for a sensible democracy! [Australia]

By Jo Nova, Her Blog, Oct 14, 2019

<http://joannenova.com.au/2019/10/how-dare-you-steal-my-dreams-for-a-sensible-democracy/#more-66832>

500 Global Climate Scientists Challenge Mob Hysteria

By Larry Bell, Newsmax, Oct 14, 2019

<https://www.newsmax.com/larrybell/climate-change-global-warming-ipcc/2019/10/14/id/937026/>

Is Climate Change Doomsday Coming?

By Mark Deutschle, American Thinker, Oct 12, 2019

https://www.americanthinker.com/articles/2019/10/is_climate_change_doomsday_coming.html

Plastics: Science is Winning

By Kip Hansen, WUWT, Oct 18, 2019

<https://wattsupwiththat.com/2019/10/18/plastics-science-is-winning/>

Link to paper: Sunlight Converts Polystyrene to Carbon Dioxide and Dissolved Organic Carbon

By Collin P. Ward, et al. Environmental Science & Technology Letters, Oct 2019

<https://pubs.acs.org/doi/pdf/10.1021/acs.estlett.9b00532>

The Great Amazon Fire Scare of 2019

By John Robson, Climate Change Nexus, Oct 9, 2019

<https://climatediscussionnexus.com/videos/the-great-amazon-fire-scare-of-2019/>

Video

After Paris!

Fragile Chinese delusion

By John Robson, Climate Change Nexus, Oct 16, 2019

<https://climatediscussionnexus.com/2019/10/16/fragile-chinese-delusion/>

Change in US Administrations

BLM move would split apart key public lands team

By Rebecca Beitsch, The Hill, Oct 14, 2019

<https://thehill.com/policy/energy-environment/465687-blm-move-would-fragment-environmental-team-that-vets-development-of>

Problems in the Orthodoxy

Retracted Ocean Warming Paper & the IPCC

A new UN report relies on discredited research – and on academics who conceal vital information.

By Donna Laframboise, Big Picture News, Oct 14, 2019

<https://nofrackingconsensus.com/2019/10/14/retracted-ocean-warming-paper-the-ipcc/>

Seeking a Common Ground

Climate change activists are focused on all the wrong solutions

By Bjorn Lomborg, New York Post, Oct. 12, 2019

<https://nypost.com/2019/10/12/climate-change-activists-are-focused-on-all-the-wrong-solutions/>

“On the sidelines of the 2015 Paris climate summit, more than 20 world leaders made a promise to double green-energy research and development by 2020. But spending has only inched up from \$16 billion in 2015 to \$17 billion in 2018. This is a broken promise that matters.”

Northwest Contrails and Global Warming

By Cliff Mass, Weather and Climate Blog, Oct 12, 2019

<https://cliffmass.blogspot.com/search?updated-max=2019-10-14T20:47:00-07:00&max-results=1&start=2&by-date=false>

“It turns out that the warming effects are larger than the cooling effects: thus, contrails have a net warming effect.”

“The jet contrail warming will be a very difficult contribution to lessen, since only fossil fuels can provide the energy densities needed for commercial aircraft. Fortunately, it only represents a small proportion of the problem.”

Review of Recent Scientific Articles by CO2 Science

Elevated CO2 and Warming Improve the Nutritional Properties of Two Strawberry Cultivars

Balasoorya, H.N., Dassanayake, K.B., Seneweera, S. and Ajlouni, S. 2019. Impact of elevated carbon dioxide and temperature on strawberry polyphenols. *Journal of the Science of Food and Agriculture* 99: 4659-4669. Oct 18, 2019

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

Elevated CO2 Ameliorates Heat Stress in Tomato Plants

Pan, C., Ahammed, G.J., Li, X. and Shi, K. 2018. Elevated CO2 improves photosynthesis under high temperature by attenuating the functional limitations to energy fluxes, electron transport and redox homeostasis in tomato leaves. *Frontiers in Plant Science* 9: Article 1739, doi: 10.3389/fpls.2018.01739. Oct 17, 2019

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

Rising CO2 Stimulates Health-improving Substances in a Subtropical Shrub

Ali, S.A.M., Zain, C.R.C.M. and Latip, J. 2019. Influence of elevated CO2 on the growth and phenolic constituents production in *Hibiscus sabdariffa* var. UKMR-2. *Jurnal Teknologi* 81: 109-118. Oct 16, 2019

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

Ocean Acidification and Warming Effects on Yellowtail Kingfish

Munday, P.L., Schunter, C., Allan, B.J.M., Nicol, S., Parsons, D.M., Pether, S.M., Pope, S., Ravasi, T., Setiawan, A.N., Smith, N. and Domingos, J.A. 2019. Testing the adaptive potential of yellowtail kingfish to ocean warming and acidification. *Frontiers in Ecology and Evolution* 7: 253, doi: 10.3389/fevo.2019.00253. Oct 14, 2019

<http://www.co2science.org/articles/V22/oct/a8.php>

Model Issues

Budget Geophysical Fluid Dynamics Laboratory Review

By Staff, GFDL, Dated: October 29 - 31, 2019, Accessed Oct 17, 2019

https://www.gfdl.noaa.gov/wp-content/uploads/2019/10/2019_GFDL_External_Review_Budget.pdf

[SEPP Comment: The stated budget is \$54,074,000.]

GFDL's Contribution to the Coupled Model Intercomparison Project

By Staff, Geophysical Fluid Dynamics Laboratory, Accessed Oct 17, 2019

<https://www.gfdl.noaa.gov/cmip/>

DOE E3SM: Exascale Earth System Model

By Staff, Climate and Environmental Sciences Division, Department of Energy. Accessed Oct 18, 2019

<https://climatemodeling.science.energy.gov/projects/energy-exascale-earth-system-model>

“VISION: The Energy Exascale Earth System Model project is an ongoing, state-of-the-science Earth system modeling, simulation, and prediction project that optimizes the use of DOE laboratory resources to meet the science needs of the nation and the mission needs of DOE.”

Global Modeling and Assimilation Office

By Staff, National Aeronautics and Space Administration. Goddard Space Flight Center, Accessed Oct 17, 2019]

<https://gmao.gsfc.nasa.gov/>

[SEPP Comment: Includes satellite group.]

Goddard Institute for Space Studies

National Aeronautics and Space Administration

By Staff, GISS, Accessed, Oct 17, 2019

<https://www.giss.nasa.gov/about/>

“A key objective of GISS research is prediction of atmospheric and climate changes in the 21st century. The research combines analysis of comprehensive global datasets with global models of atmospheric, land surface, and oceanic processes. Study of past climate change on Earth and of other planetary atmospheres serves as a useful tool in assessing our general understanding of the atmosphere and its evolution.”

National Centers for Environmental Prediction

By Staff, NCEP, NOAA, Accessed Oct 15, 2018

<https://www.ncep.noaa.gov/>

“NCEP delivers national and global weather, water, climate and space weather guidance, forecasts, warnings and analyses to its Partners and External User Communities.”

Workshop on the Initialization of High-Resolution Earth System Models

By Staff, U.S. Department of Energy: Office of Science, Office of Biological and Environmental Research; U.S. Department of Commerce: National Oceanic and Atmospheric Administration, Climate Program Office October 2018

https://climatemodeling.science.energy.gov/sites/default/files/EESM_initialization_highres_esms_workshop.pdf

Measurement Issues -- Surface

Climate Emergency Tour: Churchill Edition

By John Robson, Climate Change Nexus, Oct 16, 2019

<https://climatediscussionnexus.com/2019/10/16/climate-emergency-tour-churchill-edition/>

[SEPP Comment: No dramatic changes in this town halfway up the Hudson Bay.]

Measurement Issues -- Atmosphere

New Video: Corruption Of The Satellite Record [RSS]

By Tony Heller, Real Climate Science, Oct 16, 2019

<https://realclimatescience.com/2019/10/new-video-corruption-of-the-satellite-record/>

[SEPP Comment: After Remote Sensing Services (RSS) started combining surface temperature estimates in their temperature reports, TWTW no longer considered the organization as a reliable source for atmospheric temperature data.]

Two decades of rain, snowfall from NASA's precipitation missions

By Jessica Merzdorf for GSFC News, Greenbelt MD (SPX) Oct 17, 2019

http://www.terraily.com/reports/Two_decades_of_rain_snowfall_from_NASAs_precipitation_missions_999.html

Link to web site: Two Decades of Precipitation Measurement

By Staff, Precipitation Measurement Missions, NASA, Accessed Oct 17, 2019

<https://pmm.nasa.gov/>

Changing Weather

The Blob is Weakening

By Cliff Mass, Weather and Climate Blog, Oct 16, 2019

<https://cliffmass.blogspot.com/2019/10/the-blob-is-weakening.html>

“And this is all good news. Excessively warm water in the NE Pacific is bad for the marine food chain, leading to poor salmon runs and other problems. So, although the Blob may be sad, this is positive news for everyone else.”

The Meteorological Switch is About to Be Turned On [Pacific Northwest]

By Cliff Mass, Weather and Climate Blog, Oct 14, 2019

<https://cliffmass.blogspot.com/search?updated-max=2019-10-16T21:48:00-07:00&max-results=1&start=1&by-date=false>

“The slugs and ducks will be happy!”

Changing Seas

Detailed reef survey reveals major changes in Australia's Great Barrier Reef

By Staff Writers, Ramat Gan, Israel (SPX,) Oct 14, 2019

http://www.terraily.com/reports/Longest_coral_reef_survey_to_date_reveals_major_changes_in_Australias_Great_Barrier_Reef_999.html

Link to paper: Ecological changes over 90 years at Low Isles on the Great Barrier Reef

By Maoz Fine, et al., Nature, Communications, Sep 27, 2019

<https://www.nature.com/articles/s41467-019-12431-y>

From the abstract: “The long-term perspective of this study illustrates the importance of considering multiple factors in reef decline, and potential recovery, of coral reefs, and the importance of tracking changes in community structure as well as coral abundance over long periods.”

Changing Cryosphere – Land / Sea Ice

Alarmist Scientist “Way Off Target” ...Arctic Sea Ice/European Winter Claim Refuted By Newly Published Study

Rahmstorf way off: New study finds no robust relationship between shrinking sea ice, European cold waves

By Die Kalte Sonne, (German text translated/edited by P Gosselin), No Tricks Zone, Oct 15, 2019

<https://notrickszone.com/2019/10/15/alarmist-scientist-way-off-target-arctic-sea-ice-european-winter-claim-refuted-by-newly-published-study/>

Last year's extreme snowfall wiped out breeding of Arctic animals and plants

By Staff Writers, Washington DC (SPX), Oct 16, 2019

http://www.terradaily.com/reports/Last_years_extreme_snowfall_wiped_out_breeding_of_Arctic_animals_and_plants_999.html

Link to paper: An ecosystem-wide reproductive failure with more snow in the Arctic

By Niels Martin Schmid, et al., PLOS One, Biology, Oct 15, 2019

<https://journals.plos.org/plosbiology/article?id=10.1371/journal.pbio.3000392>

Rapid Glacial Retreat During NASA's Coldest Years On Record

By Tony Heller, Real Climate Science, Oct 16, 2019

<https://realclimatescience.com/2019/10/rapid-glacial-retreat-during-nasas-coldest-years-on-record/>

[SEPP Comment: In addition, global warming is targeting US National Parks?]

Polar bear activity picks up in Churchill as W Hudson Bay freeze-up time approaches

By Susan Crockford, Polar Bear Science, Oct 14, 2019

<https://polarbearscience.com/2019/10/14/polar-bear-activity-picks-up-in-churchill-as-w-hudson-bay-freeze-up-time-approaches/>

Agriculture Issues & Fear of Famine

Brazil set to post record harvest: Conab

By Staff, Conab, Via Argus, Oct 10, 2019

<https://www.argusmedia.com/en/news/1993233-brazil-set-to-post-record-harvest-conab?backToResults=true>

[SEPP Comment: So much for the USGCRP predicting that Midwest US farmers will have to flee to Canada to produce corn and soybeans!]

Furious Farmers Defy Army Roadblocks in Dutch Anti-Green Protest

Guest essay by Eric Worrall, WUWT, Oct 17, 2019

<https://wattsupwiththat.com/2019/10/17/furious-farmers-defy-army-roadblocks-in-dutch-anti-green-protest/>

[SEPP Comment: Governments acting in fear of other greenhouse gases.]

Lowering Standards

Journalism Melting – Like Never Before

By Tony Heller, Real Climate Science, Oct 16, 2019

<https://realclimatescience.com/2019/10/journalism-melting-like-never-before/>

Communicating Better to the Public – Do a Poll?

The inference crisis: when one third of experts draw the wrong conclusions with “way too much confidence”.

By Jo Nova, Her Blog, Oct 16, 2019

<http://joannenova.com.au/2019/10/the-inference-crisis-when-one-third-of-experts-draw-the-wrong-conclusions-with-way-too-much-confidence/>

Communicating Better to the Public – Go Personal.

Deniers on the couch again

By John Robson, Climate Change Nexus, Oct 16, 2019

<https://climatediscussionnexus.com/2019/10/16/deniers-on-the-couch-again/>

There are three types of climate change denier, and most of us are at least one

By Iain Walker and Zoe Leviston, The Conversation, Oct 9, 2019 [H/t WUWT]

<https://theconversation.com/there-are-three-types-of-climate-change-denier-and-most-of-us-are-at-least-one-124574>

The third and most insidious form is implicative denial. The facts of climate change are not denied, nor are they interpreted to be something else. What is denied or minimised are the psychological, political, and moral implications of the facts for us. We fail to accept responsibility for responding; we fail to act when the information says we should.”

[SEPP Comment: And if the physical evidence shows no reason for alarm, should we act?]

Communicating Better to the Public – Use Propaganda

The Guardian pledge to be a non-stop propaganda sheet for the climate industry

I admire The Guardian’s honesty. If the sun drives climate change and a foreign unaudited UN committee is grossly exaggerating, at least we know that The Guardian will be the last commercial news outlet on Earth to report it.

By Jo Nova, Her Blog, Oct 19, 2019

<http://joannenova.com.au/2019/10/the-guardian-pledge-to-be-a-non-stop-propaganda-sheet-for-the-climate-industry/>

The Guardian Goes All-In On Anti-Energy Rhetoric, Publishes More Flawed Climate Research

By Spencer Walrath, Energy in Depth, Oct 9, 2019

<https://eidclimate.org/the-guardian-goes-all-in-on-anti-energy-rhetoric-publishes-more-flawed-climate-research/>

[SEPP Comment: “Energy In Depth [is a] research program of the Independent Petroleum Association of America.”]

Communicating Better to the Public – Use Propaganda on Children

Climate Change Fears of Teen Activist Are Empirically Baseless

By James D. Agresti, Just Facts Daily, Oct 17, 2019 [H/t Tom Hayward]

<https://www.justfactsdaily.com/climate-change-fears-of-teen-activist-are-empirically-baseless/>

“In her speech, Thunberg raged that people “have stolen my dreams and my childhood,” which is arguably true. However, she blames the wrong culprits. Her anxiety and desperation are not the fault of adults who act in accord with the facts of this issue. Instead, Thunberg’s tormenters are the people who have indoctrinated her and many other youths with unfounded fears.”

Communicating Better to the Public – Use Children for Propaganda

How dare YOU interfere in our federal election, Greta Thunberg! [Canada]

By Paul Homewood, Not a Lot of People Know That, Oct 18, 2019

<https://notalotofpeopleknowthat.wordpress.com/2019/10/18/how-dare-you-interfere-in-our-federal-election-greta-thunberg/>

Communicating Better to the Public – Protest

Dominic Lawson: Behind Science’s Mask, Extinction Rebellion Is A Doomsday Cult

By Dominic Lawson, The Sunday Times, Via GWPF Oct 10, 2019

<https://www.thegwpf.com/behind-sciences-mask-extinction-rebellion-is-a-doomsday-cult/>

“Sure enough, Bradbrook — complete with the inevitable nose-ring — could be seen on the BBC declaring that “97%” of the world’s species, including humans, would perish within her daughter’s lifetime unless everyone on the planet stopped producing CO2 by 2025. She didn’t

divulge which would be among the lucky 3%, but then she wasn't asked any such testing question by her interviewer.

“That’s the trouble. With the exception of Andrew Neil — whose forensic questioning of an XR spokeswoman by the name of Zion Lights exposed how their prognostications of impending doom are based not on the science of the UN’s Intergovernmental Panel on Climate Change (IPCC) but on a desire to infect the rest of us with their own misanthropic terror — broadcasters and politicians treat the demonstrators’ arguments as if they were above criticism.”

Extinction Rebellion is a menace

By Brendan O'Neill, The Spectator, Oct 8, 2019

<https://blogs.spectator.co.uk/2019/10/extinction-rebellion-is-a-menace/>

“XR is a movement of privileged, comfortable people who lecture the plebs and foreigners about our allegedly destructive habits and who want to create a more austere and punishing society. Every sensible person will reject such misanthropy and continue supporting the genuinely progressive project of liberating all of mankind from poverty.”

Scientists endorse mass civil disobedience to force climate action

By Matthew Green, Reuters, Oct 12, 2019

https://www.reuters.com/article/us-climate-change-scientists/scientists-endorse-mass-civil-disobedience-to-force-climate-action-idUSKBN1WS01K?wpsrc=nl_daily202&wpmm=1

“Wearing white laboratory coats to symbolize their research credentials, a group of about 20 of the signatories gathered on Saturday to read out the text outside London’s century-old Science Museum in the city’s upmarket Kensington district.”

[SEPP Comment: How many of these “scientists” understand the greenhouse effect? How many recognize it is not “simple physics”?]

Scientists Gone Mad

Editorial by J. Frank Bullitt, I & I, Oct 14, 2019

<https://issuesinsights.com/2019/10/14/scientists-gone-mad/>

Police ban Extinction Rebellion protesters from London

By Joe Curtis, City A.M. Oct 15, 2019 [H/t GWPF]

<https://www.cityam.com/police-ban-extinction-rebellion-protesters-from-london/>

Furious commuters drag Extinction Rebellion protestors off train

By Jo Nova, Her Blog, Oct 18, 2019

<http://joannenova.com.au/2019/10/furious-commuters-drag-extinction-rebellion-protestors-off-train/>

Extinction Rebellion are run by paid activists — the £200,000 “grassroots” movement

By Jo Nova, Her Blog, Oct 14, 2019

<http://joannenova.com.au/2019/10/extinction-rebellion-are-run-by-paid-activists-the-200000-grassroots-movement/>

Questioning European Green

Green Electricity Costs Each UK Household £340 Per Year

By Staff, GWPF, Oct 14, 2019

<https://www.thegwpf.com/green-electricity-costs-each-uk-household-340-per-year/>

Link to report: Current Costs of British Renewables Subsidies Per Household

By John Constable, GWPF, Oct 14, 2019

<https://www.thegwpf.com/current-costs-of-british-renewables-subsidies-per-household/>

“The total annual renewables subsidy impact on UK household cost of living is £9 billion — which comes to £340 per year per household.”

[SEPP Comment: Clarifying a number of concepts in energy subsidies. Confusing about them leads to the belief that renewables are cheap.]

Current Costs of British Renewables Subsidies per Household

By Paul Homewood, Not a Lot of People Know That, Oct 18, 2019

<https://notalotofpeopleknowthat.wordpress.com/2019/10/14/current-costs-of-british-renewables-subsidies-per-household/>

[SEPP Comment: Homewood includes some costs that the above study overlooked.]

German Energy Expert Warns Of “Deindustrialized Germany” ...”Chinese Laughing Their Heads Off”

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

<https://notrickszone.com/2019/10/18/german-energy-expert-warns-of-deindustrialized-germany-chinese-laughing-their-heads-off/>

Questioning Green Elsewhere

The Green Energy Myths

By Morriss, Bogart, Dorchak, and Meiners, Via ICECAP, Oct 14, 2019

http://icecap.us/index.php/go/joes-blog/the_green_energy_myths/

[SEPP Comment: The problems presented in the green-jobs myth, discussed in 2009, continue in the green energy proposals of today.]

Justin Haskins: AOC’s new scheme would destroy US economy, create gigantic government and raise your taxes

By Justin Haskins, Fox News, Oct 13, 2019

<https://www.foxnews.com/opinion/justin-haskins-aocs-new-scheme-would-destroy-us-economy-create-gigantic-government-and-raise-your-taxes>

As Democrats Debate, New Ad Campaign Asks: Can You Afford the Green New Deal?

Ad highlights alarmism, rising costs, and massive government intervention

News Release, CEI, Oct 15, 2019

<https://cei.org/content/democrats-debate-new-ad-campaign-asks-can-you-afford-green-new-deal>

US Energy Reliability Gone With the Wind

By Matthew Kandrach, Real Clear Energy, Oct 11, 2019

https://www.realclearenergy.org/articles/2019/10/11/us_energy_reliability_gone_with_the_wind_110480.html

The Political Games Continue

If it destroyed Iowa...

By John Robson, Climate Change Nexus, Oct 16, 2019

<https://climatediscussionnexus.com/2019/10/16/if-it-destroyed-iowa/>

Litigation Issues

Real collusion: Tort Lawyers, Bloomberg, state attorney generals, and climate activists

By Anthony Watts, WUWT, Oct 18, 2019

<https://wattsupwiththat.com/2019/10/18/real-collusion-tort-lawyers-bloomberg-state-attorney-generals-and-climate-activists/>

Video

Cap-and-Trade and Carbon Taxes

To save climate, tax carbon at \$75 per ton: IMF

By Staff, Phys.org, Oct 10, 2019

<https://phys.org/news/2019-10-climate-tax-carbon-ton-imf.html>

Link to press release: Fiscal Policies to Curb Climate Change

By Vitor Gaspar, Paolo Mauro, Ian Parry, and Catherine Pattillo, IMF Blog, Oct 10, 2019

<https://blogs.imf.org/2019/10/10/fiscal-policies-to-curb-climate-change/>

Link to report: Fiscal Monitor: How to Mitigate Climate Change

By Staff, IMF, September 2019

<https://www.imf.org/en/Publications/FM/Issues/2019/09/12/fiscal-monitor-october-2019>

Subsidies and Mandates Forever

China Cuts Subsidies: Green Cars Sales Drop 34%

By Staff, Financial Times, Via GWPF, Oct 14, 2019

<https://www.thegwpf.com/china-cuts-subsidies-green-cars-sales-drop-34/>

Ecuador's Leader Reinstates Fuel Subsidies After Deadly Energy Revolt

The government plans to form a joint commission with the indigenous groups that opposed the measure to discuss a planned economic overhaul.

By Daniela Blandón Ramírez and Kejal Vyas, WSJ, Via GWPF, Oct 15, 2019

<https://www.thegwpf.com/ecuadors-leader-reinstates-fuel-subsidies-after-deadly-energy-revolt/>

The Electric-Vehicle Subsidy Racket

The \$7,500 tax credit is going to many buyers who don't qualify.

Editorial, WSJ, Via GWPF, Oct 12, 2019

<https://www.thegwpf.com/the-electric-vehicle-subsidy-racket/>

EPA and other Regulators on the March

Environmental Protection 'Rollback' Narrative is Full of Holes

By H. Sterling Burnett, Real Clear Energy, Oct. 16, 2019

https://www.realclearenergy.org/articles/2019/10/16/environmental_protection_rollback_narrative_is_full_of_holes.html

Energy Issues – Non-US

With Gazprom's Nord Stream 2, Putin Is Getting Ready to Put the Screws on Europe

By Mikhail Korchemkin, Foreign Policy, Oct 7, 2019

<https://foreignpolicy.com/2019/10/07/gazproms-nord-stream-2-will-help-putin-cut-off-natural-gas-supplies-to-europe/>

Three million households already in energy debt ahead of winter [UK]

These fuel-poor households collectively owe nearly £417 million to their suppliers, with the year's coldest weather soon to arrive

By Jonny Bairstow, Energy Live News, Oct 16, 2019 [H/t GWPF]

<https://www.energylivenews.com/2019/10/16/three-million-households-already-in-energy-debt-ahead-of-winter/>

[SEPP Comment: According to similar reports, in 2018 there was an 8.5% price increase for electricity and a 4.4% increase for gas services.]

What Impact Will Decarbonising Heat Have On Power Demand?

By Paul Homewood, Not a Lot of People Know That, Oct 16, 2019

<https://notalotofpeopleknowthat.wordpress.com/2019/10/16/what-impact-will-decarbonising-heat-have-on-power-demand/>

Another Absurd Pro Renewables Letter

By Paul Homewood, Not a Lot of People Know That, Oct 16, 2019

<https://notalotofpeopleknowthat.wordpress.com/2019/10/16/another-absurd-pro-renewables-letter/#more-41720>

Green Britain Kills Its Shale Bonanza

By Staff, The Sunday Times, Oct 13, 2019

<https://www.thegwpf.com/green-suicide-britain-kills-its-shale-bonanza/>

Keeping the power system strong

By Staff, AEMO Energy, Live, Feb 8, 2018

<https://energylive.aemo.com.au/Energy-Explained/Keeping-the-power-system-strong>

Synchronous Power Generating Module

European Union Electricity Market Glossary, Accessed Oct 18, 2019

<https://www.emissions-euets.com/internal-electricity-market-glossary/831-synchronous-power-generating-module>

Watch Out, They're Coming For Your Boiler!!

By Paul Homewood, Not a Lot of People Know That, Oct 18, 2019

<https://notalotofpeopleknowthat.wordpress.com/2019/10/15/watch-out-theyre-coming-for-your-boiler/>

Energy Issues – Australia

Australian energy market likened to Papua New Guinea – unreliable, risky, like “developing nation”

By Jo Nova, Her Blog, Oct 16, 2019

<http://joannenova.com.au/2019/10/australian-energy-market-likened-to-papua-new-guinea-unreliable-risky-like-developing-nation/>

Energy Issues -- US

Cuomo administration orders National Grid to let gas flow in Brooklyn

By Bernadette Hogan, New York Post, Oct 11, 2019

<https://nypost.com/2019/10/11/cuomo-administration-orders-national-grid-to-let-gas-flow-in-brooklyn/>

“It is the fundamental responsibility of our utilities to provide reliable service,” said Cuomo.”

[SEPP Comment: Yet Cuomo will not allow construction of new pipelines to meet demand.]

Industry, government team up to protect electric grid from cyber security threats

By Liz Carey, Daily Energy Insider, Oct 9, 2019

<https://dailyenergyinsider.com/news/22203-industry-government-team-up-to-protect-electric-grid-from-cyber-security-threats/>

Washington's Control of Energy

Democrats vow to push for repeal of other Trump rules after loss on power plant rollback

By Rebecca Beitsch, The Hill, Oct 17, 2019

<https://thehill.com/policy/energy-environment/466356-dems-say-they-will-try-to-repeal-other-trump-rules-despite-loss-on>

Oil and Natural Gas – the Future or the Past?

Drilling Down: Independents versus majors in Permian Basin

By Sergio Chapa, Houston Chronicle, Sep 23, 2019

<https://www.houstonchronicle.com/business/energy/article/Drilling-Down-Independents-versus-majors-in-14452963.php>

[SEPP Comment: Some wells go as far down as 12,000 feet, far below water levels, before going horizontal.]

Oil Spills, Gas Leaks & Consequences

No More Status Quo As Pipeline Safety Takes A Big Step Forward

By Brigham McCown, Forbes, Oct 1, 2019

<https://www.forbes.com/sites/brighammccown/2019/10/01/no-more-status-quo-as-pipeline-safety-takes-a-big-step-forward/#6e0371002604>

“Earlier today the federal government’s Pipeline and Hazardous Materials Safety Administration (PHMSA) issued three significant pipeline safety rules. The rules, which were years in the making, address congressional mandates dating back to 2011 and address recommendations from the National Transportation Safety Board (NTSB).”

Nuclear Energy and Fears

Opinion: Think fossil fuels are bad? Nuclear energy is even worse

Some tout nuclear energy as ‘clean,’ but it’s hardly that, even with technological advancements

By Jurica Dujmovic, Market Watch, Oct 15, 2019

<https://www.marketwatch.com/story/think-fossil-fuels-are-bad-nuclear-energy-is-even-worse-2019-10-17>

“Researchers from the Swiss Federal Institute of Technology have come up with an unsettling discovery. Using the most complete and up-to-date list of nuclear accidents to predict the likelihood of another nuclear cataclysm, they concluded that there is a 50% chance of a Chernobyl-like event (or larger) occurring in the next 27 years, and that we have only 10 years until an event similar to Three Mile Island, also with the same probability.”

[SEPP Comment: How many Chernobyl type reactors are operating?]

Alternative, Green (“Clean”) Solar and Wind

India to build 30 gigawatts of renewable plants along western border

The projects, which will be spread across the states of Gujarat and Rajasthan, are part of efforts to expand the country’s renewable capacity and reduce the share of fossil fuels in its energy mix

By Staff, Bloomberg, Oct 18, 2019

<https://energy.economictimes.indiatimes.com/news/renewable/india-to-build-30-gigawatts-of-renewable-plants-along-western-border/71641218>

“Land for renewable projects is a key challenge in India and the high cost of acquisition weighs on the price of electricity. The nation is increasingly looking at barren lands for building renewable projects so its energy goals don’t clash with its growing need for agricultural production.”

Computer models show clear advantages in new types of wind turbines

By Staff Writers, Aarhus, Denmark (SPX) Oct 17, 2019

http://www.winddaily.com/reports/Computer_models_show_clear_advantages_in_new_types_of_wind_turbines_999.html

Link to paper: Multirotor wind turbine wakes

By Majid Bastankhah and Mahdi Abkar, Physics of Fluids, Aug 6, 2019

<https://aip.scitation.org/doi/10.1063/1.5097285>

Energy & Environmental Newsletter: October 14, 2019

By John Droz, Jr. Master Resource, Oct 14, 2019

<https://www.masterresource.org/alliance-for-wise-energy-decisions/energy-environmental-newsletter-october-14-2019/>

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

Total loses bid for palm oil tax break

By Staff Writers, Paris (AFP), Oct 11, 2019

http://www.biofueldaily.com/reports/Total_loses_bid_for_palm_oil_tax_break_999.html

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

First fully rechargeable carbon dioxide battery

By Staff Writers, Chicago IL (SPX), Oct 14, 2019

http://www.energy-daily.com/reports/First_fully_rechargeable_carbon_dioxide_battery_999.html

Link to paper: A Long-Cycle-Life Lithium–CO₂ Battery with Carbon Neutrality

By Alireza Ahmadiparidari, et al. Advanced Materials, Aug 22, 2019

<https://onlinelibrary.wiley.com/doi/abs/10.1002/adma.201902518>

Oopsie solar-battery fail? Cloud causes System Black event at Alice Springs affecting thousands

By Jo Nova, Her Blog, Oct 15, 2019

<http://joannenova.com.au/2019/10/oopsie-cloud-causes-system-black-event-at-alice-springs-affecting-thousands/>

Alternative, Green (“Clean”) Vehicles

\$35 Billion: UK Faces Huge Loss From Electric Vehicle Adoption

By Jon LeSage, Oil Price.com, Oct 12, 2019

<https://oilprice.com/Alternative-Energy/Renewable-Energy/35-Billion-UK-Faces-Huge-Loss-From-Electric-Vehicle-Adoption.html#>

Commentary: Growing preference for SUVs challenges emissions reductions in passenger car market

By Laura Cozzi and Apostolos (Energy Modelers), IEA, Oct 15, 2019

https://www.iea.org/newsroom/news/2019/october/growing-preference-for-suvs-challenges-emissions-reductions-in-passenger-car-mark.html?utm_content=buffer71c90

California Dreaming

Why the power is going out in California

By Susan Shelley, Daily News, Oct 12, 2019 [H/t Cooler Heads]

https://www.dailynews.com/2019/10/12/why-the-power-is-going-out-in-california-susan-shelley/?fbclid=IwAR3Fd2eRula_j3CaNzKH5jxU2QqIsSMppl-4Jdd96VBv9Ru8Jn7uCtU5Fg

“The electricity is off in California because of the choices and decisions made by government officials. Of course, they’re happy to blame climate change. The disaster they really fear is the one that could happen to them at the polls in 2020 if the voters get tired of being in the dark.”

Why Are California Gas[oline] Prices So High These Days? Thank Sacramento

By Tim Anaya, Pacific Research Institute, Oct 14, 2019 [H/t Cooler Heads]

<https://www.pacificresearch.org/why-are-california-gas-prices-so-high-these-days-thank-sacramento/>

Gov. Gavin Newsom signs bill limiting oil and gas development

By AP, LA Times, Oct 12, 2019

<https://www.latimes.com/california/story/2019-10-12/gov-gavin-newsom-signs-bill-limiting-oil-and-gas-development>

LA Times editorial denies need for Cal Fire actions to address state’s wildfire debacle

Guest essay Larry Hamlin, WUWT, Oct 15, 2019

<https://wattsupwiththat.com/2019/10/15/l-a-times-editorial-denies-need-for-cal-fire-actions-to-address-states-wildfire-debacle/>

Electric-Car Owners Hard Hit by Massive California Power Shutdown

By John Pearley Huffman, Car and Driver, Oct 10, 2019

<https://news.yahoo.com/electric-car-owners-hard-hit-170900778.html>

How California and Foreign Carmakers Got in Bed to Keep Crony, Obama-Era Rules

By Steve Milloy, The Daily Signal, Oct 17, 2019

<https://www.dailysignal.com/2019/10/17/how-california-and-foreign-carmakers-got-in-bed-to-keep-crony-obama-era-rules/>

Health, Energy, and Climate

When Experts Make Mistakes: 3 Ways To Spot Junk In Science Journals

By Cameron English, ACSH, Oct 11, 2019

<https://www.acsh.org/news/2019/10/11/when-experts-make-mistakes-3-ways-spot-junk-science-journals-14335>

“[T]he public and journalists – the consumers of information about health – need to be aware of something that researchers know well – there is no [study] that is so dreadful that it cannot be published somewhere.”

Oh Mann!

Top IPCC's paleoclimatologist agrees that Mann's hockey-stick papers were wrong

Two days ago, Tom Nelson (via Willie Soon) informed us about some juicy revelation:

By Lubos, Motl, The Reference Frame, Oct 18, 2019

<https://motls.blogspot.com/2019/10/top-ipccs-paleoclimatologist-agrees.html>

Environmental Industry

Environmentalists have a new target: Charmin toilet paper

By Irina Ivanova, CBS News, Oct 10, 2019

<https://www.cbsnews.com/news/charmin-toilet-paper-puts-procter-gamble-p-g-in-environmentalists-crosshairs/>

Other Scientific News

Human brain, braincase evolved independently, researchers say

By Brooks Hays, Washington (UPI), Oct 15, 2019

http://www.terradaily.com/reports/Human_brain_braincase_evolved_independently_researchers_say_999.html

Quantum paradox experiment may lead to more accurate clocks and sensors

Press Release, University of Queensland, EurekAlert, Oct 15, 2019 [H/t WUWT]

https://www.eurekalert.org/pub_releases/2019-10/uoq-qpe101319.php

Link to paper: Interference of clocks: A quantum twin paradox

By Sina Loriani, et al., Science Advances, Oct 4, 2019

<https://advances.sciencemag.org/content/5/10/eaax8966.abstract>

BELOW THE BOTTOM LINE:

Grieving environmental scientists need support

By Timothy A. C. Gordon, Andrew N. Radford and Stephen D. Simpson, Science, Oct 11, 2019 [H/t WUWT]

<https://science.sciencemag.org/content/366/6462/193.1>

[SEPP Comment: Unreal!]

How to Glue Yourself to a Plane, According to Science

A protester did it. We can do it better.

By Andrew Daniels, Popular Mechanics, Oct 11, 2019 [H/t WUWT]

<https://www.popularmechanics.com/science/a29444239/glue-yourself-plane/>

[SEPP Comment: Or a subway car!]

What Would Happen if Science Went Stupid? Melting Ice Edition

Guest humor by David Middleton, WUWT, Oct 14, 2019

<https://wattsupwiththat.com/2019/10/14/what-would-happen-if-science-went-stupid-melting-ice-edition/>

ARTICLES

1. PG&E CEO Says It Could Impose Blackouts in California for a Decade

Bill Johnson makes the disclosure in a hearing at which California officials blast PG&E's shutoffs this month

By Katherine Blunt, WSJ, Oct 18, 2019

https://www.wsj.com/articles/pg-e-ceo-says-it-could-impose-blackouts-in-california-for-a-decade-11571438206?mod=hp_lead_pos3

TWTW Summary: The journalist states:

“PG&E Corp.’s chief executive said Friday that it could take as long as 10 years for the company to improve its electric system enough to significantly diminish the need to pull the plug on customers to reduce the risk of sparking fires.

“Bill Johnson, who joined the company in May, made the disclosure at a California Public Utilities Commission hearing where the panel’s president, Marybel Batjer, sharply criticized the company’s ‘inadequate execution’ of a shut-off in which it turned off power to large portions of Northern California for more than two days last week.

“The commission convened an emergency meeting to examine PG&E’s handling of the massive blackout, which left roughly two million people in the dark and created widespread havoc from the Bay Area to the northern reaches of the state. Several of the company’s top executives were summoned to detail the problems and take questions from regulators.

“‘I can tell you that you guys failed on so many levels on fairly simple stuff,’ Ms. Batjer said.

“The agency earlier this week ordered PG&E to address numerous problems with its strategy for such blackouts, known as public safety power shut-offs. It condemned the company’s failure to provide maps and other critical information to residents and local officials ahead of the shut-off. PG&E’s website crashed for two days during the blackout, and its call centers were overwhelmed.

“Mr. Johnson on Friday apologized for the hardships caused by the shut-off but defended the company’s decision to implement it, noting that none of its power lines sparked fires, even though strong winds in certain areas caused damage to its system.

“PG&E, which provides gas and electricity to 16 million people, shut off the power to more than 700,000 homes and businesses in anticipation of strong winds that could have increased the chances of its power lines sparking fires. The company’s equipment has sparked 19 major fires during windy periods in 2017 and 2018, mostly because vegetation blew into live wires.

“PG&E isn’t the only California utility to deploy shut-offs to mitigate wildfire risks. Edison International’s Southern California Edison and Sempra Energy’s San Diego Gas & Electric also cut power recently in response to windy conditions. But PG&E is the only U.S. utility to have initiated a weather-related blackout on such a large scale.

“The decision drew the ire of legislators and local officials who have called on PG&E to act more prudently in enacting future shut-offs. A group of Northern California governments, including Napa and Sonoma counties, on Thursday filed a scathing brief with the utilities commission that berated PG&E for its lack of preparedness.

“‘The experience of working with PG&E to effect real changes to its de-energization program has been like battling the Hydra,’ it read. ‘This has got to stop.’

“For now, the shut-offs will continue as PG&E scrambles to trim trees near power lines and upgrade equipment across its 70,000-square-mile service territory, after a protracted drought this decade turned millions of acres of forest into a tinderbox.

“Another major fire tied to PG&E’s equipment would likely drive the company to insolvency. It sought bankruptcy protection in January, citing more than \$30 billion in liability costs stemming from the 2017 and 2018 fires, which collectively killed more than 100 people.

“At the meeting Friday, commissioners questioned the company’s commitment to its customers and how long it anticipates deploying its shut-off strategy on such a large scale.

“Mr. Johnson said the utility is working to limit the scope of future shut-offs by trimming more trees and installing technology to enable the shutdown of smaller, more targeted portions of the grid. But he estimated it will take as long as a decade before its shut-offs will have ‘ratcheted down significantly.’”

The article concludes with promises by PG&E to reduce the length of shut-offs from 5 days to 48 hours.

2. How Steam and Chips Remade the World

Cheap energy powered an economic revolution in the 18th century, and cheap information in the 20th.

By John Steele Gordon, WSJ, Oct 18, 2019

<https://www.wsj.com/articles/how-steam-and-chips-remade-the-world-11571436222>

[SEPP Comment: Internal to the microchip is not only a huge number of transistors, but also the wiring.]

TWTW SUMMARY: The author of “An Empire of Wealth: The Epic History of American Economic Power” writes:

“Not all inventions are equal. While the wheeled suitcase was a great idea, it didn’t change the world. But invent a technology that causes the price of a fundamental economic input to collapse, and civilization changes fundamentally and quickly. Someone born 250 years ago arrived in a world that, technologically, hadn’t changed much in centuries. But if he had lived a long life, he would have seen a new world.

“For millennia there had been only four sources of energy, all expensive and limited: human muscle, animal muscle, moving water and air. Thomas Newcomen invented the steam engine in 1712, but its prodigious fuel consumption severely limited its utility. Then in 1769 James Watt greatly improved it, making the engine four times as fuel-efficient. In 1781 he patented the rotary steam engine, which could turn a shaft and thus power machinery.

“The steam engine could be scaled up almost without limit. The price of energy began a steep decline that continues to this day.

“As factories came to be powered by steam, the price of goods fell, sending demand to the sky. When the steam engine was mounted on rails, overland transportation of people and goods became cheap and quick for the first time in history. Andrew Jackson needed nearly a month to get from Nashville, Tenn., to Washington by carriage for his inauguration in 1829. By 1860 the trip took two days.

“Quick overland transportation made national markets possible. Businesses seized the opportunity and benefited from economies of scale, sending demand up even more as prices

declined further. The collapsing cost of wire and pipes allowed such miracles as the telegraph, indoor plumbing and gas lighting to become commonplace. Enormous new fortunes came into being.

“The age dominated by cheap energy lasted until the mid-20th century. Steam had been supplanted by electricity and the internal combustion engine, but someone from 1860 would have mostly recognized the technology of 1960, however dazzling its improvement. Then another world-changing technology emerged.

“Before the 1940s the word ‘computer’ referred to people, usually women, who calculated such things as the trajectories of artillery shells. The first programmable computer, Eniac, was powered up for work on Dec. 10, 1945. It was 2,352 cubic feet, the size of a large school bus, with 20,000 vacuum tubes that sucked up 150 kilowatts of power. But it was 1,000 times as fast as any electromechanical calculator and could calculate almost anything.

“Transistors soon replaced vacuum tubes, shrinking the size and power requirements of computers dramatically. But there was still a big problem. The power of a computer depends not only on the number of transistors, but also the number of connections among them. Two transistors require only one connection, six require 15, and so on.

“While transistors could be manufactured, the connections had to be made by hand. Eniac had no fewer than five million hand-soldered connections. Until the “tyranny of numbers” could be overcome, computers would, like Newcomen’s steam engine, remain very expensive and thus of limited utility.

“Had every computer on earth suddenly stopped working in 1969, the average man would not have noticed anything amiss. Today civilization would collapse in seconds. Nothing more complex than a pencil would work, perhaps not even your toothbrush.

“What happened? In 1969 the microprocessor—a computer on a silicon chip—was developed. That overcame the tyranny of numbers by creating the transistors and the connections at the same time. Soon the price of storing, retrieving and manipulating information began a precipitous decline, as the price of energy had two centuries earlier. Computing power that cost \$1,000 in the 1950s costs a fraction of a cent today.

“The first commercial microprocessor—the Intel 4004, introduced in 1971—had 2,250 transistors. Today some microprocessors have a million times as many, making them a million times as powerful but only marginally more expensive.

“Microprocessors began to appear everywhere. Today’s cars have dozens of them, controlling everything from timing fuel injection to warning when you stray out of your lane. Even money is now mostly a plastic card with an embedded microprocessor.

“As the railroad was for the steam engine, the internet is the microprocessor’s most significant subsidiary invention. It revolutionized retailing, news distribution, entertainment, communication and much more.

“Like cheap energy, cheap information has created enormous new fortunes, ineluctably increasing wealth inequality. But also like cheap energy, the source of those fortunes has given nearly everybody a far higher standard of living.”

The author concludes with:

“A man from half a century ago would surely regard the now-ubiquitous smartphone as magic.”
