The Week That Was: 2020-07-25 (July 25, 2020)
Brought to You by SEPP (www.SEPP.org)
The Science and Environmental Policy Project

Quote of the Week: *"When we are planning for posterity, we ought to remember that virtue is not hereditary."* —Thomas Paine (1776)

Number of the Week: 12 datasets of evidence

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

July Summary Part III; Models and Observations: Two weeks ago TWTW reviewed Richard Lindzen's new paper summarizing what we know with reasonable certainty, what we suspect, and what we know is incorrect about climate change, the greenhouse effect, temperature trends, climate modeling, ocean chemistry, and sea level rise. Key parts included:

1) The climate system is never in equilibrium.

2) The core of the system consists of two turbulent fluids interacting with each other and unevenly heated by the sun, which results in transport of heat from the equator towards the poles (meridional) creating ocean cycles that may take 1,000 years to complete.

3) The two most important substances in the greenhouse effect are water vapor and clouds, which are not fully understood and are not stable.

4) A vital component of the atmosphere is water in its liquid, solid, and vapor phases and the changes in phases have immense dynamic consequences.

5) Doubling carbon dioxide, (CO2), creates a 2% disturbance to the normal flow of energy into the system and out of the system, which is similar to the disturbance created by changes in clouds and other natural features.

6) Temperatures in the tropics have been extremely stable. It is the temperature differences between the tropics and polar regions that is extremely important. Calculations such as global average temperature largely ignore this important difference.

Last week, TWTW used the work of William van Wijngaarden and William Happer (W & H) to summarize what we know with reasonable certainty, what we suspect, and what we know is incorrect about the greenhouse effect. Both the gentlemen are experts in Atomic, Molecular, and Optical physics (AMO), which is far from simple physics, but is necessary to understand how greenhouse gases interfere (delay) the radiation of energy from the surface into space – how the earth loses its heat every day, mainly at night.

1) There is no general understanding of the greenhouse effect sufficient to develop elegant equations.

2) The optical depth or optical thickness of the atmosphere (transparency) changes as altitude changes. The depth is measured in terms of a natural logarithm and, in this instance, relates to distance a photon of a particular frequency can travel before it is absorbed by an appropriate molecule (one that absorbs and re-emits photons of that frequency).

3) Unlike other natural greenhouse gases, water vapor, the dominant greenhouse gas, is not well distributed in the atmosphere, its irregular. [*SEPP Comment: It is variability during the daytime, the formation of clouds from H2O, etc., all combine to make it impossible to do theoretical computational "climate" dynamics with any value at all. Because H2O is known to be "all over the map" the Charney Report recognized a decent calculation was impossible. So, it went down the erroneous path of ignoring H2O and assumed a CO2 value; and then coming back in later with a "feedback" argument to try to account for H2O. It didn't work then, now, or into the future.]*

4) There is a logarithmic relationship between greenhouse gases and temperature.

5) "Saturation" means that adding more molecules causes little change in Earth's radiation to space. The very narrow range in which Methane (CH4) can absorb and emit photons is already saturated by water vapor (H2O), the dominant greenhouse gas, below the tropopause, where the atmosphere is thick. Thus, adding methane has little effect on temperatures because its influence is mostly where the atmosphere is thin, transparent.

6) Their (W & H) calculations show that a doubling of CO2 will increase temperatures by no more than 1.5 º C.
****
Problems with Models: In September 2019, established Japanese climate modeler Mototaka Nakamura, wrote a book that is available on Kindle, which contains an English summary. Nakamura is the author of about 20 published papers on fluid dynamics, one of the complex subjects in climate change. Interestingly, Richard Lindzen was one of Nakamura's thesis advisors at MIT. Nakamura mentions this in his discussion of ocean currents, namely the Thermohaline circulation. This circulation includes the Gulf Stream, which keeps Western Europe far warmer than it would be otherwise. [The late Bill Gray, who was a pioneer in forecasting hurricanes, was a strong advocate of the importance of the Thermohaline circulation.]

Based on Nakamura's discussion, he is a stronger advocate of the Thermohaline circulation than Lindzen, particularly in the cold southward flowing water on the bottom of the Atlantic. In his discussion on this phenomena, Nakamura states Professor Lindzen may disagree, asking how do you know?

As presented in the September 28, 2019, TWTW, Australian reporter Tony Thomas, who has followed the climate issue for years, reviews the book, emphasizing that the certainty claimed by the UN Intergovernmental Panel on Climate Change (IPCC) and its followers is hollow.

Among other important changing phenomena, the climate system is largely made up of two fluids in dynamic motion, the ocean, and the atmosphere, and we simply do not know enough about fluid dynamics to make long-term predictions about the interactions of these fluids. According to Nakamura the climate models are useful tools for academic purposes, but useless for prediction. As quoted by Thomas, Nakamura writes:

"These models completely lack some critically important climate processes and feedbacks and represent some other critically important climate processes and feedbacks in grossly distorted manners to the extent that makes these models totally useless for any meaningful climate prediction.

"I myself used to use climate simulation models for scientific studies, not for predictions, and learned about their problems and limitations in the process."

Nakamura and his colleagues tried to repair the errors:

"…so, I know the workings of these models very well. For better or worse I have more or less lost interest in the climate science and am not thrilled to spend so much of my time and energy in this kind of writing beyond the point that satisfies my own sense of obligation to the US and Japanese taxpayers who financially supported my higher education and spontaneous and free research activity. So please expect this to be the only writing of this sort coming from me.

"I am confident that some honest and courageous, true climate scientists will continue to publicly point out the fraudulent claims made by the mainstream climate science community in English. I regret to say this, but I am also confident that docile and/or incompetent Japanese climate researchers will remain silent until the 'mainstream climate science community' changes its tone, if ever."

Thomas writes some of the gross model simplifications are:

- *Ignorance about large and small-scale ocean dynamics.*
- *A complete lack of meaningful representations of aerosol changes that generate clouds.*
- *Lack of understanding of drivers of ice-albedo (reflectivity) feedbacks: "Without a reasonably accurate representation, it is impossible to make any meaningful predictions of climate variations and changes in the middle and high latitudes and thus the entire planet."*
- *Inability to deal with water vapor elements.*
- *Arbitrary "tunings" (fudges) of key parameters that are not understood.*

As Richard Lindzen has stated for years, the models fail to capture changes in clouds including changing cloud area and that the sizes of clouds are too small for grid scale modeling.

Nakamura's work reinforces what many, including Lindzen, have stated. But it is refreshing to see that a modeler who spent years trying to model the climate system recognizes how unsuccessful this 40 plus year effort has been.

To the above, one can quote from the beginning of the English appendix of Nakamura's book:

"Before pointing out a few of the serious flaws in climate simulation models, in defense of those climate researchers who use climate simulation models for various meaningful scientific projects, I want to emphasize here that climate simulation models are fine tools to study the climate system, so long as the users are aware of the limitations of the models and exercise caution in designing experiments and interpreting their output. In this sense, experiments to study the response of simplified climate systems, such as those generated by the 'state-of-the-art' climate simulation models, to major increases in atmospheric carbon dioxide or other greenhouse gases are also

interesting and meaningful academic projects that are certainly worth pursuing. So long as the results of such projects are presented with disclaimers that unambiguously state the extent to which the results can be compared with the real world, I would not have any problem with such projects. The models just become useless pieces of junk or worse (worse, in a sense that they can produce gravely misleading output) only when they are used for climate forecasting.

"All climate simulation models have many details that become fatal flaws when they are used as climate forecasting tools, especially for mid- to long-term (several years and longer) climate variations and changes. These models completely lack some of critically important climate processes and feedbacks, and represent some other critically important climate processes and feedbacks in grossly distorted manners to the extent that makes these models totally useless for any meaningful climate prediction. It means that they are also completely useless for assessing the effects of the past atmospheric carbon dioxide increase on the climate. I myself used to use climate simulation models for scientific studies, not for predictions, and learned about their problems and limitations in the process. I, with help of some of my former colleagues, even modified some details of these models in attempts to improve them by making some of grossly simplified expressions of physical processes in the models less grossly simplified, based on physical theories. So, I know the internal workings of these models very well. I find it rather bewildering that so many climate researchers, many of whom are only 'so-called climate researchers' in my not-so-humble opinion, appear to firmly believe in the validity of using these models for climate forecasting. I have observed that many of those climate researchers who firmly believe in the global warming hypothesis view the climate system in a grotesquely simplified fashion: many of them view the climate system as a horizontally homogeneous (no variations in the north-south and east-west directions) or zonally homogeneous (no variations in the east-west direction) system whose dynamics are dominated by the radiative-chemical-convective processes, smooth vertical-north-south motions in the atmosphere, and stationary oceans, and completely neglect the geophysical fluid dynamics, an extremely important and strong factor in the maintenance of the climate and generation of climate variations and changes. So, in their view, those climate simulation models that have ostensible 3 D flows in the atmosphere and oceans may be more than good enough for making climate predictions. ***They are not good enough.*** *Incidentally, I never liked the term, 'model validation', often used by most climate researchers to refer to the action of assessing the extent to which the model output resembles the reality. They should use a more honest term such as 'model assessment' rather than the disingenuous term, 'model validation', and evaluate the model performance in an objective and scientific manner rather than trying to construct narratives that justify the use of these models for climate predictions.* [Boldface in original]

"The most obvious and egregious problem is the treatment of incoming solar energy — it is treated as a constant, that is, as a 'never changing quantity'. It should not require an expert to explain how absurd this is if 'climate forecasting' is the aim of the model use. It has been only several decades since we acquired an ability to accurately monitor the incoming solar energy. In these several decades only, it has varied by 1 to 2 Watts per square meters. Is it reasonable to assume that it will not vary any more than that in the next hundred years or longer for forecasting purposes? I would say 'No'.

"One can stop here and proclaim that we can never predict climate changes because of our inability to predict changes in the incoming solar energy. Nevertheless, for the sake of providing some useful pieces of information that can help countervail rampantly bold and absurd claims such as 'We can correctly predict climate changes that are attributable only to increasing

atmospheric carbon dioxide to assess the human impact on the climate', I will describe two problematic aspects of climate simulation models below. I also hear somewhat less bold claims such as 'These models can correctly predict at least the sense or direction of climate changes that are attributable only to increasing atmospheric carbon dioxide.' ***I want to point out a simple fact that it is impossible to correctly predict even the sense or direction of the change of a system when the prediction tool lacks and/ or grossly distorts important nonlinear processes, feedbacks in particular, that are present in the actual system."*** [Boldface added.]

The major problems in the climate models that Nakamura describes further are ocean flows (ocean circulation) and water in the atmosphere. See links under Challenging the Orthodoxy.
****

Testing Models: Repeatedly, John Christy of the Earth System Science Center at the University of Alabama in Huntsville (UAH) and others, have shown that the models used by the UN Intergovernmental Panel on Climate Change (IPCC) grossly overestimate the warming of the atmosphere over the tropics, where the greenhouse effect occurs. The one exception is the model from the Institute of Numerical Mathematics of the Russian Academy of Sciences. A new fleet of models is coming out called the Coupled Model Intercomparison Project version 6 (CMIP6).

As demonstrated by the Paris Agreement, the goal of the UN Framework Convention on Climate Change (UNFCCC), the IPCC, and its followers is to reduce carbon dioxide influence on surface temperatures. Before the CO2 influence on surface temperatures is reduced, the CO2 influence on atmospheric temperatures must be reduced. Thus, using trends from widely scattered surface instruments as a proxy of what is occurring in the atmosphere is a poor choice, because comprehensive atmospheric temperature trends have been available for 30 years, with measurements beginning in 1979, forty years ago.

In a forthcoming paper in Earth and Science, Ross McKitrick and John Christy compare the "historic" values calculated from 38 new CMIP6 models with datasets from three different types of observations.

"(1) Radiosonde (or sonde) data are measured by thermistors carried aloft by balloons at stations around the world which radio the information down to a ground station. Sondes report temperatures at many levels, and we use here annual averages at the standard pressure-levels: 1000 (if above the launch site), 850, 700, 500, 400 300, 200 150, 100, 70, 50, 30 and 20 hPa."

"(2) Since late 1978, several polar-orbiting satellites carried some form of a microwave sensor to monitor atmospheric temperatures. These spacecraft would circle the globe roughly pole-to-pole making a complete orbit in about 100 minutes. They were (and are) sun-synchronous so the Earth would essentially rotate on its axis underneath as the spacecraft orbited pole to pole so that essentially the entire planet is observed in a single Earth-rotation (or day). ***The intensity of microwave emissions from atmospheric oxygen are directly proportional to temperature****, thus allowing a conversion of these measurements to temperature. Since the emissions come from most of the atmosphere, they represent a deep layer-average temperature. For our purposes we shall focus on two deep layers, the lower troposphere (LT, surface to ~ 9 km) and the midtroposphere (MT, surface to ~ 15 km)."* [Boldface added.]

"(3) The third category of these datasets are known as Reanalyses. In this category, a global weather model with many atmospheric layers ingests as much data as possible, from surface observations, sondes and satellites, to generate a global depiction of the surface and atmosphere

that is made globally consistent through the model equations. We will access the temperature data from these datasets at 17 pressure levels from the surface to 10 hPa and will be able to calculate the deep-layer averages that match those of the satellite measurements."

The model runs came from the Lawrence Livermore National Laboratory archive. The time period covered was 1979 to 2014 for which data for both models and observations were complete.

"For this study we used the period 1979-2014 from the simulation set that represents 1850-2014 in which the models were provided with 'historical' forcings. These time-varying forcings are estimates of the amount of energy deviations that occurred in the real world and are applied to the models through time. These include variations in factors such as volcanic aerosols, solar input, dust and other aerosols, important gases like carbon dioxide, ozone and methane, land-surface brightness and so on. With all models applying the same forcing as believed to have occurred for the actual Earth, the direct comparison between models and observations is appropriate. The models and runs are identified in Table 2 [not presented here]. *We also list the estimated Equilibrium Climate Sensitivity (ECS) values for the 31 models for which we were able to find values, usually through unpublished online documentation (sources available on request."*

As stated above, the climate is never in equilibrium, so the Equilibrium Climate Sensitivity is an idealized concept of how much the global average temperature of the earth will increase if carbon dioxide is doubled. As stated by Lindzen, above, global average temperature is an idealized concept that is not particularly important.

Global climate models are notorious for producing significantly different results for different runs of the model. This is what produces the spaghetti-like mess when the model results are displayed in a graph. So, McKitrick and Christy developed 95% confidence intervals for all the model runs and average observations from the observing systems for the lower troposphere (surface to about 9 km (30,000 feet)) and the middle troposphere (surface to about 15 km (49,000 feet))

The authors conclude:

"The literature drawing attention to an upward bias in climate model warming responses in the tropical troposphere extends back at least 15 years now (Karl et al. 2006). Rather than being resolved the problem has become worse, since now every member of the CMIP6 generation of climate models exhibits an upward bias in the entire global troposphere as well as in the tropics. The models with lower ECS values have warming rates somewhat closer to observed but are still significantly biased upwards and do not overlap observations. Models with higher ECS values also have higher tropospheric warming rates and applying the emergent constraint concept implies that an ensemble of models with warming rates consistent with observations would likely have to have ECS values at or below the bottom of the CMIP6 range. Our findings mirror recent evidence from inspection of CMIP6 Equilibrium Climate Sensitivities (Vosen 2019) and paleoclimate simulations (Zhu et al. 2020) which also reveal a systematic warm bias in the latest generation of climate models."

TWTW observes that three different types of datasets from observations are grouped tightly both for global and the tropics. For most of the models, the mean for satellite observations are below the lower confidence interval, for that model. The more money that has been spent on climate science, the worse the models have become when compared with observations. The US models are among the worst, to be discussed in a later TWTW. As Nakamura has written, they have no

predictive value. The UN IPCC and its followers have clearly departed from the scientific method into the world of wild speculation. See links under Challenging the Orthodoxy and Defending the Orthodoxy.
****
New Guy in Town: A new paper claimed that the broadly accepted range of values given in the 1979 Charney Report for a doubling of CO2 of 3 ºC plus or minus 1.5 ºC (or 1.5 ºC to 4.5 ºC) was too low and using questionable statistics asserted that the 5 to 95% confidence interval for a doubling of CO2 should be 2 to 5.7 K (ºC). TWTW agrees that the values in the Charney Report need to be changed. Based on observations of the atmosphere they should be lowered not raised. The paper by McKitrick and Christy indicate the need for a lowering, with the datasets ending in 2014. Thus, it is obvious that the authors of the new paper ignored the physical data from the atmosphere.

The lead author of the new paper is from Climate Change Research Centre at the University of New South Wales (UNSW) and ARC Centre of Excellence for Climate Extremes, a consortium of five Australian universities and others. It is supported by the Australian Research Council. Apparently physical data is not important for conducting science in Australia.

Tracing articles advocating the increasing of Equilibrium Climate Sensitivity (ECS), leads to the World Climate Research Programme (WCRP) whose web site reads:

The World Climate Research Programme (WCRP) leads the way in addressing frontier scientific questions related to the coupled climate system — questions that are too large and too complex to be tackled by a single nation, agency, or scientific discipline. Through international science coordination and partnerships, ***WCRP contributes to advancing our understanding of the multi-scale dynamic interactions between natural and social systems that affect climate.*** *WCRP engages productively through these partnerships to inform the development of policies and services and to promote science education. Most critically, WCRP-supported research provides the climate science that underpins the* ***United Nations Framework Convention on Climate Change, including national commitments under the Paris Agreement of 2015****, and contributes to the knowledge that supports the 2030 Agenda for Sustainable Development, the Sendai Framework for Disaster Risk Reduction, and multilateral environmental conventions.* [Boldface added]

The three co-sponsors are: The World Meteorological Organization (WMO), Intergovernmental Oceanographic Commissions of UNESCO, The International Science Council, which was "*created in 2018 as the result of a merger between the International Council for Science (ICSU) (previously a sponsor of WCRP) and the International Social Science Council (ISSC).*"

The WCRP appears to be another UN effort to expand influence by using fear in the name of science. See links under Defending the Orthodoxy and https://www.wcrp-climate.org/about-wcrp/wcrp-overview
****
Vote for Aprils Fools Award: The voting for the SEPP's April Fools Award will be continued until July 31. Due to changes in schedules, there are no conferences held before then to announce the results. So, get your votes in now.
****

Number of the Week: 12 datasets of evidence. The McKitrick and Christy paper used 12 different datasets of evidence to establish that the new IPCC models, CMIP6, are exaggerating the warming of the atmosphere even more than the previous models, CMIP5, did.

By contrast, the new papers insisting that the influence of CO2 is greater than previously estimated use the concept of lines of evidence instead of current data. Lines of evidence are concepts developed by those trying to reconstruct past conditions or justify concepts that develop slowly. For example, the science of evolution uses several lines of evidence such as fossil evidence, homologies (common ancestors), and distribution in time and space (as the earth changed). Time can become a major problem in the imperfect record of the earth changing.

Mr. Gore demonstrated a major problem with time in his famous film in which he had time backwards. He showed CO2 increasing before Antarctic ice cores showed a warming. Actually, the ice cores showed warming before CO2 increasing. Mr. Gore was wrong. See links under Defending the Orthodoxy.

NEWS YOU CAN USE:

Suppressing Scientific Inquiry

Peter Ridd loses, we all lose
By Jennifer Marohasy, Spectator, Australia, July 23, 2020
https://www.spectator.com.au/2020/07/peter-ridd-loses-we-all-lose/

James Cook University wins appeal in Peter Ridd unfair dismissal case
Federal court decision overturns earlier finding that the university contravened the Fair Work Act when it dismissed academic
By Ben Smee, The Guardian, July 22, 2020 [H/t Bernie Kepshire]
https://www.theguardian.com/australia-news/2020/jul/22/james-cook-university-wins-appeal-in-peter-ridd-unfair-dismissal-case

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/SeaLevelRiseCCRII.pdf

Challenging the Orthodoxy
Confessions of a climate scientist: The global warming hypothesis is an unproven hypothesis
By Mototaka Nakamura, Kindle Edition, October 2019
https://www.amazon.com/s?k=confessions+of+a+climate+scientist&i=stripbooks&ref=nb_sb_noss_1

Methane and Climate
By W. A. van Wijngaarden and W. Happer, CO2 Coalition, 2020
http://co2coalition.org/wp-content/uploads/2019/11/MethaneClimate_WijnGaardenHapper.pdf

Pervasive Warming Bias in CMIP6 Tropospheric Layers
By R. McKitrick and J. Christy, Earth and Space Science, Forthcoming
https://www.rossmckitrick.com/uploads/4/8/0/8/4808045/cmip6-ess-acceptedversion.pdf

Climate-change hysteria costs lives — but activists want to keep panic alive
By Michael Shellenberger, New York Post, July 21, 2020
https://nypost.com/2020/07/21/climate-change-hysteria-costs-lives-but-activists-want-to-keep-panic-alive/

Michael Schellenberger In The Mail
By Paul Homewood, Not a Lot of People Know That, July 23, 2020
https://notalotofpeopleknowthat.wordpress.com/2020/07/23/michael-schellenberger-in-the-mail/

Michael Schellenberger: "Apocalypse Never" Slide Deck
By David Middleton, WUWT, July 24, 2020
https://wattsupwiththat.com/2020/07/24/michael-schellenberger-apocalypse-never-slide-deck/

False Alarm Book Forum featuring Bjorn Lomborg
Video by CEI, July 23, 2020

https://www.youtube.com/watch?v=Rtrv7nHeyc0

The Right Climate Stuff
New Web Site by Jim Peacock, July 21, 2020
https://www.therightclimatestuff.com/

Is Global Warming Harming Great Lakes and Minnesota?
By Roy Spencer, Cornwall Alliance, July 20, 2020
https://cornwallalliance.org/2020/07/is-global-warming-harming-great-lakes-and-minnesota/?eType=EmailBlastContent&eId=bb41178e-f64e-4c34-97da-99fe05851c37

The Power Hungry Podcast
Robert Bryce interviews Roger Pielke, Jr. July 20, 2020
The Rightful Place of Science: Disasters and Climate Change
https://www.buzzsprout.com/1157633/4640732-roger-pielke-jr-the-rightful-place-of-science

Defending the Orthodoxy
How Much Will the Planet Warm if Carbon Dioxide Levels Double?
By John Schwartz, NYT, July 22, 2020
https://www.nytimes.com/2020/07/22/climate/global-warming-temperature-range.html?campaign_id=54&emc=edit_clim_20200722&instance_id=20534&nl=climate-fwd%3A&regi_id=36799386&segment_id=34078&te=1&user_id=ea12ee7b596064ea7e574cd147792d6c
Link to report: International analysis narrows range of climate's sensitivity to CO2
By Staff, World Climate Research Programme, July 22, 2020
https://www.wcrp-climate.org/news/science-highlights/1604-climate-sensitivity-2020
Link to paper: An assessment of Earth's climate sensitivity using multiple lines of evidence
By S. Sherwood, et al. Reviews of Geophysics, July 22, 2020
https://agupubs.onlinelibrary.wiley.com/doi/abs/10.1029/2019RG000678
From the plain language summary of the paper: "In this report we thoroughly assess **all lines of evidence** including some new developments."

Guest post: Why low-end 'climate sensitivity' can now be ruled out
By Forster, Hausfather, Hegerl, Sherwood & Armour, Carbon Brief, July 22, 2020
https://www.carbonbrief.org/guest-post-why-low-end-climate-sensitivity-can-now-be-ruled-out?utm_campaign=RevueCBWeeklyBriefing&utm_medium=email&utm_source=Revue%20newsletter
[SEPP Comment: The search of the historic record for Climate Equilibrium Sensitivity (ECS) which never existed.]

Just how sensitive is the climate to increased carbon dioxide? Scientists are narrowing in on the answer
By Richard Betts, Jason Lowe and Timothy Andrews, The Conversation, July 23, 2020
https://phys.org/news/2020-07-sensitive-climate-carbon-dioxide-scientists.html

NYT Slams Bjørn Lomborg's New Climate Economics Book
By Eric Worrall, WUWT, July 23, 2020
https://wattsupwiththat.com/2020/07/23/nyt-slams-bjorn-lomborgs-new-climate-economics-book/
Link to: Report of the High-Level Commission on Carbon Prices

Joseph Stiglitz and Lord Nicholas Stern Co-Chairs, The Carbon Pricing Leadership Coalition, No Date
https://www.carbonpricingleadership.org/report-of-the-highlevel-commission-on-carbon-prices

Explainer: How climate change is affecting wildfires around the world
By Daisy Dunne, Carbon Brief, July 14, 2020
https://www.carbonbrief.org/explainer-how-climate-change-is-affecting-wildfires-around-the-world?utm_campaign=RevueCBWeeklyBriefing&utm_medium=email&utm_source=Revue%20newsletter
Link to "landmark special report": Global Warming of 1.5 ºC
By Staff, IPCC, 2018
https://www.ipcc.ch/sr15/

Questioning the Orthodoxy
Politics Has Hurt Science, COVID-19 May Have Killed It
By Adam, Inside Scoop Politics, July 22, 2020
https://insidescooppolitics.com/archives/2154
"Science has become a way to push political agendas while shutting down any opposition to the narrative. If you attempt to question or disagree with the mainstream narrative being pushed, you're clearly anti-science."

How Much Will the Planet Warm If Atmospheric Carbon Dioxide Doubles?
A doubling of carbon dioxide all but guarantees warming of more than 2 degrees Celsius, says a new study.
By Ronald Bailey, Reason, July 23, 2020
https://reason.com/2020/07/23/how-much-will-the-planet-warm-if-atmospheric-carbon-dioxide-doubles/

German Climate Realist Scientists Launching Climate Science Videos To Disalarm The Public
By Kalte Sonne, (German text translated/edited by P. Gosselin), No Tricks Zone, July 22, 2020
https://notrickszone.com/2020/07/22/german-climate-realist-scientists-launching-climate-science-videos-to-disalarm-the-public/

Change in US Administrations
AEA Applauds NEPA Modernization Announcement
Long overdue overhaul will get American infrastructure projects out of the courtroom and onto the construction site
Editorial, American Energy Alliance, July 15, 2020
https://www.poweronline.com/doc/aea-applauds-nepa-modernization-announcement-0001

Environmental Protection Agency Finalizes Reforms to Its Environmental Appeals Board
By Ben Lieberman, CEI, July 23, 2020
https://cei.org/blog/environmental-protection-agency-finalizes-reforms-its-environmental-appeals-board

Problems in the Orthodoxy
China's coronavirus recovery drives boom in coal plants, casting doubt over commitments to cut fossil fuels

Environmentalists say China is in the midst of a new coal boom, as approvals for coal energy projects have accelerated this year in response to the coronavirus outbreak
New coal-fired power projects are being driven largely by local government stimulus spending, which is falling back on old playbook of debt-heavy construction
By Harry Pearl, South China Morning Post, July 21, 2020 [H/t GWPF]
https://www.scmp.com/economy/china-economy/article/3094098/chinas-coronavirus-recovery-drives-boom-coal-plants-casting

Europe's 'Green Recovery' In Disarray
By Staff, The Times, Via GWPF, July 20, 2020
https://www.thegwpf.com/europes-green-recovery-in-disarray/

EU eyes cuts to green transition fund in late bid to strike recovery deal
By Kate Abnett, Reuters, July 20, 2020
https://uk.reuters.com/article/uk-eu-summit-climate-change/eu-eyes-cuts-to-green-transition-fund-in-late-bid-to-strike-recovery-deal-idUKKCN24L2IN

The VERY non-PC royal: Princess Anne blasts Prince Charles's views on climate change and veganism... and insists GM food is great too
The Queen's daughter gave an interview to mark her 70th birthday next month
Conversations with Prince Charles are 'short' due to wildly differing opinions
Princess Anne also revealed that she wouldn't live anywhere but in the country
By Rebecca English, Daily Mail, July 17, 2020
https://www.dailymail.co.uk/femail/article-8531623/Princess-Anne-blasts-brother-Prince-Charles-views-climate-change-veganism.html

Seeking a Common Ground

Apocalypse Never and False Alarm
By Judith Curry, Climate Etc. July 24, 2020
https://judithcurry.com/2020/07/24/apocalypse-never-and-false-alarm/#more-26438
[SEPP Comment: Curry lists links discussing the above books. The New York Times thinks False Alarm is a dangerous book! It may get people to think rather than accept what the old gray lady prattles?]

Alternatives to Climate Alarmism
By Alex Trembath, National Review, July 23, 2020
https://www.nationalreview.com/magazine/2020/08/10/alternatives-to-climate-alarmism/

Review of Recent Scientific Articles by CO2 Science

A Five-decade Analysis of Tropical Cyclone Trends in the South China Sea
Bo, X., Xinning, D and Yonghua, L. 2020. Climate change trend and causes of tropical cyclones affecting the South China Sea during the past 50 years. *Atmospheric and Oceanic Science Letters* doi.org/10.1080/16742834.2020.1752110. July 24, 2020
http://www.co2science.org/articles/V23/jul/a11.php

The Reproductive Response of a Holm Oak Forest to Long-term Drought
Bogdziewicz, M., Fernández-Martínez, M., Espelta, J.M., Ogaya, R. and Penuelas, J. 2020. If forest fecundity resistant to drought? Results from an 18-yr rainfall-reduction experiment. *New Phytologist* doi: 10.111/nph.16597. July 22, 2020

http://www.co2science.org/articles/V23/jul/a10.php

Tolerance of a Key Arctic Krill Species to Ocean Acidification
Venello, T.A., Calosi, P., Turner, L.M. and Findlay, H.S. 2018. Overwintering individuals of the Arctic krill *Thysanoessa inermis* appear tolerant to short-term exposure to low pH conditions. *Polar Biology* 41: 341-352. July 20, 2020
http://www.co2science.org/articles/V23/jul/a9.php
"Once collected, the krill were transported to a laboratory where they were acclimated and then exposed to four seawater pH treatments for a period of seven days: ambient (pH 7.96) or reduced (pH of 7.70, 7.65 or 7.28)."
[SEPP Comment: CO2 Science is using the convention that lowering pH is acidification, though it is not.]

Model Issues

New model of predicted polar bear extinction is not scientifically plausible
By Susan Crockford, Polar Bear Science, July 20, 2020
https://polarbearscience.com/2020/07/20/new-model-of-predicted-polar-bear-extinction-is-not-scientifically-plausible/
[SEPP Comment: Another example of prophets of catastrophe ignoring contradicting data.]

The Models Were Wildly Wrong about Reopening Too
By Phillip Magness, American Institute for Economic Research, July 23, 2020 [H/t Bernie Kepshire]
https://www.aier.org/article/the-models-were-wildly-wrong-about-reopening-too/

Measurement Issues -- Surface

Modern Ancient Temperatures
By Willis Eschenbach, WUWT, July 24, 2020
https://wattsupwiththat.com/2020/07/24/ancient-temperatures/

Measurement Issues -- Atmosphere

The Hidden Beauty of Atmospheric Water Vapor
By Cliff Mass Weather Blog, July 19, 2020
https://cliffmass.blogspot.com/2020/07/the-hidden-beauty-of-atmospheric-water.html

Changing Weather

Chaos and Weather
By Kip Hansen, WUWT, July 25, 2020
https://wattsupwiththat.com/2020/07/25/chaos-and-weather/

Changing Climate

Hottest summers in the last 2000 years were during Roman times
By Jo Nova, Her Blog, July 25, 2020
http://joannenova.com.au/2020/07/hottest-summers-in-the-last-2000-years-were-during-roman-times/
Link to one paper: Persistent warm Mediterranean surface waters during the Roman period
By G. Margaritelli, et al. Nature, Scientific Reports, June 26, 2020
https://www.nature.com/articles/s41598-020-67281-2#citeas

Link to second paper: Rare earth elements and Nd isotopes as tracers of modern ocean circulation in the central Mediterranean Sea
By Ester Garcia-Solson, et al. Progress in Oceanography, June 2020
https://www.sciencedirect.com/science/article/pii/S0079661120300793

Mediterranean Sea was 3.6°F hotter during the time of the Roman Empire - the warmest it has been for the past 2,000 years, study shows
By Jonathan Chadwick, Daily Mail, July 24, 2020
https://www.dailymail.co.uk/sciencetech/article-8555871/Mediterranean-Sea-3-6-F-hotter-Roman-Empire-study-claims.html

Changing Seas
Tsunami warning canceled for coastal Alaska after magnitude 7.8 earthquake
By Elizabeth Roman, et al, KTVA, July 22, 2020
https://www.ktva.com/story/42396640/tsunami-warning-for-coastal-alaska-after-magnitude-74-earthquake

Changing Earth
Citizen science at heart of new study showing COVID-19 seismic noise reduction
By Charles Rotter, WUWT, July 25, 2020
https://wattsupwiththat.com/2020/07/25/citizen-science-at-heart-of-new-study-showing-covid-19-seismic-noise-reduction/
Link to report: Global quieting of high-frequency seismic noise due to COVID-19 pandemic lockdown measures
By Thomas Lecocq, et al. Science, July 23, 2020
https://science.sciencemag.org/content/early/2020/07/22/science.abd2438

Communicating Better to the Public – Use Yellow (Green) Journalism?
New York to invest $750 million to expand electric-vehicle infrastructure
By Tina Bellon, Reuters, July 25, 2020
https://www.reuters.com/article/us-autos-electric-new-york/new-york-to-invest-750-million-to-expand-electric-vehicle-infrastructure-idUSKCN24H3DD
"The measure is set to create more than 50,000 charging stations and will largely be funded by the state's investor-owned utility companies, with the total budget capped at $701 million through 2025."
[SEPP Comment: What is the expecedt rate of return for this forced "investment"? Since regulated utilities earn a rate of return on approved investment, this may be another way for the politicians to skim the consumers – ratepayers, who will get nothing.]

Climate change: Siberian heatwave 'clear evidence' of warming-BBC
By Paul Homewood, Not a Lot of People Know That, July 17, 2020
https://notalotofpeopleknowthat.wordpress.com/2020/07/17/climate-change-siberian-heatwave-clear-evidence-of-warming-bbc/#more-45586

Global heating: best and worst case scenarios less likely than thought
Uncertainty over climate outcomes reduced but experts warn urgent reduction in CO2 levels is essential
By Jonathan Watts and Graham Readfearn, The Guardian, July 22, 2020 [H/t Bernie Kepshire]

https://www.theguardian.com/environment/2020/jul/22/global-heating-study-narrows-range-of-probable-temperature-rises

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

Methane is mysteriously leaking from the sea floor in Antarctica, edging global heating to a point of no return

By Sinéad Baker, Business Insider, July 22, 2020 [H/t Bernie Kepshire]
https://www.yahoo.com/news/methane-mysteriously-leaking-sea-floor-131737763.html

BBC To Combat Fake News!! Start With Harrabin [of BBC] Then!!

By Paul Homewood, Not a Lot of People Know That, July 23, 2020
https://notalotofpeopleknowthat.wordpress.com/2020/07/23/bbc-to-combat-fake-news-start-with-harrabin-then/

Communicating Better to the Public – Make things up.

Climate change on track to wipe out polar bears by 2100

By Marlowe Hood, Paris (AFP) July 20, 2020
https://www.spacedaily.com/reports/Climate_change_on_track_to_wipe_out_polar_bears_by_2100_999.html
"'The bears face an ever longer fasting period before the ice refreezes and they can head back out to feed,' Steven Amstrup, who conceived the study and is chief scientist of Polar Bears International, told AFP."

Most polar bears to disappear by 2100, study predicts

By Gloria Dickie, The Guardian, The age of extinction, July 20, 2020
https://www.theguardian.com/environment/2020/jul/20/most-polar-bears-to-disappear-by-2100-study-predicts-aoe
Link to paper: Fasting season length sets temporal limits for global polar bear persistence
By Péter K. Molnár, Nature Climate Change, July 20, 2002
https://www.nature.com/articles/s41558-020-0818-9
[SEPP Comment: Didn't polar bears go extinct 8,000 years ago when the world was warmer? See links under Model Issues]

Communicating Better to the Public – Go Personal.

'Everybody's entitled to their opinion - but not their own facts': The spread of climate denial on Facebook

'The arguments are that people can't trust scientists, models, climate data. It's all about building doubt and undermining public trust in climate science'
By Louise Boyle, The Independent, UK, July 23, 2020
https://www.independent.co.uk/environment/climate-crisis-denial-facebook-global-warming-denier-social-media-a9595546.html?utm_campaign=RevueCBWeeklyBriefing&utm_medium=email&utm_source=Revue%20newsletter
"Dr Michael Mann, a distinguished professor of atmospheric sciences at Penn State and National Academy of Sciences member, suggested that Mr Zuckerberg was using Facebook to 'exploit his platform for the spreading of disinformation, including climate change denial'."
[SEPP Comment: Hockey-stick anyone?]

Dutch Newspaper 'De Telegraaf' Accuses Scientists Of Being Corporate Publicists

By Staff, ACSH, July 20, 2020
https://www.acsh.org/news/2020/07/20/dutch-newspaper-de-telegraaf-accuses-scientists-being-corporate-publicists-14921

Communicating Better to the Public – Use Children for Propaganda

Greta Thunberg is the Winner of the First Gulbenkian Prize for Humanity
Editorial, MassisPost, July 20, 2020 [H/t Climate Depot]
https://massispost.com/2020/07/greta-thunberg-is-the-winner-of-the-first-gulbenkian-prize-for-humanity/

Greta Issues Latest Demands
By Paul Homewood, Not a Lot of People Know That, July 24, 2020
https://notalotofpeopleknowthat.wordpress.com/2020/07/24/greta-issues-latest-demands/
"But perhaps what is most is most significant is that it is only addressed to EU leaders, and no other countries. The EU accounts for less than a fifth of worldwide emissions, so even eliminating emissions completely would only have a negligible effect."

Questioning European Green

BEIS Committee's Fake "Proposals From The Public"
By Paul Homewood, Not a Lot of People Know That, July 18, 2020
https://notalotofpeopleknowthat.wordpress.com/2020/07/18/beis-committees-fake-proposals-from-the-public/
[House of Commons: Business, Energy and Industrial Strategy Committee]
"This whole exercise is far from the democratic consultative exercise it is made out to be. Clearly the Select Committee are determined not to allow contributions from anybody opposed to the government's agenda.
"And in the end, no doubt, the 'consultation' will be presented as a justification for current policies.
"Rather like the Soviets used to do in fact!"

Questioning Green Elsewhere

W. S. Jevons on Energy Efficiency (Memo to Biden, Part IV)
By Robert Bradley Jr., Master Resource, July 23, 2020
https://www.masterresource.org/jevons-w-s/jevons-efficiency-biden-iv/
"This concludes our four-part series bringing the 'wisdom of the ages' to the contemporary energy debate. Carbon-based energies are unique in their density and reliability and affordability and portability compared to the energies of old (wind, water, plants, trees, earthen heat)."

Democrats' Green New Deal would make US reliance on China much worse
By Paul Driessen and Ned Mamula, WUWT, July 24, 2020
https://wattsupwiththat.com/2020/07/24/democrats-green-new-deal-would-make-us-reliance-on-china-much-worse/

Funding Issues

MEPs warn of insufficient control over EU climate spending
By Florence Schulz, EURACTIV, July 24, 2020
https://www.euractiv.com/section/energy-environment/news/meps-warn-of-insufficient-control-over-eu-climate-spending/

The Political Games Continue

DNC climate platform draft calls for net-zero emissions by 2050
By Rachel Frazin, The Hill, July 23, 2020
https://thehill.com/policy/energy-environment/508733-dnc-climate-platform-calls-for-net-zero-emissions-by-2050-carbon

Joe Biden has endorsed the Green New Deal in all but name
Biden rode a wave of establishment endorsements to the nomination this spring. But it's progressive ideas that might carry him to the presidency
By Julian Brave NoiseCat, The Guardian, July 20, 2020
https://www.theguardian.com/commentisfree/2020/jul/20/joe-biden-has-endorsed-the-green-new-deal-in-all-but-name

Litigation Issues

Judge rejects Trump administration challenge to California cap-and-trade program
By Rachel Frazin, The Hill, July 17, 2020
https://thehill.com/policy/energy-environment/507887-judge-rejects-trump-administration-challenge-to-california-cap-and

Cap-and-Trade and Carbon Taxes

Time For A UK Carbon Tax?
By Paul Homewood, Not a Lot of People Know That, July 19, 2020
https://notalotofpeopleknowthat.wordpress.com/2020/07/19/time-for-a-uk-carbon-tax/
"She [Rachel Wolf who acts as the secretariat for the Zero Carbon Commission] finishes by referring to COP26. Whether Britain emasculates itself with a carbon tax or not, China, India and indeed most of the world outside of Europe will carry on with business as usual.
"Surely we have learnt this lesson by now? One of the main planks of the UK Climate Change Act was that it would encourage other countries to follow suit. We have found out to our cost since that this was mere wishful thinking."

EPA and other Regulators on the March

EPA Proposes First Ever CO2 Standards for Commercial Aircraft
By Marlo Lewis, Jr., CEI, July 22, 2020
https://cei.org/blog/epa-proposes-first-ever-co2-standards-commercial-aircraft

Energy Issues – Non-US

New US sanctions block Putin's pipeline despite Danish breakthrough
By Diane Francis, Atlantic Council, July 15, 2020
https://www.atlanticcouncil.org/blogs/ukrainealert/new-us-sanctions-block-putins-pipeline-despite-danish-breakthrough/

Energy Issues – Australia

Australia Considers a New Household Solar Energy "Export" Tax
By Eric Worrall, WUWT, July 23, 2020
https://wattsupwiththat.com/2020/07/23/south-australia-considers-a-new-household-solar-energy-export-tax/
"Rooftop solar panel owners could be getting charged fees to sell energy back to the grid"
"They argue that under the current system, households without solar could be unfairly burdened with the cost of augmenting power networks to cope with the increase of new panels, which is

already placing a strain on the network in states with heavy solar penetration like South Australia."

Energy Issues -- US

Canceled: America's energy dominance
By Steve Milloy, Washington Examiner, July 17, 2020
https://www.washingtonexaminer.com/opinion/op-eds/canceled-americas-energy-dominance

Alternative, Green ("Clean") Solar and Wind

It's Time to Abandon Wind Power
By Donn Dears, Power For USA, July 21, 2020
https://ddears.com/2020/07/21/its-time-to-abandon-wind-power/
"Actually the growth rate for electricity consumption for the past ten years has been nearly zero, and this means that virtually every new wind turbine added to the grid since 2010 has been a waste of money.
"But it's worse than that. Every new wind turbine added to the grid has resulted in higher costs for the consumer, because the coal-fired and nuclear power plants displaced by wind turbines produced electricity at a lower cost."
[SEPP Comment: Unfortunately, too many "experts" make the wrong comparison – new-to-new rather than new-to-existing. Why replace existing?]

Will Solar Be the Most Dominant Form of Renewable Energy by 2023?
By Emily Folk, Real Clear Energy, July 17, 2020
https://www.realclearenergy.org/articles/2020/07/17/will_solar_be_the_most_dominant_form_of_renewable_energy_by_2023_499349.html
[SEPP Comment: What is renewable about electricity generation that does not work at night? Ignores problems discussed in link immediately above.]

Alternative, Green ("Clean") Energy -- Other

Ethiopia says first year of Nile mega-dam filling 'achieved'
By Robbie Corey-Boulet, Addis Ababa (AFP) July 21, 2020
https://www.terradaily.com/reports/Ethiopia_says_first_year_of_Nile_mega-dam_filling_achieved_999.html

Alternative, Green ("Clean") Vehicles

Hannan Falls For The Hydrogen Scam
By Paul Homewood, Not a Lot of People Know That, July 19, 2020
https://notalotofpeopleknowthat.wordpress.com/2020/07/19/hannan-falls-for-the-hydrogen-scam/
"Nowhere is there any recognition by Hannan [a reporter for The Telegraph] of the high cost of producing hydrogen, or the cost and difficulties involved in creating a distribution and storage network and adapting household appliances.
"These apparently are just minor issues that must not stand in the way of the Great Green Revolution."

California Dreaming

You see the warnings everywhere. But does Prop. 65 really protect you?
By Geoffrey Mohan, Los Angeles Times, July 23, 2020
https://www.latimes.com/business/story/2020-07-23/prop-65-product-warnings?utm_source=sfmc_100035609&utm_medium=email&utm_campaign=28224+Today%2

7s+Headlines+7%2f24%2f2020&utm_term=https%3a%2f%2fwww.latimes.com%2fbusiness%2fstory%2f2020-07-23%2fprop-65-product-warnings&utm_id=10660&sfmc_id=499879
"chemical known to the state of California to cause cancer, birth defects or reproductive harm."

Other News that May Be of Interest

75 years on the endless frontier: a vision for the future rooted in the past
75 years ago, the White House made public Vannevar Bush's vision for American prosperity that was based in government support for fundamental research. Today our director, Sethuraman Panchanathan, shares his vision for keeping Bush's legacy alive at NSF.
News Release, NSF, July 17, 2020
https://beta.nsf.gov/science-matters/75-years-endless-frontier-vision-future-rooted-past

Why We Can't Trust Anything 'The Science' Says Any More
These scientists are attempting to hide information that doesn't conform to what roving violent mobs are attempting to impose at the blunt ends of bricks, sticks, and guns.
By Joy Pullmann, The Federalist, July 10, 2020 [H/t Bernie Kepshire]
https://thefederalist.com/2020/07/10/why-we-cant-trust-anything-the-science-says-any-more/

The 'Sneaking Regarders' and Their Boundless Hypocrisy
By Declan Mansfield, Quadrant, July 24, 2020
https://quadrant.org.au/opinion/qed/2020/07/the-sneaking-regarders-and-their-boundless-hypocrisy/

BELOW THE BOTTOM LINE:

Climate change: Summers could become 'too hot for humans'-BBC
By Paul Homewood, Not a Lot of People Know That, July 18, 2020
https://notalotofpeopleknowthat.wordpress.com/2020/07/18/climate-change-summers-could-become-too-hot-for-humans-bbc/
"An utterly ridiculous article, even by BBC standards!"

New Video: Green Lives Matter
By Tony Heller, Real Climate Science, July 24, 2020
https://realclimatescience.com/2020/07/new-video-green-lives-matter/
Review of life on Mars

New Video: UN Depopulation Agenda
By Tony Heller, His Blog, July 22, 2020
https://realclimatescience.com/2020/07/new-video-un-depopulation-agenda/
Forced sterilization needed.

ARTICLES

Corporations Seek Tax-Credit Cash-Out in Next Coronavirus Relief Plan
Duke Energy, Ford poised to benefit if Congress lets firms accelerate accumulated tax breaks
By Richard Rubin, WSJ, July 20, 2020

https://www.wsj.com/articles/corporations-seek-tax-credit-cash-out-in-next-coronavirus-relief-plan-11595237402

TWTW Summary: The article is summarized in its beginning:

"Many large U.S. corporations are sitting on piles of tax credits they may not be able to use for years. They want Congress to let them have the money now.

"Duke Energy Corp., Ford Motor Co., Occidental Petroleum Corp. and others could benefit if Congress includes a tax credit cash-out proposal in its next economic-relief legislation. Such a move, which is among ideas being considered by lawmakers and the Trump administration, could improve corporate cash flow by tens of billions of dollars.

"Duke has been unable to use all the corporate-research and renewable-energy credits it accumulated because it has been using accelerated tax deductions for capital investments to lower its taxable income, said Dwight Jacobs, the company's chief accounting officer. That bumped it up against tax-code rules that limit tax credits, leaving $1.8 billion in unused credits on Duke's books. Under the proposal, the company could get that within months instead of years."

TWTW Comment: Of course, those selling tax credits for wind and solar will embrace the idea of getting cash flow without producing anything.