

The Week That Was: 2018-09-22 (September 22, 2018)

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The Science and Environmental Policy Project

Quote of the Week: *“In a similar way, I calculate that a reduction in the amount of CO₂ by half, or a gain to twice the amount, would cause a temperature change of – 1.5 degrees C, or + 1.6 degrees C, respectively.”* — Svante Arrhenius (1906)

Number of the Week: 94

THIS WEEK:

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

McKittrick-Christy Hypothesis Test: Last week’s TWTW discussed a test on the ability of climate models (a mean of the models used) to describe a 60 year-warming of slivers a layer of the atmosphere as measured by instruments in weather balloons. The area of the atmosphere of interest is the tropical troposphere at 200 to 300 millibar, about 30,000 to 40,000 feet (9100 to 12200m). Three different radiosonde data sets are used. For the averages from the models they use all 102 model runs in the CMIP5 archive.

The Coupled Model Intercomparison Project Phase 5 (CMIP5) consisting of 20 climate modeling groups, world-wide was convened in 2008 to prepare for the Fifth Assessment Report (AR5) of the UN Intergovernmental Panel on Climate Change (IPCC)

“CMIP5 will notably provide a multi-model context for 1) assessing the mechanisms responsible for model differences in poorly understood feedbacks associated with the carbon cycle and with clouds, 2) examining climate predictability and exploring the ability of models to predict climate on decadal time scales, and, more generally, 3) determining why similarly forced models produce a range of responses.”

In a September 17 post on Judith Curry’s web site, Ross McKittrick summarized the McKittrick-Christy paper and their findings. For some reason the post omitted the actual values in discussing the discrepancy between observed and models. This was later corrected by McKittrick in the comments section. The trend numbers are:

“0.33 +/- 0.13 C/decade in the models and 0.17 +/- 0.06 C/decade in the observations. With a break term included they are, respectively, 0.39 +/- 0.17 C/decade (models) and 0.14 +/- 0.12 C/decade (observed).”

It is clear that the “improved” CMIP5 fail the hypothesis by significantly overestimating a warming trend in the atmosphere, over the tropics, where the modelers have insisted that the warming would be most pronounced. Further, the hypothesis test is backed up by similar findings for the entire bulk atmosphere above the tropics using 39 years of satellite observations of temperature trends. The IPCC and its followers have no basis for relying on CMIP5 models for their reports on the influence of greenhouse gases on temperatures and for making recommendations.

It is important to note that these trends are calculated by using regression analysis across the data, which produces a linear trend and may include factors other than greenhouse gases. Decades of experimentation across numerous laboratories showed the relationship between carbon dioxide (CO₂) and temperatures is logarithmic. If plotted on a graph with temperatures on the vertical axis and CO₂ concentration on the horizontal axis, at the current CO₂ concentrations, the curve would be approaching a horizontal line, where a significant change in CO₂ concentration is needed to produce a meaningful change in temperatures.

The 1979 Charney Report asserted that the CO₂-caused warming would be amplified by water vapor, while the 1979 Jason Report asserted amplified warming would come from enhanced absorption by weak CO₂ bands in the 8-12-micron region. Both reports were speculative, having no hard evidence. Over 39 years of satellite temperature trends do not indicate a water vapor amplification of CO₂-caused warming or an enhanced warming by weak CO₂ bands. The latter would only broaden absorption by CO₂ slightly, not amplify it.

SEPP continues to seek evidence consistent with atmospheric temperature trends that indicates a CO₂-caused warming will be amplified by another means. Of course, climate models that fail basic tests are not evidence. Interestingly, McKittrick begins his discussion on the Curry website discussing a recent book that attempts to resurrect the Santer “distinct human fingerprint.”

As discussed by historian Bernie Lewin, this “fingerprint” was “detected” by Santer in a conference in Madrid in November 1995 by the IPCC science working group. The “fingerprint” was to appear in a future work by Santer, breaking IPCC rules that a work must be published to be considered.

Further, McKittrick states, Santer truncated the data to fit his claim, rather than adjusting the claim to fit the data. A 2007 paper by David Douglass, John Christy, Benjamin Pearson and Fred Singer demonstrated the mismatch between models and observations in the tropical troposphere, which the new book attempts to refute.

It should be noted that McKittrick & Christy received no funding for their paper. See links under Challenging the Orthodoxy, <https://cmip.llnl.gov/cmip5/>, and <https://enthusiasmcepticismscience.wordpress.com/2015/11/21/remembering-madrid-95-a-meeting-that-changed-the-world-2/>

Founder of Climate Science? According to archived pages at NASA’s Earth Observatory, Chemist Svante Arrhenius was the first to investigate the effect that doubling atmospheric carbon dioxide would have on global climate. He did so in a paper presented in 1895 at the Stockholm Physical Society. He made extensive calculations on the temperature effects of increasing and decreasing carbon dioxide trying to explain ice ages. He claimed that:

“temperature of the Arctic regions would rise about 8 degrees or 9 degrees Celsius, if the carbonic acid [CO₂] increased 2.5 to 3 times its present value. In order to get the temperature of the ice age between the 40th and 50th parallels, the carbonic acid in the air should sink to 0.62 to 0.55 of present value (lowering the temperature 4 degrees to 5 degrees Celsius).”

The difficulty of explaining Ice Ages, particularly what triggers a melting in the Northern Hemisphere, is still with us and was discussed in last week’s TWTW. We still do not understand

the issue Arrhenius was addressing, but by laboratory experiments and observations better understand the influence of CO₂ on atmospheric temperatures.

Unfortunately, the 1895 of Arrhenius is commonly cited in claims by those who maintain that climate science is well understood, such as the EPA and the National Academy of Sciences. They reference the 1895 work, but do not reference the 1906 revision, which lowered the estimates by Arrhenius on the influence of CO₂ on temperatures. The 1906 work was published in German, and was translated in 2014 by Friends of Science, a non-profit based in Calgary, Alberta, Canada.

The 1906 work is quoted above. As a result, the much-quoted claim that Arrhenius said doubling CO₂ would cause a change of 5°C can be permanently set aside. The latter work of Arrhenius is at the low end of the range of possibilities the IPCC has been declaring for over 25 years. One can speculate whether the 1906 version had been understood, would the US have spent over \$40 billion on what government reports call “climate science.”

SEPP Chairman Tom Sheahan worked on experiments at the National Bureau of Standards (Now NIST) on the influences of atmospheric gases on radiant energy. On reviewing the 1906 work of Arrhenius, he stated that apparently Arrhenius didn't know that the CO₂ and the H₂O absorption bands overlap in the infrared region around 15 microns. Evidently, by the early 20th century, nobody had done a careful study of the infrared absorption by H₂O. Yet, a doubling of H₂O happens almost daily in many places. To us, the paper is only of historical interest. The field of infrared measurements has advanced a thousand-fold since Arrhenius' days.

It is saddening to realize that we are experiencing an extensive political movement, claiming to be scientific, demanding expensive policy changes, that is built on ignorance of pertinent scientific advances over the last 100 years. That is why the link to the Arrhenius paper is under Challenging the Orthodoxy, also see <https://www.friendsofscience.org/>

Another Point of View: The generally established center for measuring the atmospheric concentration of CO₂ is the Mauna Loa Observatory, Hawaii. Craig Idso of CO₂ Science reported a study on temperature change at Mauna Loa and five other isolated CO₂ observatories. Researchers Liu, X. and Chen, J reported there is no doubt that CO₂ has been increasing, but there appears to be no statistical relationship between CO₂ and temperatures at these isolated observatories. See links under Challenging the Orthodoxy.

Hard Science Needed? EPA Veteran Alan Carlin correctly notes that few commentators on either side of the issue on the influence of CO₂ on world temperatures insist on mathematically rigorous tests, such as those used in econometrics, of the major hypotheses that are involved.. Such rigorous testing must be done if one faces the task of litigating the EPA finding that Greenhouse Gases endanger human health and welfare, or any number of issues under the Clean Air Act.

Yet, those advocating the fear of carbon dioxide use econometric models, sometimes to a ridiculous degree, to claim harm from burning fossil fuels. Yet, their tests for CO₂-caused warming are extremely weak. One must note that once respectable scientific journals have become so politicized on the issue of CO₂-caused warming, that it is virtually impossible for skeptics of CO₂-caused warming to have their work published in major journals. But, now some avenues for publishing are opening.

For CO2-caused global warming skeptics who use these avenues, publications in less than premier journals do not aid advancement in academic settings or the ability to obtain research grants. That may be one reason skeptics tend to be older and even retired.

However, the papers by McKittrick and Christy and by Liu and Chen (cited above) use statistical methods to show the poor relationship between models and observations and between CO2 and temperatures at isolated observatories, respectively.

In the comments section of the post on Curry's website, McKittrick states that it is doubtful the IPCC will consider the McKittrick-Christy paper in the upcoming Assessment Report Six, it might be too late. However, a more interesting question is: Will the Department of Energy consider such papers and tests of hypotheses in preparing its new global climate model, E3SM? See links under Challenging the Orthodoxy and Defending the Orthodoxy.

Refrigerator in Your Pocket? Manhattan Institute Fellow Mark Mills is undertaking a new series on changing use of electricity, particularly the energy costs of processing and moving data. The infrastructure needed for data can be massive. Mills states: "*that the 10 biggest datacenters in the world have more square footage collectively than do the top 10 skyscrapers.*" Mills asserts that a single smartphone requires as much electricity to run as a refrigerator, when all the back-up is taken into consideration.

Greenpeace is involved in a publicity campaign attempting to "shame" data centers to subsidize wind and solar. This is not helpful to the public at all. One of the biggest costs of electricity to the grid is making it reliable, within tight tolerances. The costs are borne by the transmission companies and passed on to all customers.

The grid has been described by engineers to be a robust, well designed and reliable machine. The only thing reliable about wind and solar power are that they will fail. They are defective. Only a fool or zealot would put defective parts into a reliable machine. It will be interesting to read how Mills develops this series of essays. Also, it will be interesting to see how California develops its goal of going 100% renewable by 2045. See links under Questioning the Orthodoxy.

Number of the Week: 94. On Thursday, September 27, 2018, SEPP Chairman Emeritus S. Fred Singer will be celebrating his 94th birthday.

NEWS YOU CAN USE:

Climategate Continued

Climategate continues: Release of University of Arizona Climate Emails Imminent

Press Release, WUWT, Sep 19, 2018

<https://wattsupwiththat.com/2018/09/19/climategate-continues-release-of-university-of-arizona-climate-emails-imminent/>

Censorship

Destroying the careers of those who defy the climate diktat

By Gregory Fegel, WUWT, Sep 21, 2018

<https://wattsupwiththat.com/2018/09/21/destroying-the-careers-of-those-who-defy-the-climate-diktat/>

Challenging the Orthodoxy -- NIPCC

Climate Change Reconsidered II: Physical Science

Idso, Carter, and Singer, Lead Authors/Editors, 2013

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

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

Climate Change Reconsidered II: Biological Impacts

Idso, Idso, Carter, and Singer, Lead Authors/Editors, 2014

<http://www.nipccreport.org/reports/ccr2b/pdf/Full-Report.pdf>

Summary: <https://www.heartland.org/media-library/pdfs/CCR-IIb/Summary-for-Policymakers.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, NIPCC, Nov 23, 2015

<http://climatechangereconsidered.org/>

Download with no charge

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

Nature, Not Human Activity, Rules the Climate

S. Fred Singer, Editor, NIPCC, 2008

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

Challenging the Orthodoxy

A Test of the Tropical 200-300 mb Warming Rate in Climate Models

By Ross McKittrick, Climate Etc. Sep 17, 2018

<https://judithcurry.com/2018/09/17/a-test-of-the-tropical-200-300-mb-warming-rate-in-climate-models/>

A Test of the Tropical 200-300 hPa Warming Rate in Climate Models

By Ross McKittrick & John Christy, Earth and Space Science, Sep 21, 2018

<https://agupubs.onlinelibrary.wiley.com/doi/abs/10.1029/2018EA000401>

Computer Climate Simulations Just Crashed

By Andrew Montford, GWPF, Sep 18, 2018

<https://www.thegwpf.com/computer-simulations-just-crashed/>

The Probable Cause of Climate Fluctuations – Svante Arrhenius A Translation of his 1906 Amended View of Global Warming

Translated by Staff Writers, Friends of Science.org

<https://www.friendsofscience.org/assets/documents/Arrhenius%201906,%20final.pdf>

Link to NASA web site: Svante Arrhenius (1859-1927)

By Steve Graham, NASA, Earth Observatory, January 18, 2000

<https://earthobservatory.nasa.gov/Features/Arrhenius>

Testing Basic Assumptions of the CO₂-induced Global Warming Hypothesis

Liu, X. and Chen, J. 2017. CO₂ seasonal variation and global change: Test global warming from another point of view. *Sciences in Cold and Arid Regions* 9: 0046-0053, DOI:

103724/SP.J.1226.2017.00046. Sep 17, 2018 H/t Craig Idso]

<http://www.co2science.org/articles/V21/sep/a9.php>

Hurricane Florence: climate dynamics context

By Judith Curry, Climate Etc. Sep 18, 2018

<https://judithcurry.com/2018/09/18/hurricane-florence-climate-dynamics-context/>

Many Climate Scientists Have Unintentionally Aided and Abetted Climate Alarmists

By Alan Carlin, Carlin Economics and Science, Sep 21, 2018

<http://www.carlineconomics.com/archives/4589>

My Tucker Carlson Interview Last Night, and Calling Out Bill Nye & James Hansen

By Roy Spencer, His Blog, Sep 15, 2018

<http://www.drroyspencer.com/2018/09/my-tucker-carlson-interview-last-night-and-calling-out-bill-nye-james-hansen/>

Defending the Orthodoxy

The Energy Exascale Earth System Model (E3SM)

By Staff Writers, DOE, Accessed September 15, 2018

<https://e3sm.org/about/>

What Can Nuclear Technology Offer to Address Climate Change: Conclusions of the Scientific Forum

By Ismini Dimidis, IAEA Office of Public Information and Communication, IAEA, Sep 21, 2018

<https://www.iaea.org/newscenter/news/what-can-nuclear-technology-offer-to-address-climate-change-conclusions-of-the-scientific-forum>

The Masses Are Mobilizing for Climate Leadership

By Christiana Figueres & May Boeve, Project Syndicate, Sep 10, 2018 [H/t Dennis Ambler]

<https://www.project-syndicate.org/commentary/mobilizing-public-for-climate-leadership-by-christiana-figueres-and-may-boeve-2018-09>

“Christiana Figueres is the former Executive Secretary of the United Nations Framework Convention on Climate Change (UNFCCC) and convener of Mission 2020.

“May Boeve is Executive Director at 350.org.”

[SEPP Comment: Ms. Figueres stated about the UNFCCC Paris Accord: "This is the first time in the history of mankind that we are setting ourselves the task of intentionally, within a defined period of time, to change the economic development model that has been reigning for at least 150 years, since the Industrial Revolution."]

'It's hyped up': climate change skeptics in the path of Hurricane Florence

Scientists say global warming is behind severe storms but many who face them don't think humans are the problem

By Adam Gabbatt, Guardian, North Carolina, Sep 19, 2018

<https://www.theguardian.com/world/2018/sep/19/hurricane-florence-climate-change-deniers-north-carolina>

Questioning the Orthodoxy

Energy and the Information Infrastructure: Part 1 – Bitcoins & Behemoth Datacenters

By Mark Mills, Real Clear Energy, Sep 19, 2018

https://www.realclearenergy.org/articles/2018/09/19/energy_and_the_information_infrastructure_part_1_bitcoins_behemoth_datacenters_110339.html

“At the top of the respective food chains, we find that the 10 biggest datacenters in the world have more square footage collectively than do the top 10 skyscrapers.”

Hurricane Florence, Culmination of Exploitation of Natural Events by Government, Extremists, and Business

Guest opinion: Dr. Tim Ball, WUWT, Sep 16, 2018

<https://wattsupwiththat.com/2018/09/16/hurricane-florence-culmination-of-exploitation-of-natural-events-by-government-extremists-and-business/>

Statistical study of past temperature records suggests possible undetected natural climate forcing cycles

By Anthony Watts, From Godfrey Dack, WUWT, Sep 18, 2018

<https://wattsupwiththat.com/2018/09/18/statistical-study-of-past-temperature-records-suggest-possible-undetected-natural-climate-forcing-cycles/>

Link to paper: Intrinsic Pink-Noise Multidecadal Global Climate Dynamics Mode

By Woosok Moon, Sahil Agarwal, and J. S. Wettlaufer, Physical Review Letters, Sep 4, 2018

<https://journals.aps.org/prl/abstract/10.1103/PhysRevLett.121.108701>

Social Benefits of Carbon Dioxide

The most amazing greening on Earth

By Patrick J. Michaels, Climate Etc. Sep 19, 2018

<https://judithcurry.com/2018/09/19/the-most-amazing-greening-on-earth/>

Review of Recent Scientific Articles by CO2 Science

Evidence that Alpine Grasslands are Coping Well with Rising Temperatures

Huang, N., He, J.-S., Chen, L. and Wang, L. 2018. No upward shift of alpine grassland distribution on the Qinghai-Tibetan Plateau despite rapid climate warming from 2000 to 2014.

Science of the Total Environment 625: 1361-1368. Sep 21, 2018

<http://www.co2science.org/articles/V21/sep/a12.php>

The Interactive Effects of Elevated CO2 and Potassium on Wheat Growth and Yield

Asif, M., Tune, C.E. and Ozturk, L. 2018. Changes in yield attributes and K allocation in wheat as affected by K deficiency and elevated CO2. *Plant Soil* 426: 153-162. Sep 20, 2018

<http://www.co2science.org/articles/V21/sep/a11.php>

The Impacts of Elevated CO2 on the Productivity of Six Macroalgal Species

Hernández, C.A., Sangil, C., Fanai, A. and Hernández, J.C. 2018. Macroalgal response to a warmer ocean with higher CO2 concentration. *Marine Environmental Research* 136: 99-105. Sep 19, 2018

<http://www.co2science.org/articles/V21/sep/a10.php>

Measurement Issues -- Surface

Video: What's wrong with the surface temperature record?

By Anthony Watts, WUWT, Sep 21, 2018

<https://wattsupwiththat.com/2018/09/21/video-whats-wrong-the-the-surface-temperature-record/>

Time to Drop the Saffir-Simpson Hurricane Scale

By Cliff Mass, Weather and Climate Blog, Sep 19, 2018

<http://cliffmass.blogspot.com/2018/09/time-to-drop-saffir-simpson-hurricane.html>

Changing Weather

NOAA: “No Compelling Evidence” Behind Claims of More Hurricane Landfalls!

By P Gosselin, No Tricks Zone, Sep 21, 2018

<http://notrickszone.com/2018/09/21/noaa-no-compelling-evidence-behind-claims-of-more-hurricane-landfalls/>

[SEPP Comment: The NOAA web site has a graph titled: “Atlantic HURDAT Storms (Adjusted for Estimated Missing Storms) 1878-2006.”]

Tropical Cyclone Rainfall Records [US]

By Paul Homewood, Not a Lot of People Know That, Sep 21, 2018

<https://notalotofpeopleknowthat.wordpress.com/2018/09/21/tropical-cyclone-rainfall-records/>

Johnny One Note

By Donn Dears, Power For USA, Sep 21, 2018

<http://ddears.com/2018/09/21/johnny-one-note/>

Hurricanes Deadlier Due to Population Growth, Not Frequency

By Larry Bell, Newsmax, Sep 17, 2018

<https://www.newsmax.com/larrybell/landfall-storm-tropical/2018/09/17/id/882035/>

Hurricane Florence–The Myths and The Facts

By Paul Homewood, Not a Lot of People Know That, Sep 20, 2018

<https://notalotofpeopleknowthat.wordpress.com/2018/09/20/hurricane-florence-the-myths-and-the-facts/>

Scientists Throw Cold Water on Claims Linking Hurricane Florence to Global Warming

By Michael Bastasch, Daily Caller, Sep 19, 2018

<https://dailycaller.com/2018/09/19/scientists-global-warming-hurricane-florence/>

REX Will Dominate Northwest Weather This Week

By Cliff Mass, Weather and Climate Blog, Sep 22, 2018

<http://cliffmass.blogspot.com/2018/09/rex-will-dominate-northwest-weather.html>

Changing Climate – Cultures & Civilizations

Bang or whimper?

By Guy D. Middleton, Science, Sep 21, 2018

<http://science.sciencemag.org/content/361/6408/1204>

Geologists Are Feuding About the Collapse of Civilization

The year’s most acrimonious scientific fight is a mega-drama over a mega-drought.

By Robinson Meyer, The Atlantic, Sep 20, 2018 [H/t GWPF]

<https://www.theatlantic.com/science/archive/2018/09/the-geologist-mega-drama-about-an-ancient-mega-drought/570508/>

Changing Seas

Sea level rise doesn’t necessarily spell doom for coastal wetlands

Giving marshes room to expand inland can help preserve these crucial ecosystems

By Carolyn Gramling, Science News, Sep 12, 2018 [H/t GWPF]

<https://www.sciencenews.org/article/sea-level-rise-doesnt-necessarily-spell-doom-coastal-wetlands>

Link to paper: Future response of global coastal wetlands to sea-level rise

By Mark Schuerch, et al., Nature, Sep 13, 2018

https://www.nature.com/articles/s41586-018-0476-5.epdf?referrer_access_token=3Gug9NExpz_DG3WQ3Fd8TtRgN0jAjWel9jnR3ZoTv0NQkG_4gACly-NQBeQVvBk7wlqgpwMkgi18xIUmk04pYFCHn7aQEySftWUOVgXAYzkBoiBg6srTQJ3Iw0Wmob0-3JSfhs0Tx2x1cI84-FQHTOw3halatWcof7mEzTC0SKfMDTltShGWdhh6xUeoKltwfWrDxrDbaXqT6ovZ8M203RrjfdMWCLBp2laUCVo1PTiO6REruLNLleHYWK0WD6-A3ziug0HiyxA6IHE3kc2wutOSDoYWSnxNJ9FX1yiAMn8%3D&tracking_referrer=www.sciencenews.org

[5.epdf?referrer_access_token=3Gug9NExpz_DG3WQ3Fd8TtRgN0jAjWel9jnR3ZoTv0NQkG_4gACly-](https://www.nature.com/articles/s41586-018-0476-5.epdf?referrer_access_token=3Gug9NExpz_DG3WQ3Fd8TtRgN0jAjWel9jnR3ZoTv0NQkG_4gACly-NQBeQVvBk7wlqgpwMkgi18xIUmk04pYFCHn7aQEySftWUOVgXAYzkBoiBg6srTQJ3Iw0Wmob0-3JSfhs0Tx2x1cI84-FQHTOw3halatWcof7mEzTC0SKfMDTltShGWdhh6xUeoKltwfWrDxrDbaXqT6ovZ8M203RrjfdMWCLBp2laUCVo1PTiO6REruLNLleHYWK0WD6-A3ziug0HiyxA6IHE3kc2wutOSDoYWSnxNJ9FX1yiAMn8%3D&tracking_referrer=www.sciencenews.org)

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[A3ziug0HiyxA6IHE3kc2wutOSDoYWSnxNJ9FX1yiAMn8%3D&tracking_referrer=www.sciencenews.org](https://www.nature.com/articles/s41586-018-0476-5.epdf?referrer_access_token=3Gug9NExpz_DG3WQ3Fd8TtRgN0jAjWel9jnR3ZoTv0NQkG_4gACly-NQBeQVvBk7wlqgpwMkgi18xIUmk04pYFCHn7aQEySftWUOVgXAYzkBoiBg6srTQJ3Iw0Wmob0-3JSfhs0Tx2x1cI84-FQHTOw3halatWcof7mEzTC0SKfMDTltShGWdhh6xUeoKltwfWrDxrDbaXqT6ovZ8M203RrjfdMWCLBp2laUCVo1PTiO6REruLNLleHYWK0WD6-A3ziug0HiyxA6IHE3kc2wutOSDoYWSnxNJ9FX1yiAMn8%3D&tracking_referrer=www.sciencenews.org)

“In contrast to previous studies^{1–3}, we project that until 2100, the loss of global coastal wetland area will range between 0 and 30 per cent, assuming no further accommodation space in addition to current levels.”

[SEPP Comment: The study uses IPCC claims of future sea level rise, including exponential increase.]

Changing Cryosphere – Land / Sea Ice

Arctic Ice Recovery Update Sept. 17

By Ron Clutz, Science Matters, Sep 17, 2018 [H/t GWPF]

<https://rclutz.wordpress.com/2018/09/17/arctic-ice-recovery-update-sept-17/>

Arctic Sea Ice Extent Accelerating Since 2012 ...Ship of Fools II Abandons Publicity Expedition

By P Gosselin, No Tricks Zone, Sep 18, 2018

<http://notrickszone.com/2018/09/18/arctic-sea-ice-extent-accelerating-since-2012-ship-of-fools-ii-abandons-publicity-expedition/>

Un-Science or Non-Science?

Study shows we can save the Arctic with ship pollution?

By Jo Nova, Her Blog, Sep 20, 2018

<http://joannenova.com.au/2018/09/study-save-the-arctic-by-sending-more-ships-through-it/>

Link to paper: Climatic responses to future trans-Arctic shipping

By Scott Stephenson, et al., Geophysical Research Letters, Sep 12, 2018

<https://agupubs.onlinelibrary.wiley.com/doi/abs/10.1029/2018GL078969>

[SEPP Comment: But the UN is requiring cleaner burning fuels, is all lost?]

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

Remember When Climate Change Meant The End Of Coffee? Never Mind

By Alex Berezow, ACSH, September 17, 2018

<https://www.acsh.org/news/2018/09/17/remember-when-climate-change-meant-end-coffee-never-mind-13418>

Communicating Better to the Public – Make things up.

'Energy Independence' Hawks Caricature Trump Auto Rule

By Marlo Lewis, Jr., CEI, Sep 21, 2018

<https://cei.org/blog/energy-independence-hawks-caricature-trump-auto-rule>

Link to report: The Military Cost of Defending the Global Oil Supply
By Staff Writers, Securing America's Future Energy, 2018

<http://secureenergy.org/wp-content/uploads/2018/09/Military-Cost-of-Defending-the-Global-Oil-Supply.-Sep.-18.-2018.pdf>

[SEPP Comment: The report is obsolete. Except for the one in 2016, the seven studies relied upon are dated 2009 or earlier. The oil market has drastically changed. In case of war, America does not need to defend oil supplies from the Mid-East.]

“Ninety-seven percent of scientists agree: climate change is real, man-made and dangerous”... Survey Says: NOT!

Guest dredging up the past by David Middleton, WUWT, Sep 6, 2018

<https://wattsupwiththat.com/2018/09/06/ninety-seven-percent-of-scientists-agree-climate-change-is-real-man-made-and-dangerous-survey-says-not/>

Expanding the Orthodoxy

7 Attorney General Offices Are Running Private Investigations for A Billionaire

This is the second scheme we have found of donors and elected officials using nonprofits as ‘cutouts’ to provide staff, consultant, PR and legal support for climate-activist officeholders.

By Christopher Horner, The Federalist, Sep 13, 2018 [H/t Cooler Heads]

<https://thefederalist.com/2018/09/13/7-attorney-general-offices-running-private-investigations-billionaire/>

CEI Report Details Scheme Privately Funding Governors' Offices to Push Partisan Climate Change Agenda

Press Release, CIE, Sep 11, 2018

<https://cei.org/content/cei-report-details-scheme-privately-funding-governors-offices-push-partisan-climate-change>

‘Big Green, Inc.’: Inside the \$4 Billion Wealthy Liberal Foundations Handed to Environmentalists

By Michael Bastasch, Daily Caller, Sep 17, 2018

<https://dailycaller.com/2018/09/17/big-green-inc-environmentalists/>

How to Bypass Voters and Push a Climate Change Agenda in 5 Steps

By Richard Morrison, CEI, Sep 17, 2018 [H/t Cooler Heads]

<https://cei.org/blog/how-bypass-voters-and-push-climate-change-agenda-5-steps>

5 City Pension Systems Invest in Climate Change

By Bob Hennelly, The Chief Leader, Sep 17, 2018

http://thechiefleader.com/news/news_of_the_week/city-pension-systems-invest-in-climate-change/article_c0433536-b825-11e8-88d3-a37e7c1c47a8.html

Exxon Mobil, Chevron join climate initiative

By Timothy Cama, The Hill, Sep 20, 2018

<https://thehill.com/policy/energy-environment/407599-exxon-chevron-join-climate-initiative>

Questioning European Green

Germany is razing a 12,000-year-old forest to make way for a coal mine

By Jill Petzinger, Quartz, Sep 13, 2018 [H/t GWPF]

<https://qz.com/1389135/germany-is-razing-a-12000-year-old-forest-to-expand-a-coal-mine/>
[SEPP Comment: Claimed to be an “old growth forest.” The trees in photos indicate otherwise.]

‘Green’ home heating fuels causing ‘extreme levels of air pollution’

Scientists at NUI Galway say recurrence of smog likely in Ireland

By Bevin O’Sullivan, The Irish Times, Sep 14, 2018 [H/t GWPF]

<https://www.irishtimes.com/news/environment/green-home-heating-fuels-causing-extreme-levels-of-air-pollution-1.3629337>

The costs and fallibility of UK Weather Dependent Renewables 2017 – 2018

Guest essay by Ed Hoskins, WUWT, Sep 17, 2018

<https://wattsupwiththat.com/2018/09/17/the-costs-and-fallibility-of-uk-weather-dependent-renewables-2017-2018/>

Questioning Green Elsewhere

Ontario government moves to scrap Green Energy Act

By Paola Loriggio, The Globe and Mail, Toronto, Sep 20, 2018 [H/t Cooler Heads]

<https://www.theglobeandmail.com/canada/article-ontario-government-moves-to-scrap-green-energy-act-2/>

Funding Issues

Pace and Scale: Investor leadership at the Global Climate Action Summit and beyond

By Mindy Lubber, Forbes, Sep 12, 2018

<https://www.forbes.com/sites/mindylubber/2018/09/12/gcas/#49e835e9292a>

Cap-and-Trade and Carbon Taxes

Why Higher Pollution Costs Aren’t Denting Coal Demand in EU

By Mathew Carr, Jeremy Hodges, and Anna Shiryayevskaya, Bloomberg, Sep 19, 2018 [H/t GWPF]

<https://www.bloomberg.com/news/articles/2018-09-19/why-higher-pollution-costs-haven-t-dented-coal-demand-in-europe>

Subsidies and Mandates Forever

How Solar And Wind Mandates Tax The Poor And Middle Class

By Stephen Moore, IBD, Sep 18, 2018

<https://www.investors.com/politics/columnists/renewable-mandates-regressive-tax-stephen-moore/>

EPA and other Regulators on the March

EPA to abandon restrictions against chemical linked to climate change

By Miranda Green, The Hill, Sep 20, 2018

<https://thehill.com/policy/energy-environment/407614-epa-to-abandon-restrictions-against-climate-change-linked-chemical>

Industry wins big in methane rules rollback

By Timothy Cama, The Hill, Sep 20, 2018

<https://thehill.com/policy/energy-environment/407525-industry-wins-big-in-methane-rules-rollback>

Energy Issues – Non-US

TRILLIONS of pounds AT RISK as fossil fuels face peak demand in 2020s – report

DEMAND for fossil fuels will peak in the 2020s, with trillions of pounds at risk for investors who do not see the future changes coming, a report predicts.

By Staff Writers, Sunday Express, Sep 11, 2018

<https://www.express.co.uk/news/uk/1015574/trillions-pounds-risk-fossil-fuels-energy-peak-demand-2020>

Energy Issues -- US

The US Natural Gas Pipeline System Needs to Be Expanded and Upgraded

By Jude Clemente, Real Clear Energy, Sep 21, 2018

https://www.realclearenergy.org/articles/2018/09/21/the_us_natural_gas_pipeline_system_needs_expanded_and_upgraded_110342.html

Air conditioners save 20,000 lives in USA each year

By Jo Nova, Her Blog, Sep 21, 2018

<http://joannenova.com.au/2018/09/airconditioners-save-20000-lives-in-usa-each-year/>

Link to paper: Adapting to Climate Change: The Remarkable Decline in the US Temperature-Mortality Relationship over the Twentieth Century

By Alan Barreca, Journal of Political Economy, Feb 2016

<https://www.journals.uchicago.edu/doi/abs/10.1086/684582>

Study: Grid security needs to be a team sport

By Mark Rockwell, FCW, Sep 6, 2018

<https://fcw.com/articles/2018/09/06/grid-security-study-rockwell.aspx>

Link to report Resilience for Grid Security Emergencies

By Paul Stockton, Johns Hopkins Applied Physics Laboratory, 2018

<http://www.jhuapl.edu/Content/documents/ResilienceforGridSecurityEmergencies.pdf>

American Consumers Reap the Benefits of Energy Technology

By Matthew Kandrach, Real Clear Energy, Sep 19, 2018

https://www.realclearenergy.org/articles/2018/09/19/american_consumers_reap_the_benefits_of_energy_technology.html

New York clean energy ecosystem: Six statewide green projects pushing back against Trump

By Felix Todd, Compelo, Sep 13, 2018

<https://www.compelo.com/new-york-clean-energy/>

“Earlier this year, Governor Cuomo announced the single largest commitment to renewable energy by a state in US history with a \$1.4bn (£1.1bn) investment to fund 26 projects across New York.

“These include 22 utility-scale solar farms, three wind farms and one hydroelectric project that, when combined, have the potential to power more than 430,000 homes and create over 3,000 jobs.”

Washington’s Control of Energy

Federal Court Pulls Natural Gas Pipeline Permits

By Joe Barnett, Heartland, Sep 13, 2018

<https://www.heartland.org/news-opinion/news/federal-court-pulls-natural-gas-pipeline-permits>

[In response to a court decision] “The Federal Energy Regulatory Commission ordered a halt to construction on the 600-mile pipeline Atlantic Coast Pipeline designed to carry natural gas across West Virginia, Virginia, and North Carolina.”

Oil and Natural Gas – the Future or the Past?

An Objective Look at Deep Water Drilling

By Donn Dears, Energy For USA, Sep 18, 2018

<http://ddears.com/2018/09/18/an-objective-look-at-deep-water-drilling/>

‘Peak Oil’ is Now Demand, not Supply

By Michael Lynch, Master Resource, Sep 17, 2018

<https://www.masterresource.org/peak-demand/peak-oil-now-demand/>

Return of King Coal?

Navajo-owned coal plant to be shut down despite Interior push to keep open

By Miranda Green, The Hill, Sep 21, 2018

<https://thehill.com/policy/energy-environment/407780-navajo-owned-coal-plant-to-shutter-despite-interior-push-to-keep>

Oil Spills, Gas Leaks & Consequences

Deadly Dangers Lurk in Natural Gas Distribution Lines

By Robert Rapier, Forbes, Sep 17, 2018

<https://www.forbes.com/sites/rrapier/2018/09/17/deadly-dangers-lurk-in-natural-gas-distribution-lines/#646559aa4890>

Teen killed in natural gas explosions laid to rest

By Staff Writers, WCVB News, Boston, Sep 20, 2018

<https://www.wcvb.com/article/teen-killed-in-natural-gas-explosions-laid-to-rest/23329985>

Nuclear Energy and Fears

Who Killed the Small Modular Reactor Programme?

Guest post by Andy Dawson, Energy Matters, Sep 17, 2018

<http://euanmearns.com/who-killed-the-small-modular-reactor-programme/>

[SEPP Comment: An abridged version on the full report linked in last week’s TWTW.]

The bright light of nuclear fusion might burn away climate doomsters’ fears

By Larry Kummer. From the Fabius Maximus website, WUWT, Sep 17, 2018

<https://wattsupwiththat.com/2018/09/17/the-bright-light-of-fusion-might-burn-away-climate-doomsters-fears/>

Betting the House on Plant Vogtle

By Joseph Pokalsky, Master Resource, Sep 18, 2018

<https://www.masterresource.org/georgia-power-plant-vogtle/vogtle-more-problems/>

Had They Bet On Nuclear, Not Renewables, Germany & California Would Already Have 100% Clean Power

By Michael Shellenberger, Forbes, Sep 11, 2018

<https://www.forbes.com/sites/michaelshellenberger/2018/09/11/had-they-bet-on-nuclear-not-renewables-germany-california-would-already-have-100-clean-power/#534d24d6e0d4>

Time Magazine “Hero of the Environment

Help the public understand radiation, advises cancer expert

By Staff Writers, WNN, Sep 10, 2018 [H/t Toshio Fujita]

<http://www.world-nuclear-news.org/Articles/Help-the-public-understand-radiation,-advises-canc>

Alternative, Green (“Clean”) Solar and Wind

A Dismaying New Study Finds Bat Habitat Loss Extends ‘At Least 1000 Meters From A Wind Turbine’

By Kenneth Richard, No Tricks Zone, Sep 20, 2018

<http://notrickszone.com/2018/09/20/a-dismaying-new-study-finds-bat-habitat-loss-extends-at-least-1000-meters-from-a-wind-turbine/>

Boston University to buy wind power in South Dakota to offset emissions

By Staff Writers, KSFY TV, Boston, Sep 18, 2018

<https://www.ksfy.com/content/news/Boston-University-to-buy-wind-power-in-South-Dakota-to-offset-emissions-493628141.html>

[SEPP Comment: The article realizes that every electron generated in South Dakota will not make it to Boston but fails to mention that Boston U. is not paying for the cost of making the electricity stable.]

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

EPA publishes data on ethanol rule exemptions

By Timothy Cama, The Hill, Sep 20, 2018

<https://thehill.com/business-a-lobbying/407665-epa-publishes-more-ethanol-mandate-data>

Link to Website: Public Data for the Renewable Fuel Standard

By Staff Writers, 2018

<https://www.epa.gov/fuels-registration-reporting-and-compliance-help/public-data-renewable-fuel-standard>

Alternative, Green (“Clean”) Energy – Vehicles

Uh, oh. More car manufacturers caught cheating on emissions tests

By Anthony Watts, WUWT, Sep 21, 2018

<https://wattsupwiththat.com/2018/09/21/uh-oh-more-car-manufacturers-caught-cheating-on-emissions-tests/>

Link to paper: Country- and manufacturer-level attribution of air quality impacts due to excess NOx emissions from diesel passenger vehicles in Europe

By Guillaume P. Chossière, et al. Atmospheric Environment, Sep 2018

<https://www.sciencedirect.com/science/article/pii/S1352231018304382>

California Dreaming

Why running your washing machine in the evening could soon cost you more money

By Tony Bizziak, Sacramento Bee CA, Sep 18, 2018 [H/t Paul Homewood]

<https://www.sacbee.com/latest-news/article218553315.html>

[SEPP Comment: Or your air conditioner.]

A climate of poverty in California

By Susan Shelley, Orange County Register, Sep 15, 2018 [H/t Toshio Fujita]

<https://www.ocregister.com/2018/09/15/a-climate-of-poverty-in-california/>

Brown signs California law intended to curb plastic straws in restaurants

By Megan Keller, The Hill, Sep 20, 2018

<https://thehill.com/policy/energy-environment/407686-jerry-brown-signs-california-law-limiting-plastic-straws-in>

Berkeley city council passes resolution requiring vegan 'Green Mondays'

By Avery Anapol, The Hill, Sep 18, 2018

<https://thehill.com/policy/energy-environment/407324-berkeley-city-council-passes-resolution-requiring-vegan-food-at>

Environmental Industry

Greenpeace's "Making Oil History Tour"- Courtesy Of Diesel Engines

By Paul Homewood, Not a Lot of People Know That, Sep 16, 2018

<https://notalotofpeopleknowthat.wordpress.com/2018/09/16/greenpeaces-making-oil-history-tour-courtesy-of-diesel-engines/>

Pipeline Opposition Impedes Climate Change Mitigation

By Richard J. Pierce, Jr., The Regulatory Review, Sep 13, 2018

<https://www.theregview.org/2018/09/13/pipeline-opposition-impedes-climate-change-mitigation/>

Slew of environmental lawsuits aren't about climate change, they're about attacking energy companies

By Kevin Mooney, Washington Examiner, Sep 17, 2018

<https://www.washingtonexaminer.com/opinion/slew-of-environmental-lawsuits-arent-about-climate-change-theyre-about-attacking-energy-companies>

'Settled Science' On Obama School Lunch Program Turns Out To Be Junk — What's Next?

Editorial, IBD, Sep 21, 2018

<https://www.investors.com/politics/editorials/smarter-lunchroom-junk-science/>

Other Scientific News

Almost Earth-like, We're Certain

Guest Essay by Kip Hansen, WUWT, Sep 4, 2018

<https://wattsupwiththat.com/2018/09/04/almost-earth-like-were-certain/>

[SEPP Comment: Light reading in what is earth-like? Uses a table to show, but does not discuss, a problem with the false claim that Venus is an example of "run-away greenhouse effect." As the Soviets discovered in its planetary missions, Venus has an atmospheric pressure at the surface of about 93 earth's atmospheres, creating enormous heat and not exactly comfortable for any life forms with lungs.]

Other News that May Be of Interest

Worst Storm Ever: Over 8,000 people killed in UK in extreme storm that lasted nine days (in 1703)

By Jo Nova, Her Blog, Sep 20, 2018

<http://joannenova.com.au/2018/09/worst-storm-ever-over-8000-people-killed-in-uk-in-extreme-storm-that-last-ed-nine-days-in-1703/>

Hungry children wander among ruins, 30,000 people homeless in Florida after Cat 4 Hurricane (in 1926)

By Jo Nova, Her Blog, Sep 22, 2018

<http://joannenova.com.au/2018/09/hungry-children-wander-among-ruins-30000-people-homeless-in-florida-after-cat-4-hurricane-in-1926/>

Hurricane Brings Record Flooding To N Carolina–(In 1945)

By Paul Homewood, Not a Lot of People Know That, Sep 21, 2018

<https://notalotofpeopleknowthat.wordpress.com/2018/09/21/hurricane-brings-record-flooding-to-n-carolina-in-1945/>

BELOW THE BOTTOM LINE:

Slow boat to?

By Staff Writers, Climate Change Predictions, Sep 21, 2018

<http://climatechangepredictions.org/uncategorized/4001>

“In 2007, Peter Flynn, the Poole Chair in Management for Engineers at the University of Alberta in Edmonton, Alberta, devised a US\$50-billion contingency plan involving 8,000 barges that would manipulate the Atlantic conveyor, the currents of water which help ensure Northern Europe’s mild climate.

“Flynn’s army of barges would maintain that mild climate in the face of global warming changing the currents and causing a deep freeze to fall over Northern Europe. The barges would float into position every fall, spraying water into the air to form ice and then pumping salt water over top and trapping it in the ice.

“Come the spring, the barges would pour more water over the ice, melting it and creating a vast amount of cold, salt water that would sink, adding to and strengthening the deep current.”

National Observer, 20 May 2015

An outsized carbon paw print

By Staff Writers, Climate Change Predictions, Sep 20, 2018

<http://climatechangepredictions.org/uncategorized/3800>

“Enlightened animal lovers across the United States face a quandary: how to pamper beloved pets without adding to global warming or creating an outsized carbon paw print?

“Answers for the ecologically-aware pet owner were on offer at the Going Green With Pets conference at Manhattan’s tony Metropolitan Dog Club, with pointers on everything from whipping up biodegradable cat litter to choosing the best organic shampoo for one’s Lhasa Apso.

“The must-read primer for the environmentally aware pet owner is Eco-Dog, published in March and already in its second printing. The book is a how-to on making Fido a meal consisting of just rice and beans or how to convert a faded pair of blue jeans into a dog bed.”

The Age (Australia), 26 Jun 2008

ARTICLES:

1. Colorado’s Fracking Fright

Proposition 112 would prohibit almost all new oil and gas production.

Editorial, WSJ, Sep 20, 2018

<https://www.wsj.com/articles/colorados-fracking-fright-1537484959>

SUMMARY: The editorial states:

“California normally gets all the attention on the front lines of environmental activism. Gov. Jerry Brown recently signed a bill to “decarbonize” all electricity production by 2045. But in real-world implications for the rest of the country, Colorado also deserves attention. A measure heading for the fall ballot would shut down nearly all oil and gas production in one of the top energy-producing states.

“Colorado’s current rules on energy production prohibit oil and gas operations within 500 feet of a home or 1,000 feet of a school or hospital. But an environmental group called Colorado Rising has collected enough signatures for a proposal on the November ballot to expand these buffer zones and effectively create bans in nearly all of the state.

“Proposition 112 would restrict new energy development within a 2,500-foot radius of any building, playground, amphitheater, park, body of water or “any other additional vulnerable areas designated by the state or local government.” The restrictions rule out 85% of all non-federal land in the state, according to the Colorado Oil & Gas Conservation Commission. In the five counties that produce 90% to 95% of Colorado’s oil and gas, 94% of non-federal land would be off-limits. The implications of such a ban would be national. Colorado ranks fifth among the states in production of natural gas and seventh for oil.

“In the first year the restrictions would take \$201 million to \$258 million out of state and local tax revenue. As energy production dwindled, that loss could rise to \$1.1 billion annually by 2030, according to a Common Sense Policy Roundtable analysis reviewed by faculty from the Colorado School of Mines. The ban could kill up to 147,800 jobs and reduce state GDP by perhaps \$218 billion between 2018 and 2030.

After stating that candidates for governor from both major parties oppose the proposition, the editorial continues:

“Score one for the reality check of having to face voters in a general election. In 2014 [Democrat candidate] Mr. Polis financed campaigns for ballot initiatives to expand buffer zones and allow more local restrictions on energy production. Prop. 112’s restrictions go further.

“Colorado isn’t California yet. In 2016 environmentalists failed to get enough signatures to put a similarly draconian measure on the ballot. Also that year, the Colorado Supreme Court overturned a Fort Collins fracking moratorium and a ban in Longmont.

“Colorado Rising claims this new effort was ‘started by local people and grassroots groups across the state.’ That’s false modesty. Spokeswoman Anne Lee Foster admitted that Food and Water Watch and 350.org, both national green groups, had given nearly \$250,000 to the effort. The Sierra Club, Greenpeace, the Center for Biological Diversity and Earth Guardians have endorsed Prop. 112.

“If this proposition passes in Colorado, the same de facto bans on energy production will migrate to other states.”

2. Weary of Power Outages, Puerto Ricans Find Solace in Solar

From families to factories, demand rises for renewable energy separate from the unreliable electric grid

By Erin Ailworth and Arian Campo-Flores, WSJ, Sep 21, 2018

https://www.wsj.com/articles/weary-of-power-outages-puerto-ricans-find-solace-in-solar-1537531200?mod=hp_lead_pos5

[SEPP Comment: The sad state of affairs in Puerto Rico where citizens and businesses are turning to erratic solar power because it is more reliable than the state-run utilities.]

SUMMARY: The article begins:

“Rafael Guzmán and Leinaí Romero spent more than four months without power after Hurricane Maria struck last September, relying on a generator to run a refrigerator, two fans and cellphone chargers. When the married couple learned in April they were having a baby, they made a pledge: ‘We aren’t going through that again.’

“They installed 16 solar panels on the roof of their home in Caguas, south of San Juan, and a battery that charges during the day and allows them to run appliances and a TV at night, said Mr. Guzmán, a 29-year-old accountant.

“With a financing plan to cover the \$21,000 price tag, their monthly payment of \$220 is about the same as their average electric bill before the switch.

“Residents and businesses in Puerto Rico increasingly are investing in renewable-energy technologies, mainly solar, to guard against power outages from the island’s still-rickety electric grid. Solar panel and battery makers like Tesla Inc., Sunrun Inc. and Sonnen are pushing into the market. As Puerto Rico seeks to wean itself off imported fuels to generate power, it is emerging as a proving ground for renewable energy.

“There has been ‘exponential growth for the solar and storage industries in Puerto Rico,’ said Adam Gentner, Sonnen’s director of business development and Latin American expansion.

“The renewable-energy push comes as the U.S. territory’s debt-ridden public power utility, the Puerto Rico Electric Power Authority, or Prepa, grapples with its future. Last year’s hurricanes devastated the system. All of Prepa’s nearly 1.6 million customers lost power after Hurricane Maria, and only last month did the utility announce it had restored power to all of Puerto Rico.

“Even before that, the island’s electric grid was vulnerable to disruptions. Its power plants are nearly 30 years older than the U.S. average and prone to outages at a rate of 12 times the national average, according to the federal Energy Information Administration.

“Puerto Rico depends on imported fuels, mainly petroleum, which alone accounted for nearly half of its electricity production in the fiscal year ended June 2017, with natural gas and coal accounting for most of the remainder, according to the EIA. About 2% of the island’s power came from renewable resources, including solar and wind.

“Political and business leaders say the island must boost the role of renewable energy, in part to increase the system’s reliability. In July, Puerto Rico Industrial Development Co., an economic development agency, put out a request for proposals for some of its industrial sites that house large companies like Honeywell International Inc. and Baxter International Inc. It aims to equip

the facilities with microgrids—local power systems that can disconnect from the main grid and function autonomously—that include renewable sources.

“Homeowners and small- and medium-size businesses are setting up solar systems to supply backup power in the event of an outage. and reduce dependence on the grid. Since Maria, demand for batteries—which allow customers to store solar-generated power—has soared, said Alejandro Uriarte, chief executive of New Energy Consultants & Contractors LLC, a solar installation company in San Juan.”
