

The Week That Was: 2020-02-22 (February 22, 2020)
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The Science and Environmental Policy Project

Quote of the Week: *"I never guess. It is a capital mistake to theorize before one has data. Insensibly one begins to twist facts to suit theories, instead of theories to suit facts."* – Sir Arthur Conan Doyle. [H/t Eric Wagner]

Number of the Week: £108.5 million (about \$140 million) in 2018

THIS WEEK:

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

The Scientific Method: There appears to be no clear, widely accepted definition of science or the scientific method. Professor of Applied Mathematics and philosopher Christopher Essex considers science to be an adventure. A long game of generations and part of the ascent of Man. Not just a fad invented in the 17th century. In an unpublished paper, "The Scientific Adventure," he wrote for the 100th anniversary of Einstein's 1905 discoveries, he stated:

"Others try to embrace it as a recipe. They say, to be scientific, do this, then do that, but not the other way around. They talk of the scientific method as if there is just one; as if scientific discovery were clean, orderly and uncontroversial, supervised by grizzled elders of authority. But the search for scientific discovery is anything but. It is messy, contentious, factional, but also wondrous, inspired, and above all serendipitous. It is human."

"... Scientists are human beings. They struggle and are flawed like anyone else, but their occasional successes and flashes of brilliance are a credit to us all."

"Many nonscientists, especially reporters and politicians, look to authority to decide scientific matters at the frontiers of knowledge. But there is no authority in scientific thinking, because it is thinking with your own head, instead of someone else's. It is the resolute acceptance of each our own human fallibility and the conviction that we may rise above it by painstaking care, always checking what we think we know, putting our dearest presumptions to the test. No human is more dangerously fallible than an academic peacock tripping over his or her own plumage."

"Appealing to authority in a wide-open intellectual frontier, where whole research fields may be hanging in the balance, presents a dilemma that few realize. What makes a person qualified to decide who is qualified? How do you know who is an expert and who is not without being an expert yourself? How do you know when there are no true experts at all? You don't know. Appealing to authority does not work here. You must think with your own head. As soon as you do, the scientific journey begins for you."

"Scientific thinking is what has produced the collection of knowledge that we loosely call science. That collection is a legacy of the generations that belongs to all of us. It is the greatest human treasure. Even though we keep testing and checking it, we could not rediscover it or figure it out in an afternoon or a generation if we misplaced it. Yet, we sometimes ask children in classrooms to rediscover, unguided, structures that took humanity a thousand generations to figure out. Nonetheless when the labours of a thousand generations come to bear, focused white hot into the

moments of our lives, we are transformed into something grander than our individual biology could ever allow.

“We mark an Einstein centenary for the wondrous year 1905. Some of Einstein’s famous five articles published that year were both controversial and slow to be accepted. That response, unlike the articles themselves, was business as usual. Science did not begin then, and it has not ended today. Many have trouble imagining that there is anything more to learn, as they fancy that someone, somewhere knows anything that can be imagined. But we can imagine a lot. We know very little even of that, never mind what we cannot imagine. The frontier of the unknown is close by—very close by. It is all around us, waiting.” [No link provided]

TWTW cannot improve on what Essex expressed, but may shorten it by stating:

Centuries of research and thinking have created a dynamic process for integrating new ideas and incorporating new physical evidence into concepts about the physical world. Through this process, some previous errors are eliminated but errors may remain, and improvements are welcome if properly explained and supported. Called the scientific method, this process is not exclusive to physics.

The scientific method requires repeated testing of concepts against all appropriate physical evidence gathered by observations and experiments. If the concepts fail to describe the evidence, the concepts must be changed or discarded. In short, science progresses by identifying error and forming new ideas that are subjected to repeated testing.

To TWTW, non-transparent manipulation of data—data tampering—by government entities is outrageous because it thwarts the ability to eliminate error. Instead, data tampering promotes error. In his posts, Tony Heller is providing a service to those who pursue scientific knowledge by exposing data tampering by government entities. See links under Challenging the Orthodoxy and Communicating Better to the Public – Make things up.

Obstructing Mid-range Weather (2-Week) Forecasting: Writing in his blog, ICECAP, Meteorologist Joe D’Aleo, the first Director of Meteorology at The Weather Channel, explains how he spent his career trying to attribute changing weather to other natural events, such as changes in El Niños and La Niñas affecting global weather. Temperatures are a critical part in understanding such relationships. Unfortunately, NOAA and NASA-GISS have been making many small alternations to the data records, making historic surface data unreliable. D’Aleo writes:

*In fact, the magnitude of their historical data adjustments, which removed their cyclical temperature patterns, are completely inconsistent with published and credible U.S. and other temperature data. **Thus, despite current assertions of record-setting warming, it is impossible to conclude from the NOAA and NASA data sets that recent years have been the warmest ever.***

“Models had become the principal tool to create data to fill in the large gaps that existed in the historical data as well as adjust the data. By mixing data with models you can more easily manipulate trends to better agree with theories. Professional societies and their journals became an important part of the climate cabal, controlling what gets published. With help from the compliant media every event is proclaimed to be our fault and made a reason to abandon low cost and reliable energy.” [Boldface in original]

D'Aleo goes on to discuss the real danger.

“Current climate policies- based on these unreliable temperature records - threaten our economic and national security interests. As the proposed climate policies grow more extreme, the consequences of allowing this record to remain unchallenged gravely threatens an onslaught of litigation based on the greenhouse gas endangerment finding. Importantly, this litigation imposes significant impediments to the mineral land leasing and pipeline infrastructure build out necessary to maintain and enhance energy independence and economic prosperity.

“Furthermore, the US financial sector has already dramatically curtailed its support of conventional energy source development in large part due to the continued calls for regulatory destruction of the fossil fuel industry based substantially on NOAA and NASA’s now invalidated global surface temperature records. This situation is putting our Nation’s energy security at grave risk - which means our economic and national security are also in great peril.”

See links under Challenging the Orthodoxy.

Inadequate Computer Resources? According to Meteorologist Cliff Mass, who is not a “global warming skeptic,” the “U.S. global numerical weather prediction has now fallen into fourth place, with national and regional prediction capabilities a shadow of what they could be.” US numerical weather prediction is operated under NOAA’s National Weather Service. In his blog, Mass writes:

There are several reasons for these lagging numerical weather prediction capabilities, including lack of strategic planning, inadequate cooperation between the research and operational communities, and too many sub-optimal prediction efforts.

But there is another reason of equal importance: a profound lack of computer resources dedicated to numerical weather prediction, both for operations and research.

The bottom line: U.S. operational numerical weather prediction resources used by the National Weather Service must be increased 10 times to catch up with leading efforts around the world and 100 times to reach state of the science.

Why does the National Weather Service require very large computer resources to provide the nation with world-leading weather prediction?

Immense computer resources are required for modern numerical weather prediction. For example, NOAA/NWS TODAY is responsible for running:

A global atmospheric model (the GFS/FV-3) running at 13-km resolution out to 384 hours.

- *Global ensembles (GEFS) of many (21 forecasts) forecasts at 35 km resolution*
- *The high-resolution Rapid Refresh and RAP models out 36 h.*
- *The atmosphere/ocean Climate Forecast System model out 9 months*
- *The National Water Model (combined WRF and hydrological modeling)*
- *Hurricane models during the season*
- *Reanalysis runs (rerunning past decades to provide calibration information)*
- *Running the North American mesoscale model (NAM)*

- *Running the Short-Range Ensemble Forecast System (SREF)*

This is not a comprehensive list. And then there is the need for research runs to support development of the next generation systems. As suggested by the world-leading European Center for Medium Range Weather Prediction, (ECMWF) research computer resources should be at least five times greater than the operational requirements to be effective.

Mass describes that the European Center is building a new \$89 million computer center in Italy and that the UK Met Office is set to build a ‘billion-pound’ supercomputer (\$1.3 billion). Mass thinks the current US political leadership is willing to make US weather prediction first-rate. He further states:

*“NOAA/NWS must develop a detailed strategic plan that not only makes the case for more computer resources but demonstrates how such resources will improve weather prediction. **Amazingly, they have never done this.** In fact, NOAA/NWS does not even have a document describing in detail the computer resources they have now (I know, I asked a number of NOAA/NWS managers for it--they admitted to me it doesn't exist).*

“With such a plan Congress should invest in the kind of computer resources that would enable U.S. weather prediction to become first rate. Ten times the computer resources (costing about 100 million dollars) would bring us up to parity, 100 times would allow us to be state of the science (including such things as running global models at convection-permitting resolution, something I have been working on in my research).” [Boldface in original.]

Mass goes on to conclude:

“U.S. citizens can enjoy far better weather forecasts, saving many lives and tens of billions of dollars per year. But to do so will require that NOAA/NWS secure vastly increased computer resources and reorganize weather model development and operations to take advantage of them.”

According to the BBC, in answering the question “What will the supercomputer actually do?” The response was: “It’ll run what the Met Office calls its ‘digital twin’ of the Earth’s atmosphere, a highly detailed ‘model’ of everything from the winds to the temperatures to the pressures.

And here is the problem. The US government has spent tens of billions of dollars on global climate models that cannot describe the atmosphere and how the atmosphere responds to increasing carbon dioxide (CO2). US Global climate modeling is a failure. Further, as Joe D’Aleo explains above, by their actions NOAA and NASA-GISS have invalidated global surface temperature records, which US climate modelers use to test their models. Is there any reason that these agencies will not divert funds needed for improved weather prediction to serve their own ideological beliefs? See links under Seeking a Common Ground.

National Climate Assessment: According to *E & E News*, work is beginning on the Fifth National Climate Assessment (NCA) under the Office of Science and Technology Policy, which is overseen by Trump’s science adviser, Kelvin Droegemeier. The report is scheduled for release in 2022.

In the view of TWTW, the previous assessment released in November 2018, after President Trump took office, lacked the physical evidence to substantiate many of its claims. For example,

it claimed that global warming would force movement of major US crop production farther north. The report ignored that the major world competitor for the two largest crop exports, maize and soybeans, is tropical Brazil. Why the US would become too hot to produce these crops needs to be explained.

The report in *E & E News* emphasized the views of the leaders of the previous National Climate Assessment and issues on whether a red team / blue team approach would be beneficial. Apparently, the Trump administration was not pleased with the Fourth National Climate Assessment. According to its website the US Global Change Research Program (USGCRP):

“USGCRP was established by Presidential Initiative in 1989 and mandated by Congress in the Global Change Research Act (GCRA) of 1990 to develop and coordinate ‘a comprehensive and integrated United States research program which will assist the Nation and the world to understand, assess, predict, and respond to human-induced and natural processes of global change.’”

Prior National Climate Assessment reports have ignored the natural process of global change and emphasized human influence, particularly CO2. According to the USGCRP website the executive director is still Mike Kuperberg, who assumed office in July 2015, during the Obama Administration. Further, the last budget stated in the website was the President’s proposed budget for Fiscal Year 2019, which ended last September. Obviously, the website needs to be updated. See links under Change in US Administrations

Data-Free Science? A relatively new publication, *“Molecular Brain* is an open access, peer-reviewed journal that considers manuscripts on all aspects of studies on the nervous system at the molecular, cellular, and systems level providing a forum for scientists to communicate their findings.”

In an editorial, editor-in-chief of *Molecular Brain*, Tsuyoshi Miyakawa, describes how he classified 41 of the 180 manuscripts he has handled since early 2017 as “Revise before review” and requested the authors to provide raw data. He has been unable to obtain sufficient raw data on 41 of 180 manuscripts. Based on the responses to his request Miyakawa concludes:

“...Thus, more than 97% of the 41 manuscripts did not present the raw data supporting their results when requested by an editor, suggesting a possibility that the raw data did not exist from the beginning, at least in some portions of these cases.

“Considering that any scientific study should be based on raw data, and that data storage space should no longer be a challenge, journals, in principle, should try to have their authors publicize raw data in a public database or journal site upon the publication of the paper to increase reproducibility of the published results and to increase public trust in science.” See links under Seeking a Common Ground.

Mission Creep: Often applied to military operations, mission creep involves gradual or incremental expansion of a mission by an organization. It is a characteristic of many bureaucracies, the UN being one. According to its website:

“UNESCO is the United Nations Educational, Scientific and Cultural Organization. It seeks to build peace through international cooperation in Education, the Sciences and Culture.”

Now UNESCO has added:

“UNESCO's programmes contribute to the achievement of the Sustainable Development Goals defined in Agenda 2030, adopted by the UN General Assembly in 2015.”

As discussed by Donna Laframboise, under this “expanded mission” UNESCO has published a new report for sustainable development: “No Plan, No Planet.” How did the planet and humanity survive before the UN existed? See links under Defending the Orthodoxy and

<https://en.unesco.org/about-us/introducing-unesco>.

Number of the Week: £108.5 million (about \$140 million) in 2018. The 2018 budget for The European Center for Medium Range Weather Prediction was \$140 million. The FY 2018 enacted budget for the USGCRP was over 18 times that, \$2,546 million. The fiscal year ended September 30, 2018. This amount “represents the funds self-identified by USGCRP agencies as their contributions to USGCRP research activities.” It does not represent amounts used by agencies that may benefit USGCRP. “For example, many of the satellite systems and observing networks that are foundational to USGCRP research were originally implemented by their sponsoring agencies for operational purposes, and thus typically are not included in the research crosscut.”

Included in the \$2.5 billion budget was \$320 million from the Department of Commerce, which includes NOAA and National Weather Service. Other big line items were \$1.5 billion from NASA, \$250 million from the National Science Foundation, \$240 million from DOE and \$175 million from the Department of Agriculture.

The problem with NOAA/NWS is not the lack of money available, but it is the lack of proper allocation of money and proper oversight of its use. The country does not need \$2.5 billion programs claiming to assess climate change that cannot properly describe the atmosphere and that rely on tampered data. See links under Seeking a Common Ground and

<https://www.globalchange.gov/about>

NEWS YOU CAN USE:

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: https://www.heartland.org/_template-assets/documents/CCR/CCR-II/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/SeaLevelRiseCCR2.pdf

Challenging the Orthodoxy

Attribution - right and wrong

By Joseph D'Aleo, ICECAP, Feb 17, 2020

http://icecap.us/index.php/go/political-climate/attribution_right_and_wrong2/

How I Became A Junk Science Debunker

How I went from PhD microbiologist to founding editor of RealClearScience to the Vice President of Scientific Communications at the American Council on Science and Health.

By Alex Berezow, ACHS, Feb 12, 2020

<https://www.acsh.org/news/2020/02/12/how-i-became-junk-science-debunker-14568>

“Note: This column was originally submitted and initially accepted for publication by an associate editor at the journal Science. After two months of work and nine revisions, it was spiked at the last moment by senior editor Tim Appenzeller, who thinks I'm a corporate shill.”

With Fake Data, You Can Accomplish Anything

By Tony Heller, Real Climate Science, Feb 21, 2020

<https://realclimatescience.com/2020/02/with-fake-data-you-can-accomplish-anything/>

Global confusion: Turns out global warming doesn't cause wandering Jet Stream “extreme weather”

By Jo Nova, Her Blog, Feb 22, 2020

<http://joannenova.com.au/2020/02/global-confusion-turns-out-global-warming-doesnt-cause-wandering-jet-stream-extreme-weather/>

My Presentation to the Pacific Pension & Investment Institute

By Roy Spencer, His Blog, Feb 17, 2020

<http://www.drroyspencer.com/2020/02/my-presentation-to-the-pacific-pension-investment-institute/>

Defending the Orthodoxy

UN's Guterres calls for 'transformational change' on climate

By Staff Writers, Islamabad (AFP), Feb 16, 2020

https://www.terradaily.com/reports/UNs_Guterres_calls_for_transformational_change_on_climate_999.html

"'Our planet is burning but too many decision makers continue to fiddle,' Guterres said in a speech he delivered in Islamabad."

[SEPP Comment: Prudent reasoning by the UN leader?]

The UN's Planet Saving Delusion

It couldn't help Haiti recover from an earthquake, but the UN's gonna rescue the planet.

By Donna Laframboise, Big Picture News, Feb 19, 2020

<https://nofrackingconsensus.com/2020/02/19/the-uns-climate-delusion/>

Link to: No Plan, No Planet

By Staff, UNESCO, July-September 2019

https://unesdoc.unesco.org/ark:/48223/pf0000370322_eng

Aussie Climate Emergency Summit: "Climate change must be accepted as an overriding threat to national and human security"

By Eric Worrall, WUWT, Feb 16, 2020

<https://wattsupwiththat.com/2020/02/16/aussie-climate-emergency-summit-climate-change-must-be-accepted-as-an-overriding-threat-to-national-and-human-security/>

The Legacy of UN Climate Activist, Rajendra Pachauri

Journalists spent years falsely calling the IPCC chairman a Nobel laureate and the world's 'top climate scientist.'

By Donna Laframboise, Big Picture News, Feb 17, 2020

<https://nofrackingconsensus.com/2020/02/17/the-legacy-of-un-climate-activist-rajendra-pachauri/>

Questioning the Orthodoxy

"Arctic Surprise...Sensational Study In Nature": Large Part Of 20th Century Warming Attributed To CFCs!

By Professor Fritz Vahrenholt, No Tricks Zone, Feb 19, 2020

<https://notrickszone.com/2020/02/19/arctic-surprise-sensational-study-in-nature-large-part-of-20th-century-warming-attributed-to-cfcs/>

Link to paper: Substantial twentieth-century Arctic warming caused by ozone-depleting substances

By L.M. Polvani, et al, Nature Climate Change, Jan 20, 2020

<https://www.nature.com/articles/s41558-019-0677-4>

Waiting for Thwaites

News Review by Kip Hansen, WUWT, Feb 16, 2020

<https://wattsupwiththat.com/2020/02/16/waiting-for-thwaites/>

Hurricanes benefit mangroves in Florida's Everglades, study finds

By Paul Brinkmann, Washington DC (UPI), Feb 18, 2020

https://www.terraily.com/reports/Hurricanes_benefit_mangroves_in_Floridas_Everglades_study_finds_999.html

Link to paper” Hurricanes fertilize mangrove forests in the Gulf of Mexico (Florida Everglades, USA)

By Edward Castañeda-Moya, et al., PNAS, Feb 18, 2020

<https://www.pnas.org/content/early/2020/02/11/1908597117>

Unsettled Science, IPCC-style

By Robert Bradley Jr. Master Resource, Feb 18, 2020

<https://www.masterresource.org/nongovernmental-international-panel-on-climate-change-nipcc/unsettled-science-ipcc/>

“It’s never been remotely plausible that [Exxon] did not understand the science.” – Naomi Oreskes (Harvard University), Scientific American, 2015.

Change in US Administrations

Trump signs order diverting water to California farmers against state wishes

By Rebecca Beitsch, The Hill, Feb 19, 2020

<https://thehill.com/policy/energy-environment/483754-trump-order-redirects-california-water-supply-after-reversal-from>

Trump budget calls for slashing funds to climate science centers

By Rebecca Beitsch, The Hill, Feb 20, 2020

<https://thehill.com/policy/energy-environment/483689-trump-budget-calls-for-slashing-funds-to-climate-science-centers>

[SEPP Comment: If the research centers focus on the false premise that CO emissions are causing dangerous global warming, then their work is faulty.]

Work begins on key climate report under Trump

By Scott Waldman, E&E News, Feb 18, 2020

<https://www.eenews.net/stories/1062379543>

Problems in the Orthodoxy

China and India rejecting renewables for coal-fired futures

By Ronald Stein, WUWT, Feb 20, 2020

<https://wattsupwiththat.com/2020/02/20/china-and-india-rejecting-renewables-for-coal-fired-futures/>

Seeking a Common Ground

No raw data, no science: another possible source of the reproducibility crisis

By Tsuyoshi Miyakawa, Molecular Brain, Feb 21, 2020 [H/t GWPF]

<https://molecularbrain.biomedcentral.com/articles/10.1186/s13041-020-0552-2>

Extremes and Averages in Contiguous U.S. Climate – Part 10: The Contiguous U.S.

By Bob Tisdale, WUWT, Feb 17, 2020

<https://wattsupwiththat.com/2020/02/17/extremes-and-averages-in-contiguous-u-s-climate-part-10-the-contiguous-u-s/>

U.S. Operational Weather Prediction is Crippled By Inadequate Computer Resources

By Cliff Mass, Weather Blog, Feb 16, 2020

<https://cliffmass.blogspot.com/2020/02/us-operational-weather-prediction-is.html>

The European Centre for Medium-Range Weather Forecasts (ECMWF) Annual Report, 2018

By Staff, ECMWF, July 8, 2019

<https://www.ecmwf.int/en/about/media-centre/news/2019/annual-report-2018-published>

Met Office forecasters set for 'billion pound' supercomputer

By David Shukman, BBC, Feb 17, 2020

<https://www.bbc.com/news/science-environment-51504002>

Mitigating the Climate Forcing of Aircraft Contrails by Small-Scale Diversions and Technology Adoption

By Roger Teoh, et al, American Chemical Society, Feb 12, 2020 [H/t William Readdy]

<https://pubs.acs.org/doi/abs/10.1021/acs.est.9b05608>

Science, Policy, and Evidence

Another Opportunity to Get Lost in the Woods

By Mark Poynter, Quadrant, Feb 21, 2020

<https://quadrant.org.au/opinion/doomed-planet/2020/02/another-opportunity-to-get-lost-in-the-woods/>

Bushfires and Climate Change: A Fanciful Link

By Jarrod Brady Quadrant, Feb 21, 2020

<https://quadrant.org.au/opinion/doomed-planet/2020/02/the-fanciful-link-between-bushfires-and-climate-change/>

Bjorn Lomborg Fighting Australia's Fire Myths

By Paul Homewood, Not a Lot of People Know That, Feb 16, 2020

<https://notalotofpeopleknowthat.wordpress.com/2020/02/16/bjorn-lomborg-fighting-australias-fire-myths/>

Climate change means homeowners should no longer expect protection from floods, government to announce

By Paul Homewood, Not a Lot of People Know That, Feb 18, 2020

<https://notalotofpeopleknowthat.wordpress.com/2020/02/18/climate-change-means-homeowners-should-no-longer-expect-protection-from-floods-government-to-announce/>

Flooding Exposes Folly Of UK's Misbalanced Climate Policies

By Paul Homewood, Not a Lot of People Know That, Feb 18, 2020

<https://notalotofpeopleknowthat.wordpress.com/2020/02/18/flooding-exposes-folly-of-uks-misbalanced-climate-policies/>

No Flooding In Somerset Levels, Thanks To Owen Paterson

By Paul Homewood, Not a Lot of People Know That, Feb 18, 2020

<https://notalotofpeopleknowthat.wordpress.com/2020/02/18/no-flooding-in-somerset-levels-thanks-to-owen-paterson/>

“In general terms however, the Somerset Levels are free of floods. A reminder that dredging and other maintenance work can be effective in preventing flooding, providing it is properly coordinated.”

Owen Paterson: Leaving The EU Is A Chance To Rethink Our Disastrous Flooding Policy

By Owen Paterson, The Daily Telegraph, Via GWPF, Feb 20, 2020

<https://www.thegwpf.com/owen-paterson-leaving-the-eu-is-a-chance-to-rethink-our-disastrous-flooding-policy/>

Review of Recent Scientific Articles by CO2 Science

The Growing Tolerance of a Coralline Alga to Ocean Acidification

Cornwall, C.E., Comeau, S., DeCarlo, T.M., Larcombe, E., Moore, B., Giltrow, K., Puerzer, F., D'Alexis, Q. and McCulloch, M.T. 2020. A coralline alga gains tolerance to ocean acidification over multiple generations of exposure. *Nature Climate Change* 10: 143-146. Feb 19, 2020

<http://www.co2science.org/articles/V23/feb/a8.php>

Testing for a Temperature Effect on Homicides in New York and London

Lynch, M.J., Stretesky, P.B. and Long, M.A. 2020. Climate change, temperature, and homicide: A tale of two cities, 1895-2015. *Weather, Climate, and Society* 12: 171-181. Feb 17, 2020

<http://www.co2science.org/articles/V23/feb/a7.php>

Model Issues

Global climate frameworks miss the ‘big picture’ on food, say scientists

By Anthony Watts, WUWT, Feb 19, 2020

<https://wattsupwiththat.com/2020/02/19/global-climate-frameworks-miss-the-big-picture-on-food-say-scientists/>

Link to paper: Climate change responses benefit from a global food system approach

By Cynthia Rosenzweig, Nature, Food, Feb 18, 2020

<https://www.nature.com/articles/s43016-020-0031-z>

Measurement Issues -- Surface

Antarctica’s ‘Hottest Day’? Not So Fast

By Michael Kile, Quadrant, Feb 18, 2020 [H/t WUWT]

<https://quadrant.org.au/opinion/doomed-planet/2020/02/antarcticas-hottest-day-not-so-fast/>

Changing Weather

“The link between climate change and Britain’s winter storms”– (Clue–There is not one)

By Paul Homewood, Not a Lot of People Know That, Feb 16, 2020

<https://notalotofpeopleknowthat.wordpress.com/2020/02/16/the-link-between-climate-change-and-britains-winter-storms-clue-there-is-not-one/>

Delingpole: Britain’s Floods Have Nothing to Do With Climate Change

By Paul Homewood, Not a Lot of People Know That, Feb 19, 2020

<https://notalotofpeopleknowthat.wordpress.com/2020/02/19/delingpole-britains-floods-have-nothing-to-do-with-climate-change/>

Floods Of 1946–“Some Of The Worst In Living Memory”

By Paul Homewood, Not a Lot of People Know That, Feb 17, 2020

<https://notalotofpeopleknowthat.wordpress.com/2020/02/17/floods-of-1946-some-of-the-worst-in-living-memory/>

The South Wales Floods Of 1960

By Paul Homewood, Not a Lot of People Know That, Feb 17, 2020

<https://notalotofpeopleknowthat.wordpress.com/2020/02/17/the-south-wales-floods-of-1960/>

Hurricane Harvey most extreme U.S. weather event of last decade

By Brooks Hays, Washington DC (UPI), Feb 18, 2020

https://www.terradaily.com/reports/Hurricane_Harvey_most_extreme_US_weather_event_of_last_decade_999.html

Stunning Lenticular Clouds Downstream of Mount Rainier

By Cliff Mass Weather Blog, Feb 22, 2020

<https://cliffmass.blogspot.com/2020/02/stunning-lenticular-clouds-downstream.html>

“Native Americans, who were astute observers of the natural environment, had a saying: ‘when Tahoma (Mount Rainier) has a hat, rain will soon follow.’”

Changing Climate

New findings from the Neotropics suggest contraction of the ITCZ

Warmer climate leads to current trends of social unrest and mass migration

Press Release, University of New Mexico, Feb 14, 2020 [H/t WUWT]

https://www.eurekalert.org/pub_releases/2020-02/uonm-nff021220.php

Link to paper: Intertropical convergence zone variability in the Neotropics during the Common Era

By Yemane Asmerom, et al., Science Advances, Feb 14, 2020

<https://advances.sciencemag.org/content/6/7/eaax3644>

From the abstract: “Large changes in hydroclimate in the Neotropics [tropical region of the western hemisphere] implied by proxy evidence, such as during the Little Ice Age, have been attributed to meridional shifts [following a pattern from north to south] of the intertropical convergence zone (ITCZ), although alternative modes of ITCZ variability have also been suggested. Here, we use seasonally resolved stalagmite rainfall proxy data from the modern northern limit of the ITCZ in southern Belize, combined with records from across the Neotropics and subtropics, to fingerprint ITCZ variability during the Common Era.”

Changing Seas

Current Rate of Sea-Level Rise ‘Not Unprecedented’, New Study Finds

By Staff, GWPF, Feb 20, 2020

<https://www.thegwpf.com/current-sea-level-rise-not-unprecedented-study-shows/>

Link to paper: Climate-forced sea-level lowstands in the Indian Ocean during the last two millennia

By Paul S. Kench, Nature Geoscience, Dec 16, 2019

<http://nature.webvpn.ustc.edu.cn/articles/s41561-019-0503-7>

Sea Level Rise Is Accelerating (If You Ignore Pre 1970 Data!)

By Paul Homewood, Not a Lot of People Know That, Feb 19, 2020

<https://notalotofpeopleknowthat.wordpress.com/2020/02/19/sea-level-rise-is-accelerating-if-you-ignore-pre-1970-data/>

[SEPP Comment: Is the Virginia Institute of Marine Science appeasing the extreme green Virginia governor?]

Changing Cryosphere – Land / Sea Ice

Staying Power Of Kilimanjaro Snow Defies Al Gore’s Gloomy Forecast

By Staff, The Times, Via GWPF, Feb 17, 2020

<https://www.thegwpf.com/staying-power-of-kilimanjaro-snow-defies-al-gores-gloomy-forecast/>

New Record Low Temperature For Greenland Set Last Month

By Paul Homewood, Not a Lot of People Know That, Feb 18, 2020

<https://notalotofpeopleknowthat.wordpress.com/2020/02/18/new-record-low-temperature-for-greenland-set-last-month/>

Jan 2020: Coldest ever day in Greenland -65C comes, goes, no one notices

By Jo Nova, Her Blog, Feb 20, 2020

<http://joannnova.com.au/2020/02/jan-2020-coldest-ever-day-in-greenland-65c-comes-goes-no-one-notices/>

Japanese IWJ News Site Reports Polar Bears, Snow Cover, Increasing... No Real Climate Science Consensus

By P Gosselin, No Tricks Zone, Feb 21, 2020

<https://notrickszone.com/2020/02/21/japanese-iwj-news-site-reports-polar-bears-snow-cover-increasing-no-real-climate-science-consensus/>

New Study: Greenland’s Largest Glacier Has Rapidly Thickened Since 2016...Fueled By 1.5°C Regional Ocean Cooling

By Kenneth Richard, No Tricks Zone, Feb 17, 2020

<https://notrickszone.com/2020/02/17/new-study-greenlands-largest-glacier-has-rapidly-thickened-since-2016-fueled-by-1-5c-regional-ocean-cooling/>

Agriculture Issues & Fear of Famine

Michael Schellnberger’s Smack-Down of Alarmism

By David Middleton, WUWT, Feb 20, 2020

<https://wattsupwiththat.com/2020/02/20/michael-schellnbergers-smack-down-of-alarmism/>

[SEPP Comment: Some of the material is dated, but the false claims of future famine are so unrealistic they need to be exposed frequently.]

Un-Science or Non-Science?

Ancient Antarctic ice melt increased sea levels by 3+ meters - and it could happen again

By Staff Writers, Sydney, Australia (SPX), Feb 17, 2020

https://www.spacedaily.com/reports/Ancient_Antarctic_ice_melt_increased_sea_levels_by_3+_meters_and_it_could_happen_again_999.html

Link to paper: Early Last Interglacial ocean warming drove substantial ice mass loss from Antarctica

By Chris Turney, et al., PNAS, Feb 11, 2020

<https://www.pnas.org/content/early/2020/02/10/1902469117>

“Fifty years ago, it was speculated that the marine-based West Antarctic Ice Sheet is vulnerable to warming and may have melted in the past. Testing this hypothesis has proved challenging due to the difficulty of developing in situ records of ice sheet and environmental change spanning warm

periods. We present a multiproxy record that implies loss of the West Antarctic Ice Sheet during the Last Interglacial (129,000 to 116,000 y ago), associated with ocean warming and the release of greenhouse gas methane from marine sediments. Our ice sheet modeling predicts that Antarctica may have contributed several meters to global sea level at this time, suggesting that this ice sheet lies close to a “tipping point” under projected warming.”
[SEPP Comment: What tipping point? An additional 10,000 years of warming?]

Lowering Standards

Editor At Journal 'Science' Doubles Down On Double Standard

By Alex Berezow, ACSH, Feb 12, 2020

<https://www.acsh.org/news/2020/02/12/editor-journal-science-doubles-down-double-standard-14569>

Communicating Better to the Public – Use Yellow (Green) Journalism?

EPA proposes additional rollback to Obama-era coal ash regulation

By Rachel Frazin, The Hill, Feb 19, 2020

<https://thehill.com/policy/energy-environment/483757-epa-proposes-additional-rollback-to-obama-era-coal-ash-regulation>

“The proposed changes are the Trump administration's second set of changes to protections on waste laden with arsenic.”

[SEPP Comment: The reporter does not define laden, which can be defined as loaded or overloaded. Trace amounts of arsenic do not fit the term.]

Natural gas is a much ‘dirtier’ energy source than we thought

Coal, oil, and gas are responsible for much more atmospheric methane, the super-potent warming gas, than previously known.

By Alejandra Borunda, National Geographic, Feb 19, 2020

<https://www.nationalgeographic.com/science/2020/02/super-potent-methane-in-atmosphere-oil-gas-drilling-ice-cores/>

Communicating Better to the Public – Make things up.

No Excuse For Data Tampering

By Tony Heller, Real Climate Science, Feb 17, 2020

<https://realclimatescience.com/2020/02/no-excuse-for-data-tampering/>

All The Fake News That Is Unfit To Print

By Tony Heller, Real Climate Science, Feb 20, 2020

<https://realclimatescience.com/2020/02/all-the-fake-news-that-is-unfit-to-print-2/>

Climate change could wipe out coral reefs by 2100: scientists

By Zack Budryk, The Hill, Feb 18, 2020

<https://thehill.com/policy/energy-environment/483528-climate-change-could-wipe-out-coral-reefs-by-2100-scientists>

Link to questionable report: Warming, Acidic Oceans May Nearly Eliminate Coral Reef Habitats by 2100

By Renee Setter, University of Hawaii Manoa, Via AGU Ocean Sciences Meeting, 2020

<https://news.agu.org/press-release/warming-acidic-oceans-may-nearly-eliminate-coral-reef-habitats-by-2100/>

Communicating Better to the Public – Go Personal.

Good Grief

Guest post by Dr. Robert Gorkin MD, WUWT, Feb 17, 2020

<https://wattsupwiththat.com/2020/02/17/good-grief/>

“The APA then formally issued a position statement entitled ‘Mental Health and Climate Change’ which endorsed the reality of catastrophic anthropogenic global warming and committed the organization to ‘support and collaborate with patients, communities, and other health care organizations engaged in efforts to mitigate the adverse health and mental health effects of climate change.’”

Study: A Quarter of Climate Denier Tweets are Bots

By Eric Worrall, WUWT, Feb 22, 2020

<https://wattsupwiththat.com/2020/02/22/study-a-quarter-of-climate-denier-tweets-are-bots/>

“John Cook and Lewandowsky appear to have moved on from claiming climate skeptics are mentally defective to a new position, a claim that climate skeptics don’t actually exist, that we are mostly software masquerading as humans.”

Communicating Better to the Public – Protest

Mob Rules In Cambridge As Police Allows Extinction Rebellion Activists To Dig Up Trinity College’s Lawn

By Staff, The Times, Feb 18, 2020

<https://www.thegwpf.com/mob-rules-in-cambridge-as-police-allows-extinction-rebellion-activists-to-dig-up-trinity-colleges-lawn/>

A rebellion that the establishment loves

Why our usually illiberal establishment has been so chilled out about XR’s week of vandalism.

By Ben Pile, Spiked, Feb 20, 2020

<https://www.spiked-online.com/2020/02/20/a-rebellion-that-the-establishment-loves/>

“XR’s stunts are merely the tantrums of an indulged and spoilt class.”

Canadian Government: Anti-Pipeline Eco-Extremists Sabotaging Railway Lines

By Eric Worrall, WUWT, Feb 19, 2020

<https://wattsupwiththat.com/2020/02/19/canadian-government-anti-pipeline-extremists-sabotaging-railway-lines/>

Expanding the Orthodoxy

Bankers JP Morgan Warn of “Catastrophic” Climate Change

By Eric Worrall, WUWT, Feb 20, 2020

<https://wattsupwiththat.com/2020/02/20/bankers-jp-morgan-warn-of-catastrophic-climate-change/>
[SEPP Comment: *From sub-prime mortgages to sub-prime electricity?*]

Europe’s Anti-Science Plague Descends On Africa

By James Njoroge, European Scientist, Feb 17, 2020 [H/t GWPF]

<https://www.europeanscientist.com/en/features/europes-anti-science-plague-descends-on-africa/>

“Europe has been paralyzed by faddish, fact-free claims of activist NGOs pushing political agendas. It needs to wake up and see what happens when these anti-scientific doctrines descend on the African continent. The natural, organic world without pesticides or GMOs that they are promoting has arrived in Africa. It is a cloud of destruction.”

‘We Can Save Earth’: Amazon’s Jeff Bezos Announces \$10-Billion Climate Action Plan

By Chris White, Daily Caller, Feb 17, 2020

<https://dailycaller.com/2020/02/17/amazon-climate-fund-jeff-bezos/>

Questioning European Green

Germany’s Transition To Green Energies Is “An Impending Disaster”, German Expert Tells Audience

By P Gosselin, No Tricks Zone, Feb 16, 2020

<https://notrickszone.com/2020/02/16/germanys-transition-to-green-energies-is-an-impending-disaster-german-expert-tells-audience/>

Pontificating Politicians Plan To Outlaw The Engine, But Forecasters Say Nothing Much Changes

By Neil Winton, Forbes, Feb 16, 2020 [H/t GWPF]

<https://www.forbes.com/sites/neilwinton/2020/02/16/pontificating-politicians-plan-to-outlaw-the-engine-but-forecasters-say-nothing-much-changes/#13fcdcbd5840>

No Airports, No Imports—Welcome To Year Zero!

By Paul Homewood, Not a Lot of People Know That, Feb 21, 2020

<https://notalotofpeopleknowthat.wordpress.com/2020/02/21/no-airports-no-imports-welcome-to-year-zero/>

Questioning Green Elsewhere

Information On The True Cost Of Electricity From Wind And Solar Is Just Not Getting Out There

By Francis Menton, Manhattan Contrarian, Feb 21, 2020

<https://www.manhattancontrarian.com/blog/2020-2-20-information-on-the-true-cost-of-electricity-from-wind-and-solar-is-just-not-getting-out-there>

“The per capita GDP of India is around \$2000, barely 3% of ours. Most of the people are dirt poor, and hundreds of millions continue to lack access to electricity. And here we are twisting their arms to build into their electricity system elements that will force these very poor people to pay a multiple for their electricity what it would cost from the cheapest fossil fuel system. I find this immoral.”

Cap-and-Trade and Carbon Taxes

RECALL OF DUTY Boris Johnson’s top adviser Dominic Cummings pushes to hike fuel duty for the first time in a decade

By Matt Dathan, The Sun, Feb 20, 2020 [H/t GWPF]

<https://www.thesun.co.uk/news/10999972/fuel-duty-hike-budget/>

“Whacking voters with a whopping great tax for the privilege of taking their kids to school won’t make him [Boris Johnson] any friends.”

EPA and other Regulators on the March

Report Misconstrues SAFE Rule ‘Rollbacks’

By Marlo Lewis, Jr., CEI, Feb 20, 2020

<https://cei.org/blog/report-misconstrues-safe-rule-rollbacks>

Link to report: A Step Closer to a Rollback of Fuel Economy Standards

By Hannah Pitt and Maggie Young, Rhodium Group, Feb 13, 2020

<https://rhg.com/research/fuel-economy-1-5/>

“The Rhodium report describes the SAFE rule as a ‘rollback.’ However, a strong case can be made that the Obama MY 2022-2025 standards are legal phantoms. The so-called midterm evaluation (MTE) by which EPA finalized the standards one week before Inauguration Day was a travesty. If the Obama MY 2022-2025 standards were not lawfully adopted, then the SAFE rule will not roll them back.”

EPA will regulate 'forever chemicals' in drinking water

By Rebecca Beitsch, The Hill, Feb 20, 2020

<https://thehill.com/policy/energy-environment/483972-epa-will-regulate-forever-chemicals-in-drinking-water>

Energy Issues – Non-US

‘Beyond Petroleum’ Now ‘Big Promises’ at BP

By Robert Bradley Jr. Master Resource, Feb 20, 2020

<https://www.masterresource.org/bp-energy-companies/brownes-bp-contra-capitalist/>

India’s Energy Market Overhaul—Infrastructure, Renewables, and Keeping Coal in the Mix

By Staff, Power, Feb 2, 2020

<https://www.powermag.com/indias-energy-market-overhaul-infrastructure-renewables-and-keeping-coal-in-the-mix/>

“Officials have said the nation’s installed generation capacity of about 366 GW is expected to rise to nearly 620 GW in 2025, with about half of that capacity coming from coal, natural gas, lignite, and diesel-fired power plants. Those sources today account for about 63% of generation capacity.”
[SEPP Comment: How much of that capacity is reliable and how much is backup for unreliable capacity?]

Japan: Back to the Fossil Fueled Future!

By David Middleton, WUWT, Feb 19, 2020

<https://wattsupwiththat.com/2020/02/19/japan-back-to-the-fossil-fueled-future/>

Meddling in Domestic Heating is Foolish: Increasing Fuel Duty is a Blunder

By John Constable, GWPF, Feb 21, 2020

<https://www.thegwpf.com/meddling-in-domestic-heating-is-foolish-increasing-fuel-duty-is-a-blunder/>

New Gas Gridwatch Tool [UK]

By Paul Homewood, Not a Lot of People Know That, Feb 19, 2020

<https://notalotofpeopleknowthat.wordpress.com/2020/02/17/new-gas-gridwatch-tool/>

“We have a new toy to play with!”

Energy Issues – Australia

SA renewable electricity market mayhem as frequency stabilizing costs hit record breaking \$90 million

Since SA [South Australia] was islanded the costs just to keep the frequency stable are as much as the energy itself

By Jo Nova, Her Blog, Feb 19, 2020

<http://joannenova.com.au/2020/02/sa-renewable-electricity-market-mayhem-as-frequency-stabilizing-costs-hit-record-breaking-90-million/>

Energy Issues -- US

EIA projects U.S. energy intensity to continue declining, but at a slower rate

By Stacy MacIntyre, EIA, Feb 20, 2020 [H/t Cooler Heads]

<https://www.eia.gov/todayinenergy/detail.php?id=42895>

Oil and Natural Gas – the Future or the Past?

Oil Stocks are the New Tobacco?

By Donn Dears, Power For USA, Feb 21, 2020

<https://ddears.com/2020/02/21/oil-stocks-are-the-new-tobacco/>

Oil Spills, Gas Leaks & Consequences

Draft Federal Data: Oil and Natural Gas Methane Emissions Continue to Fall

By Nicole Jacobs, Energy in Depth, Feb 14, 2020 [H/t Cooler Heads]

<https://eidclimate.org/draft-federal-data-oil-and-natural-gas-methane-emissions-continue-to-fall/>

“The EPA’s final 2018 data will be released in April.”

Methane emitted by humans vastly underestimated, researchers find

Press Release, University of Rochester, Feb 19, 2020 [H/t WUWT]

https://www.eurekalert.org/pub_releases/2020-02/uor-meb021320.php

Link to paper: Preindustrial 14CH₄ indicates greater anthropogenic fossil CH₄ emissions

By Benjamin Hmiel, Nature, Feb 19, 2020

<https://www.nature.com/articles/s41586-020-1991-8>

According to Nature: “Data not available”

[SEPP Comment: According to the article: “The levels of naturally released fossil methane are about 10 times lower than previously reported” while “anthropogenic fossil methane emissions are 25 to 40% higher than previously thought.”]

NASA Flights Detect Millions of Arctic Methane Hotspots

By Esprit Smith, NASA, Feb 18, 2020 [H/t WUWT]

<https://climate.nasa.gov/news/2954/nasa-flights-detect-millions-of-arctic-methane-hotspots/>

The 100-year Oil Spill and Other Imaginary Tales of Conflation

Guest geology by David Middleton, WUWT, Feb 17, 2020

<https://wattsupwiththat.com/2020/02/17/the-100-year-oil-spill-and-other-imaginary-tales-of-conflation/>

Alternative, Green (“Clean”) Solar and Wind

Two-Way Trade in Green Electrons: Deep Decarbonization of the Northeastern U.S. and the Role of Canadian Hydropower

By Emil Dimanchev, Joshua Hodge, and John Parsons, MIT CEEPR, February 2020

<http://ceepr.mit.edu/publications/working-papers/719>

Energy & Environmental Newsletter: February 17, 2020

By John Droz, Jr. Master Resource, Feb 17, 2020

<https://www.masterresource.org/alliance-for-wise-energy-decisions/energy-environmental-newsletter-february-17-2020/>

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

“Is Biomass Dead?” (niche generator struggles)

By Robert Bradley Jr. Master Resource, Feb 19, 2020

<https://www.masterresource.org/uncategorized/biomass-in-power-generation-death-rattle/>

Alternative, Green (“Clean”) Vehicles

5G and the Future of Autonomous Vehicles

By Donn Dears, Power For USA, Feb 18, 2020

<https://ddears.com/2020/02/18/5g-and-the-future-of-autonomous-vehicles/>

The looming collision between electric vehicles and green energy

By Viv Forbes, American Thinker, Feb 19, 2020

https://www.americanthinker.com/blog/2020/02/the_looming_collision_between_electric_vehicles_and_green_energy.html

Do ‘green’ buses pass the performance test?

Guest post Duggan Flanakin, WUWT, Feb 15, 2020

<https://wattsupwiththat.com/2020/02/15/do-green-buses-pass-the-performance-test/>

California Dreaming

Rising seas already overwhelm the Bay Area. Time is running out for California to act

By Rosanna Xiz, San Diego Union-Tribune, Feb 11, 2020

<https://www.sandiegouniontribune.com/news/california/story/2020-02-11/foster-city-sea-level-rise>

“For a city of 34,000 [Foster City] that was built on **filled-in marshland** along San Francisco Bay, the future hinges on the strength of an eight-mile-long levee that for decades has held back the rising sea.” [Boldface added.]

Health, Energy, and Climate

How Dangerous Is Wuhan Coronavirus?

By Alex Berezow, ACSH, Feb 18, 2020

<https://www.acsh.org/news/2020/02/18/how-dangerous-wuhan-coronavirus-14579>

Influenza is far deadlier than the Wuhan coronavirus, but few people worry about it. However, new diseases are scary and when information is limited, over-reactions are rational.

Why have so many of our recent viruses come from bats?

Coronavirus is far from the first disease they've passed on to us

By Matt Ridley, His Blog, Feb 21, 2020

<http://www.rationaloptimist.com/blog/coronavirus-bats/>

Other Scientific News

Why is Meteorological Spring Earlier on the West Coast Than For Much of the Nation?

By Cliff Mass, Weather Blog, Mar 21, 2020

<https://cliffmass.blogspot.com/2020/02/why-is-meteorological-spring-earlier-on.html>

Other News that May Be of Interest

At Last: No 10 Tells BBC Licence Fee Will Be Scrapped

By Staff, The Sunday Times, Via GWPF, Feb 16, 2020

<https://www.thegwpf.com/at-last-no-10-tells-bbc-licence-fee-will-be-scrapped/>

BELOW THE BOTTOM LINE:

Climate Change Making It Harder For Airplanes To Take Off, New Study Reveals

By Inigo Monzon, International Business Times, Feb 18, 2020

<https://www.ibtimes.com/climate-change-making-it-harder-airplanes-take-new-study-reveals-2924659>

[SEPP Comment: Discovering the long known. Temperatures affect air density, thus aircraft performance. http://www.wiiaircraftperformance.org/B-24/B-24_Flight_Manual.pdf]

Start of “Dog-ocene” dated to at least 28,500 years ago

By David Middleton, WUWT, Feb 21, 2020

<https://wattsupwiththat.com/2020/02/21/start-of-dog-ocene-dated-to-at-least-28500-years-ago/>

ARTICLES

Can Solar Power Compete With Coal? In India, It’s Gaining Ground

Electricity from sunlight costs less, a hopeful sign for developing nations building out their power grids

By Phred Dvorak, WSJ, Feb 17, 2020

<https://www.wsj.com/articles/solar-power-is-beginning-to-eclipse-fossil-fuels-11581964338>

TWTW Summary: In a glowing report, the reporter discusses the virtues of solar power. He begins:

“In a dusty northwest India desert dotted with cows and the occasional camel, a solar-power plant is producing some of the world’s cheapest energy.

“Built in 2018 by India’s Acme Solar Holdings Ltd., it can generate 200 megawatts of electricity, enough to power all the homes in a middle-size U.S. town. Acme sells the electricity to distributors for 2.44 rupees (3.4 cents) a kilowatt-hour, a record low for solar power in India, a country that data trackers say has the world’s cheapest solar energy.

“More remarkable, the power costs less to generate in India than the cheapest competing fossil fuel—coal—even with subsidies removed and the cost of construction and financing figured in, according to the Indian government and industry trackers.

“Price-conscious Indian utilities are eager to snap up that power. ‘We are infamous for low cost,’ says Sandeep Kashyap, Acme’s president.

“Solar power has entered a new global era. The industry was long dependent on subsidies and regulatory promotions. Now, technological innovation and falling solar-panel prices have made solar power inexpensive enough to compete on its own with other fuel sources in some regions, when it comes to newly built plants. That could turbocharge growth of renewables in the global energy industry, especially in fast-growing Asian markets where much of the world’s energy infrastructure expansion will take place.

“Governments in many solar markets—including China, the biggest—are phasing out or reducing supports. Solar-plant development is going mainstream, with finance provided by global investors like Goldman Sachs Group Inc., Singaporean sovereign-wealth fund GIC and huge Western pension and private-equity funds.

“So far, the renewable-energy push hasn’t halted the growth of global energy emissions. But the success of countries like India in feeding their rising power demands with clean energy will still be key to blunting the growth of global challenges like pollution and climate change.

“The price declines in solar panels and the power they produce are jolting the industry. In the past decade, solar has grown from less than 1% of the world’s electric-power capacity to an estimated 9% by the end of this year, according to the International Energy Agency, an intergovernmental organization focused on energy policy. By 2040, the IEA expects that to grow to 24%, which would make solar the largest single energy source.

“India is at the forefront of the trend, with a cost of building solar capacity that has dropped 84% in eight years, according to the International Renewable Energy Agency, an intergovernmental organization focused on renewable energy. Other countries are close behind, with costs falling fast in Australia and China.

“India has increased the amount of solar power it has installed 10-fold in the past five years, to 32 gigawatts, and the government is hoping to triple that in the next few years—one of the fastest paces of growth anywhere. India’s prime minister last year said he wants 450 gigawatts of renewable energy including solar installed by 2030.

“If India manages that, which many analysts say is a real stretch, it would account for nearly all the additional electric capacity the country’s Central Electricity Authority has projected it would add by then, and more than the country’s total from all power sources now. India has pledged as a climate goal that 40% of its electric capacity will come from non-fossil fuels by 2030; the latest renewable targets would likely put that percentage at over half.

“In 2018, India’s ‘levelized’ cost of solar-power generation—an analysis removing the impact of direct subsidies and figuring in the costs of construction and financing for a new plant—fell to 14% below that of coal, the first time anywhere in the world that generating solar was cheaper than coal on that basis, according to international energy consulting firm Wood Mackenzie.

“India’s national energy plan doesn’t anticipate construction of new coal power plants for at least several years. Even state-controlled Coal India, one of the world’s largest coal-producing companies, in November said it planned a pilot solar project as it navigated a future with less coal.

“Across Asia, a region expected to account for two-thirds of the world’s new power demand during the next two decades, price declines will make wind and solar combined 17% cheaper than coal by 2030 on a levelized basis, says Wood Mackenzie. In India, solar generation will be almost 50% cheaper, it projects.

“‘This is a revolution in power generation costs,’ says Wood Mackenzie analyst Alex Whitworth. ‘What it means is there will be a lot more solar investment in India, and in countries like India.’

“Solar’s big problem: It generates power only when the sun shines. Wind power, similarly, works only with wind. So displacing fossil fuels could require cheaper ways to store energy. And the more renewables in the power-transmission grid, the more the grid will need to be rebuilt to accommodate those special characteristics.

“That inefficiency is why the IEA forecasts the amount of power solar generates to rise to only 11% of the world’s total by 2040, around half that of coal or natural gas.

“In India, which has some of the world’s best conditions for generating solar power, the mismatch is pronounced because demand for electricity swells after people go home and switch on air conditioners in the evening, when solar plants aren’t working.”

The article goes on to discuss coal-fired plants then gets to what may become a major difficulty:

“Challenges will likely multiply when solar power in India’s grid rises from the current 9% to around 20% or 30%—a level at which it may start replacing conventional power plants, say experts like Rahul Tongia, a fellow at the India arm of think tank Brookings Institution.

“‘What happens after that point when the low-hanging fruit is done?’ says Mr. Tongia.

“India’s solar push started in 2010, when its government outlined plans for a modest boost in capacity during the next decade. Solar was a good fit for India’s growing energy needs. Plants are easy to build—essentially solar panels lined up in racks—and labor is inexpensive. India has big stretches of sparsely populated land and intense sun, good for vast spreads cranking out power.”

The article discusses building new transmission lines and similar issues, but does not address the key issue: “What happens after that point when the low-hanging fruit is done?” Except to quote a solar power advocate:

“Experts like ReNew’s Mr. Sinha say it will likely be several years before India builds so much solar capacity that the technology’s daytime power surges and nighttime plunges could affect the country’s overall electricity supply. By that time, says Mr. Sinha, other new technologies such as batteries and systems for shipping electricity may be available to smooth out irregularities.”

Experts have been looking for the solution for over 100 years, and the only solution that works thus far is pumped-hydro storage for reliable power plants, not erratic ones.
