The Week That Was: 2016-08-13 (August 13, 2016) Brought to You by SEPP (www.SEPP.org) The Science and Environmental Policy Project

Quote of the Week... "A wise man is more powerful than a strong man, and a man of knowledge than a man of might." - Proverbs 24:5 - [H/t William Readdy]

Number of the Week: 4,000 Days?

THIS WEEK:

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

Climate Fears and Finance: On of the difficulties SEPP has had in updating its analysis of the importance of government funding in climate science is the lack of recent reports from the Government Accountability Office (GAO), Congressional Research Service (CRS), or the White House covering the extent of US government financing of climate science. Roughly, the detailed reports stopped in Fiscal Year (FY) 2014 (September 30, 2014). Thus, SEPP continued estimates of expenditures of climate science, alone, based on the budgets of the US Global Change Research Program (USGCRP), alone.

TWTW reader Timothy Wise supplied a link to a GAO report that covers FY 2014, and has key information, not financial, on 2015. The report states:

"Federal funding for climate change research, technology, international assistance, and adaptation has increased from \$2.4 billion in 1993 to \$11.6 billion in 2014, with an additional \$26.1 billion for climate change programs and activities provided by the American Recovery and Reinvestment Act in 2009. As shown in figure 1, the Office of Management and Budget (OMB) has reported federal climate change funding in three main categories since 1993:

- technology to reduce emissions,
- science to better understand climate change, and
- international assistance for developing countries.

Note: OMB has also reported on federal funding for wildlife and natural resource adaptation since 2010. However, the data the agency reports in the adaptation category does not fully represent adaptation funding as it only includes data from the Department of Interior. OMB reports Department of Interior funding for adaptation (adjusted for inflation) as follows: 2010 \$71 million, 2011 \$37 million, 2012 \$92 million, 2013 \$98 million, 2014 \$112 million."

With government funding of climate change of \$11.6 Billion in 2014, and given the lack of Federal budgets and government entities auditing of budgets, the funding has probably increased since 2014. Financial irresponsibility is a characteristic of many agencies in the current government.

Further, as cited elsewhere in TWTW, according to other government reports, the US government is the largest funder of the UN effort to control the use of fossil fuels, under what is called International Assistance. For some reason, the politicians who are so concerned that Exxon, and

others, are exerting undue influence on climate science are not concerned that \$11.6 billion a year from the federal government may be exerting undue influence on climate science.

As an example of federal expenditures other than actual cash on technology to reduce emissions, The Department of Energy has a web site describing the corporate tax credit called the "Renewable Electricity Production Tax Credit (PTC)", which applies for the first 10 years of operation, with the credits continuing through the start of construction in 2019; but, the web site does not give the annual or total credits granted. Further, under maximum rebate the web site states "None specified."

Such tax credits are classified as tax expenditures in the Federal government tax accounting. They are the primary reason for the growth of wind power in the US, and will continue to be a burden on tax payers for years to come. Ironically, under the title "Savings Category" the web site lists: Geothermal Electric; Wind (All); Biomass; Hydroelectric; Municipal Solid Waste; Landfill Gas; Tidal; Wave; Ocean Thermal; Wind (Small); and Hydroelectric (Small).

Since the nation has vast resources for producing reliable electricity; coal, natural gas, nuclear, and hydro; there is no economic justification for giving tax subsidies to producers of unreliable electricity, such as wind and solar. See links under Funding Issues and http://energy.gov/savings/renewable-electricity-production-tax-credit-ptc

Bureaucratic Science: The GAO report is illuminating for reasons beyond the scope of federal funding – the extent of White House influence on federal entities supposedly conducting objective climate science. The influence on many levels of government occurs from three White House entities: 1) Executive Office of the President; 2) Office of Science and Technology Policy; and 3) Council of Environmental Quality.

Executive Office of the President is headed by Misters Obama and Biden and includes the Council of Economic Advisers; Council on Environmental Quality (CEQ); National Security Council; Office of Administration; Office of Management and Budget; Office of National Drug Control Policy; and Office of Science and Technology Policy (OSTC). [Boldface added]

Office of Science and Technology Policy is directed by John Holdren, According to its web site: "The mission of the Office of Science and Technology Policy is threefold; first, to provide the President and his senior staff with accurate, relevant, and timely scientific and technical advice on all matters of consequence; second, to ensure that the policies of the Executive Branch are informed by sound science; and third, to ensure that the scientific and technical work of the Executive Branch is properly coordinated so as to provide the greatest benefit to society."

According to its web site, the President's Advisor, Christy Goldfuss heads the Council of Environmental Quality which "coordinates Federal environmental efforts and works closely with agencies and other White House offices in the development of environmental policies and initiatives. CEQ was established within the Executive Office of the President by Congress as part of the National Environmental Policy Act of 1969 (NEPA) and additional responsibilities were provided by the Environmental Quality Improvement Act of 1970."

Almost ironically, the GAO report introduces the multi-layering of White House influence on government climate science as:

"As illustrated in figure 2, many federal entities manage programs and activities related to climate change. Each of these federal departments and agencies is operating under its own set of authorities and responsibilities and addresses climate change in ways relevant to its mission. In the context of providing climate-related information, the National Research Council observed that no single government agency or centralized unit could perform all the required functions, and that coordination of agency roles and regional activities is a necessity."

"Figure 2: Selected Coordination Mechanisms for Federal Climate Change Activities"

The coordination discussed and shown in figure 2 is by the White House and it is a mechanism of exercising political influence and control.

Way down on the list under the "Committee on Environment, Natural Resources, and Sustainability" chaired by the OSTP, NOAA, and EPA, one finds the Subcommittee on Global Change Research, chaired by NOAA, and then the US Global Change Research Program and the National Climate Assessment. As pointed out in previous TWTWs, the National Climate Assessment mimics the UN Intergovernmental Panel on Climate Change (ICCC), except it attempts to make local and regional forecasts of future climate by using global models that have never been validated – compounding erroneous approaches. According to its web site the mission of the USGCRP is to "assist the Nation and the world to understand, assess, predict, and respond to human-induced and **natural processes** of global change." [Boldface added.] Yet, the natural processes are ignored or minimized.

Those familiar with reading tables of organization of entities considered authoritarian may recognize the multi-layering of political influence on multiple levels. The purpose is to achieve conformity. Independent analysis or insight is lost. This insistence on conformity separates policy-oriented cultures, even though they may be called scientific, from results-oriented science and engineering cultures that insist on repeated testing of assumptions and models.

In sum, these bureaucracies advocate a science based on ignorance. Ignorance of historic climate change. Ignorance of the fact that the greenhouse effect takes place in the atmosphere, not at or near the surface or under the seas. Ignorance of atmospheric temperatures. And, ignorance of natural events that occasionally warm the globe, such as the El Niño-Southern Oscillation (ENSO). Their products are not empirical science, based on observations and experiment, but are best described as bureaucratic science. See links under Defend the Orthodoxy, and Funding Issues.

Capital Costs: One of the great difficulties in analyzing various types of electricity generation is the treatment of capital costs. A system producing reliable electricity, called dispatchable, is often treated as inferior to a system producing un-reliable electricity, called non-dispatchable. Dispatchable can be considered as the ability to be adjusted as needed. From a logical standpoint, treading non-dispatchable electricity as preferred to dispatchable, makes no sense. Yet politicians pass legislation subsidizing the capital costs of unreliable systems, while ignoring reliable systems. This illogical political preference is compounded in that most "alternative" systems such as wind and solar have high capital costs, but low operating costs. Thus, when they can produce, they can undercut the operating costs of reliable systems as well as the capital costs of providing a reliable system. At this time, there appears to be no effective pricing mechanism which includes the cost of having a reliable system available, when needed. The effect can be quite devastating as seen with the experience of the German utility firm E.ON.

Another issue arises when considering the costs of different sources with far different lifetimes. A wind farm may last 20 to 25 years. A nuclear or modern coal plant may last 50 years. Further, if one is proposing a wind farm to replace electricity from an existing coal or nuclear plant in which the capital costs is already amortized, the capital costs of the existing plant may be essentially zero. Unfortunately, some analysts who evaluate power systems fail to recognize these issues and apply EIA levelized costs incorrectly. See Article # 3 and links under Questioning Green Elsewhere and Alternative, Green ("Clean") Solar and Wind.

Number of the Week: 4,000 Days? The US has not been hit by a major hurricane since Hurricane Wilma made landfall on October 24, 2005. A major hurricane is category 3 or higher with wind speeds above 111 mph (178 km/h). Sandy was a very large storm, amplified by a nor'easter, which received great press. When it made landfall, the wind speeds were about 74 mph (119 km/h). Some politicians who were screaming about hurricanes intensifying due to carbon dioxide (CO2) caused global warming, also worked quietly to have the strength of Sandy's winds reduced so that their constituents could collect insurance benefits from policies that excluded hurricanes.

Roy Spencer asks if we will have 4,000 days without a major hurricane strike which will be on October 6, 2016. Strangely, none of those who immediately blame CO2 for bad weather events are thanking CO2 for good weather non-events. See links under Changing Weather and http://www.nhc.noaa.gov/aboutsshws.php

NEWS YOU CAN USE:

Science: Is the Sun Rising?

New Solar Research Raises Climate Questions, Triggers Attacks

By Staff Writers, GWPF, Aug 9, 2016

 $\underline{http://www.thegwpf.com/new-solar-research-raises-climate-questions-triggers-attacks/}$

Includes Video written by David Whitehouse, with interview of Professor Valentina Zharkova Link to presentation of paper: Royal Astronomical Society's National Astronomy Meeting 2015 – report 4

By Kulvinder Singh Chadha, Astronomy Now, July 15, 2015

http://astronomynow.com/2015/07/09/royal-astronomical-societys-national-astronomy-meeting-2015-report-4/

Link to paper: Heartbeat of the Sun from Principal Component Analysis and prediction of solar activity on a millennium timescale

By Valentina Zharkova, et al. Scientific Reports 5, Oct 2015

https://www.researchgate.net/publication/283862631 Heartbeat of the Sun from Principal Component Analysis and prediction of solar activity on a millenium timescale

Solar Cycle 24 Continues To Be Weakest In Close To 200 Years, Climate Models Overstate CO2 The sun in July 2016, and the AMO

By Frank Bosse and Fritz Vahrenholt (Translated/edited by P Gosselin), NO Tricks Zone, Aug 9, 2016

 $\frac{\text{http://notrickszone.com/2016/08/09/solar-cycle-24-continues-to-be-the-weakest-in-close-to-200-years-climate-models-overstate-co2/\#sthash.aiz117T0.dpbs}$

Global Warming Extremists Try To Silence Science — Again

Editorial, IBD, Aug 11, 2016

http://www.investors.com/politics/editorials/global-warming-extremists-try-to-silence-science-again/

"Anyone who thinks this type of behavior is 'science' is wrong. It's not even right to call it 'religion,' as some have, using that term as a pejorative. In fact, truly religious people actually question their faith. Only global warming's legions of true believers don't.

Suppressing Scientific Inquiry – The Witch Hunt – Push-Back

Letter shows #ExxonKnew Attorneys General caught up in unlawful collusion

By Anthony Watts, WUWT, Aug 9, 2016

 $\underline{https://wattsupwiththat.com/2016/08/09/letter-shows-exxonknew-attorneys-general-caught-up-in-unlawful-collusion/}$

Challenging the Orthodoxy -- NIPCC

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

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

Challenging the Orthodoxy

35 New Scientific Publications Confirm Ocean Cycles, Sun Are Main Climate Drivers

By Kenneth Richard, No Tricks Zone, Aug 11, 2016

 $\underline{http://notrickszone.com/2016/08/11/35-new-scientific-publications-confirm-ocean-cycles-sun-are-main-climate-drivers/\#sthash.5ZMBeTKK.dpbs$

Another Fundamental Problem with Alarmist Climate Science

By Alan Carlin, Carlin Economics and Science, Aug 12, 2016 http://www.carlineconomics.com/archives/2826

Climate Change Agenda and the Role of Bureaucratic Scientists

Guest opinion; Dr. Tim Ball, WUWT, Aug 6, 2016

 $\underline{\text{https://wattsupwiththat.com/2016/08/06/climate-change-agenda-and-the-role-of-bureaucratic-scientists/}$

Defending the Orthodoxy

Executive Office of the President

By Staff Writers, No Date [Accessed Aug 13, 2016] https://www.whitehouse.gov/administration/eop

Council on Environmental Quality

By Staff Writers, No Date [Accessed Aug 13, 2016] https://www.whitehouse.gov/administration/eop/ceq

Office of Science and Technology Policy

By Staff Writers, No Date [Accessed Aug 13, 2016] https://www.whitehouse.gov/administration/eop/ostp

Questioning the Orthodoxy

A new paper from Richard Betts shows land use change is a significant component of the global climate heat budget

By Anthony Watts, WUWT, Aug 8, 2016

 $\underline{https://wattsupwiththat.com/2016/08/08/a-new-paper-from-richard-betts-shows-land-use-change-is-a-significant-component-of-global-warming/}$

A possible Triple Climate Whammy for the UK ahead?

Guest opinion by John Hardy (UK), WUWT, July 28, 2016

https://wattsupwiththat.com/2016/07/28/a-possible-triple-climate-whammy-for-the-uk-ahead/

Decadal Climate Variability

By Judith Curry, Climate Etc. Aug 8, 2016

https://judithcurry.com/2016/08/08/decadal-climate-variability/#more-21917

West Antarctic Glaciers Have Been Retreating For Last 7500 Years [of 120 meters per year]

[...[It] "has receded steadily for the last 20,000 years."]

By Paul Homewood, Not a Lot of People Know That, Aug 7, 2016

 $\underline{https://notalotofpeopleknowthat.wordpress.com/2016/08/07/west-antarctic-glaciers-have-been-retreating-for-last-7500-years/$

Link to 1999 paper: Antarctic Ice Beats a Retreat [Boldface added]

By Robert Irion, Science, Oct 7, 1999

http://www.sciencemag.org/news/1999/10/antarctic-ice-beats-retreat

After Paris!

China's 5 Year Plan for Energy

China's energy use will have enormous consequences for the world. Here's what we know about its latest plans.

By Ma Tianjie, The Diplomat, Aug 6, 2016

http://thediplomat.com/2016/08/chinas-5-year-plan-for-energy/

The Administration's Plan

Obama to roll out new climate change measures

By Mark Hensch, The Hill, Aug 13, 2016

 $\underline{http://thehill.com/blogs/blog-briefing-room/news/291296-obama-to-roll-out-new-climate-change-measures}$

The Administration's Plan – Independent Analysis

Analysis: Here Are 7 Big Problems With Hillary's Green Energy Plans

By Andrew Follett, Daily Caller, Aug 7, 2016

http://dailycaller.com/2016/08/07/analysis-here-are-7-big-problems-with-hillarys-green-energy-plans/

The Administration's Plan - Push-Back

Obama's deluded and illegitimate battle against climate change

By Kathleen Hartnett White, The Hill, Aug 9, 2016

 $\underline{\text{http://thehill.com/blogs/pundits-blog/energy-environment/290840-barack-obamas-deluded-and-illegitimate-battle-against}$

Social Benefits of Carbon

The carbon fertilization effect over a century of anthropogenic CO2 emissions: higher intracellular CO2 and more drought resistance among invasive and native grass species contrasts with increased water use efficiency for woody plants in the US Southwest By Drake, Hanson, Lowrey and Sharp, Global Change Biology, Aug 2, 2016 http://onlinelibrary.wiley.com/doi/10.1111/gcb.13449/abstract;jsessionid=F75BC9977B0E4393F DE3EA3CE120798F.f04t04

Trees on farms: The missing link in carbon accounting

By Staff Writers, Science Daily, Aug 2, 2016 [H/t Climate Etc.]

https://www.sciencedaily.com/releases/2016/08/160802103537.htm

Link to paper: Global Tree Cover and Biomass Carbon on Agricultural Land: The contribution of agroforestry to global and national carbon budgets

By Zomer, et al, Nature, July 20, 2016

http://www.nature.com/articles/srep29987

Seeking a Common Ground

Murry Salby's latest presentation

By Judith Curry, Climate Etc. Aug 10, 2016

https://judithcurry.com/2016/08/10/murry-salbys-latest-presentation/

Broad consistency between patterns of fossil fuel emissions and atmospheric CO2

By Guido van der Werf, Climate Etc. Aug 12, 2016

https://judithcurry.com/2016/08/12/broad-consistency-between-patterns-of-fossil-fuel-emissions-and-atmospheric-co2/

[SEPP Comment: Differing views, see link immediately above.]

Review of Recent Scientific Articles by CO2 Science

How Not to Underestimate Mussel Heart Rate and Thermal Tolerance

Tagliarolo, M. and McQuaid, C.D. 2016. Field measurements indicate unexpected, serious underestimation of mussel heart rates and thermal tolerance by laboratory studies. *PLoS ONE*:

11(2): e0146341: doi:10.1371/journal.pone.0146341., Aug 10, 2016

http://www.co2science.org/articles/V19/aug/a5.php

"Introducing their intriguing study, Tagliarolo and McQuaid (2016) write that 'attempts to predict the response of species to long-term environmental change are generally based on extrapolations from laboratory experiments that inevitably simplify the complex interacting effects that occur in the field. So what's to be done about this common but serious problem?

"In concluding, the two researchers thus write that 'field estimates of body temperatures indicated an ability to tolerate temperatures considered lethal on the basis of laboratory measurements.' And they therefore rightly conclude that 'real metabolic variability and limits can only be assessed for animals living in the field.'"

White Spruce Seedling Responses to CO2 Enrichment and Warming

Carles, S., Groulx, D.B., Lamhamedi, M.S., Rainville, A., Beaulieu, J., Bernier, P., Bousquet, J., Deblois, J. and Margolis, H.A. 2015. Family variation in the morphology and physiology of white spruce (*Picea glauca*) seedlings in response to elevated CO2 and temperature. *Journal of Sustainable Forestry* **34**: 169-19. Aug 8, 2016

http://www.co2science.org/articles/V19/aug/a4.php

[SEPP Comment: Along with black spruce, white spruce is one of the dominant species in the Boreal Forest of the northern latitudes.]

Measurement Issues -- Atmosphere

Tropics Cool by 5 deg. F in One Week! (In the Stratosphere)

By Roy Spencer, His Blog, Aug 11, 2016

http://www.drroyspencer.com/2016/08/tropics-cool-by-5-deg-f-in-one-week-in-the-stratosphere/

Changing Weather

Will We Reach 4,000 Days Since a Major Hurricane Strike?

By Roy Spencer, His Blog, Aug 8th, 2016

http://www.drroyspencer.com/2016/08/will-we-reach-4000-days-since-a-major-hurricane-strike/

August 12, 1936 – One Of The Hottest Days In US History

By Tony Heller, Real Science, Aug 12, 2016

http://realclimatescience.com/2016/08/august-12-1936-one-of-the-hottest-days-in-us-history/

Czech Republic's Hottest Summer In 1540.

Top summer in the Czech Republic: Unexpected heat in 1540

By Dr. Sebastian Lüning and Prof. Fritz Vahrenholt, (German text translated/edited by P Gosselin), No Tricks Zone, Aug 6, 2016

http://notrickszone.com/2016/08/06/czech-republics-hottest-summer-in-

1540/#sthash.bqWEHjbo.dpbs

Surface Frost Strikes Germany As Mid August Temperatures Shatter Old Records!

By P Gosselin, No Tricks Zone, August 12, 2016

 $\frac{http://notrickszone.com/2016/08/12/surface-frost-strikes-germany-mid-august-temperatures-shatter-old-records/\#sthash. Eoc Us 68T.dpbs$

Changing Climate

Researchers Pinpoint Abrupt Onset of Modern Day Indian Ocean Monsoon System

By Staff Writers, University of Miami Rosenstiel School of Marine & Atmospheric Science, Science on Line, July 29, 2016 [H/t Toshio Fujita]

http://www.sciencenewsline.com/news/2016072914530068.html

Link to paper: The abrupt onset of the modern South Asian Monsoon winds

By Betzler, Eberli, and Young, Scientific Reports, July 20, 2016

http://www.nature.com/articles/srep29838

[SEPP Comment: 12.9 million years ago – before human use of fossil fuels – even before humans!]

Changing Cryosphere – Land / Sea Ice

Ancient Ice Reveals Vital Clues About Earth's Past Climate

By Dan Elliott, AP, Aug 10, 2016

http://abcnews.go.com/Technology/wireStory/ancient-ice-reveals-vital-clues-earths-past-climate-41260371

Guest post: An Antarctic voyage in search of blue carbon

Carbon Brief Weekly 050816&utm medium=email&utm term=0_3ff5ea836a-0de5d9d11f-215218249

Interesting and positive changes in Arctic sea ice volume

Are we seeing an Arctic change? Three out of the four most recent years show increase in ice volume not seen since 2003.

Guest essay by Frank Lansner, WUWT, Aug 9, 2016

https://wattsupwiththat.com/2016/08/09/interesting-and-positive-changes-in-arctic-sea-ice-volume/

Link to DMI Web Site: http://ocean.dmi.dk/arctic/icethickness/thk.php

Changing Earth

The search for the earthquake nucleus

By Staff Writers, Kiel, Germany (SPX) Aug 04, 2016

http://www.terradaily.com/reports/The search for the earthquake nucleus 999.html

Link to paper: Earthquake nucleation in weak subducted carbonates

By Robert Kurzawski, et al. Nature Geoscience, Aug 1, 2016

http://www.nature.com/ngeo/journal/vaop/ncurrent/full/ngeo2774.html

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

Rising Temperatures Stunt Tree Growth

Drier soil plus drier air causes Douglas firs to shut down

By Brittany Patterson, ClimateWire, Via Scientific American, August 10, 2016 [H/t Clyde Spencer]

http://www.scientificamerican.com/article/rising-temperatures-stunt-tree-growth/

From Clyde Spencer: What I don't see is any mention of how much of a change in the Douglas Fir behavior results from a given temperature change. The implication is that any and all temperature increases are detrimental. Even if that were the case, I would expect that the trees at lower elevations or latitudes will be replaced by trees with less sensitivity to high temperatures. Trees didn't die out during the Paleocene-Eocene Thermal Maximum. I don't expect they will during the 'Anthropocene' Thermal Maximum/

Communicating Better to the Public - Make things up.

Climate change already accelerating sea level rise, study finds

Pinatubo eruption masked acceleration in satellite record

By Staff Writer, Science Daily, Aug 10, 2016

https://www.sciencedaily.com/releases/2016/08/160810084619.htm

Is the detection of accelerated sea level rise imminent?

By Fasullo, Nerem, & Hamlington, Scientific Reports, Aug 10, 2016

http://www.nature.com/articles/srep31245

[SEPP Comment: Remarkable how quickly polar ice caps react to slight changes in temperature.]

Earth Overshoot Day: We've used up Nature's Resource Budget for the Year Earlier than Ever Before

By Will Yeates, DeSmog UK, Aug 8, 2016 [H/t Timothy Wise]

 $\underline{\text{http://www.desmog.uk/2016/08/08/earth-overshoot-day-we-ve-used-nature-s-budget-year-earlier-ever}\\$

Today, 8 August, is Earth Overshoot Day, which marks the point our annual demand on nature's resources exceeds what the Earth can regenerate in that year.

[SEPP Comment: Just like we overshot the day in 2000 that we used up nature's resources in oil. Maybe VP candidate Tim Kaine will declare that the continued use of oil is part of an Exxon conspiracy to keep us uninformed about the depletion of oil. He cites DeSmog as his authority on such things.]

Communicating Better to the Public – Do a Poll?

US Rassmussen Poll — 61% say climate debate is not over

Thirty years of propaganda has only reached a quarter of the population.

By Jo Nova, Her Blog, Aug 12, 2016

 $\underline{\text{http://joannenova.com.au/2016/08/us-rassmussen-poll-61-say-climate-debate-is-not-over/\#more-50297}$

Questioning European Green

FRACKING RIDICULOUS UK will start importing shale gas from US while it sits on enough gas to last 500 years

Anger from energy boss as company Cuadrilla as it continues to wait on No.10 decision for UK fracking

By Craig Woodhouse, The Sun, Aug 8, 2016

https://www.thesun.co.uk/news/1569992/uk-will-start-importing-shale-gas-from-us-while-it-sits-on-enough-gas-to-last-500-years/

Innovation and its enemies

From coffee and printing to GMOs and shale gas, we're too anti-new By Matt Ridley, Rational Optimist, Aug 9, 2016

http://www.rationaloptimist.com/blog/innovation-and-its-enemies/

Intellectual orthodoxy is a bigger threat than climate change

By Jamie Whyte, CAPX, Aug 9, 2016 [H/t GWPF]

http://capx.co/intellectual-orthodoxy-is-a-bigger-threat-than-climate-change/

[SEPP Comment: Addressing the intellectual intolerance highlighted by the claim by sociologist Jarod Gilbert: Why climate denial should be a criminal offense."]

Questioning Green Elsewhere

Solar Lobby Swings and Misses at IER Report

By Daniel Simmons, IER, Aug 5, 2016

http://instituteforenergyresearch.org/analysis/solar-lobby-swings-misses-ier-report/

Link to report: Levelized Cost of Electricity from Existing Generation Resources By Tomas Stacy and George Taylor, IER, July 2016

http://instituteforenergyresearch.org/wp-content/uploads/2016/07/IER LCOE 2016-2.pdf

"The biggest takeaway from the study is that electricity from new wind and solar facilities is 2.5 to nearly 5 times more expensive than electricity from most existing coal and nuclear power plants."

AEMO: Replacing Coal with Renewables will Cause Blackouts

By Eric Worrall, WUWT, Aug 11, 2016

 $\underline{https://wattsupwiththat.com/2016/08/11/aemo-replacing-coal-with-renewables-will-cause-blackouts/}$

Funding Issues

Climate Change Funding and Management

Over the past 20 years, the federal government has spent billions of dollars to address climate-related risks. Coordination and planning are critical to effective and efficient efforts. By Staff Writers, GAO, No Date [H/t Timothy Wise]

http://www.gao.gov/key issues/climate change funding management/issue summary#t=0

The Political Games Continue

Energy Platform Comparisons

By Donn Dears, Power For USA, Aug 9, 2016

https://dddusmma.wordpress.com/2016/08/09/energy-platform-comparisons/

Litigation Issues

Court backs Obama's climate change accounting

By Timothy Cama, The Hill, Aug 9, 2016

http://thehill.com/policy/energy-environment/290859-court-backs-obamas-climate-change-accounting

Link to the decision: United States Court of Appeals For the Seventh Circuit

On Petitions for Review of Final Regulations of the United States Department of Energy. Agency No. EERE-2010-BT-STD-0003 & Agency No. EERE-2013-BT-TP-0025, Aug 8, 2016

http://media.ca7.uscourts.gov/cgi-bin/rssExec.pl?Submit=Display&Path=Y2016/D08-08/C:14-2159:J:Ripple:aut:T:fnOp:N:1807496:S:0

[SEPP Comment: A three judge panel of the court upholds speculation over observation.]

Court upholds Obama's social cost of carbon accounting for federal regulations

By Robert Walton, Utility Dive, Aug 11, 2016

 $\underline{http://www.utilitydive.com/news/court-upholds-obamas-social-cost-of-carbon-accounting-for-federal-regulati/424260/}$

Subsidies and Mandates Forever

Massachusetts Lawmakers Approve Energy Storage, Offshore Wind Mandates

By Sonal Patel, Power Mag, Aug 3, 2016

http://www.powermag.com/massachusetts-lawmakers-approve-energy-storage-offshore-wind-mandates/?hq e=el&hq m=3271785&hq l=9&hq v=5e660500d0

"The bill calls on the state's Department of Energy Resources (DER) to determine by the end of this year whether or not it is appropriate to set targets for power companies to procure, by January 1, 2020, 'viable and cost-effective energy storage systems.' If it chooses to set targets, it will

adopt the procurement targets by July 1, 2017, and reevaluate them every three years." [Boldface added.]

[SEPP Comment: More "feel-good" legislation that will be used by promoters to demand subsidies on the promise of delivering something that does not exist.]

The Renewable Energy House of Cards

By John W. Nikolaou and Vance Ginn, Real Clear Energy, Aug 4, 2016 http://www.realclearenergy.org/articles/2016/08/04/the_renewable_energy_house_of_cards_1092 15.html

EPA and other Regulators on the March

EPA Whitewashes Illegal Human Experiments

By John Dunn and Steve Milloy, American Thinker, Aug 10, 2016

http://www.americanthinker.com/articles/2016/08/epa_whitewashes_illegal_human_experiments.html

Science board pushes EPA to change major fracking report

By Devin Henry, The Hill, Aug 11, 2016

http://thehill.com/policy/energy-environment/291187-science-board-pushes-epa-to-change-major-fracking-report

Letter to EPA: Subject: SAB Review of the EPA's draft Assessment of the Potential Impacts of Hydraulic Fracturing for Oil and Gas on Drinking Water Resources

By Peter Thorne and David Dzombak, EPA Science Advisory Board, Aug 11, 2016

https://yosemite.epa.gov/sab/sabproduct.nsf/LookupWebReportsLastMonthBOARD/BB6910FEC 10C01A18525800C00647104/\$File/EPA-SAB-16-005+Unsigned.pdf

[SEPP Comment: A surprise push-back by the SAB.]

Energy Issues – Non-US

Sticker Shock: The Soaring Costs Of Germany's Nuclear Shutdown

German Chancellor Angela Merkel's 2011 decision to rapidly phase out the country's 17 nuclear power reactors has left the government and utilities with a massive problem: How to clean up and store large amounts of nuclear waste and other radioactive material.

By Joel Stonington, Environment 360, July 25, 2016 http://e360.yale.edu/content/feature.msp?id=3019

If we're 'bribing' villages affected by fracking, what about those blighted by HS2? [High speed train.]

By Dominic Lawson, Daily Mail, Aug 7, 2016

http://www.dailymail.co.uk/debate/article-3728661/DOMINIC-LAWSON-bribing-villages-affected-fracking-blighted-HS2.html

Energy Issues -- US

What is the Real Cost of Oil?

By Euan Mearns, Energy Matters, Aug 10, 2016

http://euanmearns.com/what-is-the-real-cost-of-oil/#more-14912

[SEPP Comment: These estimates are substantially higher than estimates in the Aug 6 TWTW. The TWTW estimates were based on a 2016 drilling start, applying significant changes in techniques making the drilling and developing process more efficient.]

Washington's Control of Energy

How Outlawing Fracking Would Hurt Americans

By Donn Dears, Power For USA, Aug 12, 2016

https://dddusmma.wordpress.com/2016/08/12/how-outlawing-fracking-would-hurt-americans/

Energy group sues over canceled lease sales

By Devin Henry, The Hill Aug 11, 2016

http://thehill.com/policy/energy-environment/291152-energy-group-sues-over-cancelled-lease-sales

Oil and Natural Gas – the Future or the Past?

The USA — Fracking its way to jobs, wealth and lower emissions

By Jo Nova, Her Blog, Aug 8, 2016

http://joannenova.com.au/2016/08/the-usa-fracking-its-way-to-jobs-wealth-and-lower-emissions/

A Fast Lane To Refinery Row

By Editors, Real Clear Energy

http://www.realclearenergy.org/charticles/2016/08/12/a fast lane to refinery row.html

Link to more detailed article: Big Dakota pipeline to upend oil delivery in U.S

By Catherine Ngai and Liz Hampton, Reuters, Aug 12, 2016

http://www.reuters.com/article/us-usa-oil-pipeline-idUSKCN10N0HP

[SEPP Comment: Route map given in top article. The time frame that "the pipeline is projected to be in service by the fourth quarter of 2016" seems very brief.]

Oil Industry's 'Hottest Zip Codes' See Bids Soar on SM Deal

By Joe Carroll and Alex Nussbaum, Bloomberg, Aug 9, 2016

 $\underline{http://www.bloomberg.com/news/articles/2016-08-08/oil-industry-s-hottest-zip-codes-see-\underline{bidding-soar-on-sm-deal}}$

Arrival Of US Shale Gas Raises Pressure On Scottish Nationalists

By Hamish Macdonell, The Times, Via GWPF, Aug 10, 2016

http://www.thegwpf.com/arrival-of-us-shale-gas-raises-pressure-on-scottish-nationalists/

"The shipment into the Ineos petrochemical complex at Grangemouth is expected to trigger environmental protests by campaigners who believe that the imports will undermine arguments against fracking for shale gas in Scotland's central belt."

[SEPP Comment: The greens don't like it; thus, it is controversial.]

Carbon emissions lowest since '90s thanks to fracking

By John Siciliano, Washington Examiner, Aug 9, 2016

http://www.washingtonexaminer.com/carbon-emissions-lowest-since-90s-thanks-to-fracking/article/2598946

High natural gas-fired generation leads to rare summer net national weekly storage draw

By Katie Teller, EIA, Aug 8, 2016

http://www.eia.gov/todayinenergy/detail.cfm?id=27412

Oil Spills, Gas Leaks etc. & Consequences

Oklahoma earthquakes decline amid new regulations

By Devin Henry, The Hill, Aug 11, 2016

http://thehill.com/policy/energy-environment/291114-oklahoma-earthquakes-decline-amid-new-regulations

Western Isles: thousands of litres of diesel lost from grounded rig

Transocean Winner ran aground on Isle of Lewis, triggering environmental concerns By Staff Writers, Guardian, Aug 11, 2016 [H/t GWPF]

https://www.theguardian.com/environment/2016/aug/11/thousands-litres-diesel-spilled-grounded-rig-transocean-winner

[SEPP Comment: With 191 liters per barrel, a headline of tens of barrels would not have the same emotional impact as thousands of liters.]

Nuclear Energy and Fears

Fail-Safe Nuclear Power

Cheaper and cleaner nuclear plants could finally become reality—but not in the United States, where the technology was invented more than 50 years ago.

By Richard Martin, Technology Review, Aug 2, 2016 [H/t Toshio Fujita] https://www.technologyreview.com/s/602051/fail-safe-nuclear-power/

A safe place for nuclear energy?

Rewarding existing nuclear power plants for the value of their low-carbon power makes sense, but the nuclear industry has a lot of work to do if it is survive and thrive in the twenty-first century.

Editorial, Nature, Aug 9, 2016

http://www.nature.com/news/a-safe-place-for-nuclear-energy-1.20383

Monthly reports for the US

International Thermonuclear Experimental Reactor (ITER) Project, April-June 2015 FOIA Request Released August 1, 2016, governmentattic.org, Aug 2016 http://www.governmentattic.org/21docs/MonthlyRptsITERpgm Apr-Jun 2015.pdf

Alternative, Green ("Clean") Solar and Wind

Evaluating Wind Impact (Part III — Fuel Consumption and Emissions Evaluation)

By Kent Hawkins, Master Resource, Aug 11, 2016

https://www.masterresource.org/hawkins-kent/evaluating-wind-impacts-iii/

[SEPP Comment: The continuation of a three-part series that effectively shows that the notion that wind output displaces carbon fueled generation on a one to one, kWh to kWh basis is simplistic and extremely unrealistic.]

In Texas Oil Country, Wind Is Straining the Grid

A new \$8 billion electricity transmission system is now complete, but it's already nearing maximum capacity.

Texas is learning just how costly it is to wrangle the wind.

By Richard Martin, Technology Review, Aug 6, 2016

https://www.technologyreview.com/s/602112/in-texas-oil-country-wind-is-straining-the-grid/

One small island's dream of energy self-sufficiency (At a cost of \$12 million!)

By Paul Homewood, Not a Lot of People Know That, Aug 11, 2016

 $\underline{https://notalotofpeopleknowthat.wordpress.com/2016/08/11/one-small-islands-dream-of-energy-self-sufficiency-at-a-cost-of-12-million/}$

According to the article, \$12.49 million was invested in the project, on an island with just 97 households. That makes \$128,763 per household.

[SEPP Comment: Assuming a 20-year life for the wind and solar, this works out to a capital cost of \$6400 per year for 42% of the electricity actually consumed.]

El Hierro July 2016 performance update

By Roger Andrews, Energy Matters, Aug 8, 2016

http://euanmearns.com/el-hierro-july-2016-performance-update/#more-14873

[SEPP Comment: July was a good month with sustained northerly winds. A new monthly record was set with 65.9% of electricity consumed coming from wind and pumped hydro. Sill not the desired 100%.]

USGS releases bird and insect incineration footage from Ivanpah Solar Electric Facility By Anthony Watts, WUWT, Aug 3, 2016

https://wattsupwiththat.com/2016/08/03/usgs-releases-bird-and-insect-incineration-footage-from-ivanpah-solar-electric-facility/

VA Drops Millions on Delayed Solar Power Projects

VA has spent over \$408 million on solar panels since 2010

By: Morgan Chalfant, Washington Free Beacon, Aug 8, 2016 [H/t Timothy Wise]

http://freebeacon.com/issues/va-drops-millions-delayed-solar-power-projects/

Report by the VA Inspector General: Audit of Green Management Program Solar Panel Projects By Larry Reinkemeyer, Assistant Inspector General for Audits and Evaluations, Aug 3, 2016 http://www.va.gov/oig/pubs/VAOIG-15-03688-304.pdf

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

A lot of dam potential: Renewables growth could drive massive hydro buildout

With pumped storage, hydropower can grow 50% by 2050 - if developers can get over the hurdles By Herman K. Trabish, Utility Dive, Aug 9, 2016

http://www.utilitydive.com/news/a-lot-of-dam-potential-renewables-growth-could-drive-massive-hydro-buildou/423984/

Link to report: Hydropower Vision: A New Chapter for America's 1st Renewable Electricity Source

By Staff Writers, DOE, July 26, 2016

http://energy.gov/eere/water/articles/hydropower-vision-new-chapter-america-s-1st-renewable-electricity-source

[SEPP Comment: There is no logical reason why anti-reliable energy groups, now opposing natural gas and nuclear, will embrace more hydropower. For decades they have opposed hydro.]

Highway Robbery? Vibrating Freakin' Roadways to Generate Electricity

By Roy Spencer, His Blog, Aug 7, 2016

http://www.drroyspencer.com/2016/08/highway-robbery-vibrating-freakin-roadways-to-generate-electricity/

The Renewable Fuel Standard: 'Set Up for Fraud'

By Marita Noon, American Spectator, Aug 8, 2016

http://spectator.org/the-renewable-fuel-standard-set-up-for-fraud/

Other Scientific News

IceCube Search for 'Sterile Neutrino' Draws a Blank

By Staff Writers, Madison WI (SPX), Aug 08, 2016

http://www.spacedaily.com/reports/IceCube Search for Sterile Neutrino Draws a Blank 999.h tml

The Quest for the Moho

Between Earth's crust and mantle lies a mysterious boundary By Gwendolyn Schanker and Lonny Lippsett, Oceanus, Aug 8, 2016 http://www.whoi.edu/oceanus/feature/the-quest-for-the-moho

New, Energy Efficient Method to Extract Noble Gases from Air

By Alex Berezow, ACSH, Aug 3, 2016

http://acsh.org/news/2016/08/03/new-energy-efficient-method-to-extract-noble-gases-from-air/

Link to paper: Kr/Xe Separation over a Chabazite Zeolite Membrane

By Xuhui Feng, et al. Journal of the American Chemical Society, July 27, 2016

http://pubs.acs.org/doi/abs/10.1021/jacs.6b06515

Parasitism Evolved at Least 223 Times Among Animals

By Alex Berezow, ACSH, Aug 4, 2016

http://acsh.org/news/2016/08/04/parasitism-evolved-at-least-223-times-among-animals/

Link to paper: Independent origins of parasitism in Animalia

By Weinstein and Kuris Biology Letters, The Royal Society, July 2016

http://rsbl.royalsocietypublishing.org/content/12/7/20160324

Other News that May Be of Interest

1967 solar storm nearly took US to brink of war

By Staff Writers, Washington DC (SPX), Aug 10, 2016

http://www.spacedaily.com/reports/1967_solar_storm_nearly_took_US_to_brink_of_war_999.ht ml

Link to paper: The May 1967 Great Storm and Radio Disruption Event: Extreme Space Weather and Extraordinary Responses

By D.J. Knipp, et al. AGU Space Weather, Aug 9, 2016

http://onlinelibrary.wiley.com/doi/10.1002/2016SW001423/abstract

[SEPP Comment: How a solar storm in May 1967 mistakenly put US nuclear delivery forces on a "ready to launch" status.]

Innovation: Population Bombs Have Long Led To Agriculture Booms

By Hank Campbell, ACSH, Aug 3, 2016

 $\underline{\text{http://acsh.org/news/2016/08/03/innovation-population-bombs-have-long-led-to-agriculture-booms/}$

Link to paper: Population growth as a driver of initial domestication in Eastern North America By Weitzel and Codding, The Royal Society, Aug 3, 2016

http://rsos.royalsocietypublishing.org/content/3/8/160319?source=acsh.org

Israel, the Water Superpower

By Leon Kaye, Triple Pundit, Aug 9, 2016

http://www.triplepundit.com/2016/08/israel-water-superpower/

Link to report on drought: NASA Finds Drought in Eastern Mediterranean Worst of Past 900 Years

By Staff Writers, NASA, Mar 1, 2016

 $\underline{http://www.nasa.gov/feature/goddard/2016/nasa-finds-drought-in-eastern-mediterranean-worst-of-past-900-years}$

Levee Safety:

Army Corps and FEMA Have Made Little Progress in Carrying Out Required Activities By Staff Writers, GAO, July 26, 2016 [H/t Timothy Wise] http://www.gao.gov/products/GAO-16-709

Russian scientists bracing for massive job losses

By Vladimir Pokrovsky, Science, Aug 2, 2016 [H/t Toshio Fujita]

 $\underline{http://www.sciencemag.org/news/2016/08/russian-scientists-bracing-massive-job-losses}$

BELOW THE BOTTOM LINE:

Doctor Nanny State is here to save us from "Climate Flu"

By Jo Nova, Her Blog, Aug 13, 2016

http://joannenova.com.au/2016/08/doctor-nanny-state-is-here-to-save-us-from-climate-flu/

"I defy anyone to rewrite this next para as one meaningful sentence:

'One obvious explanation is that as Climate Flu remains *relatively* asymptomatic it also remains convenient to ignore the progressive onset of its symptoms, even deny its very existence. And this bias towards denialism is reinforced by the fact that Climate Flu has become an incredibly inconvenient problem to deal with."

Batman, Superman, etc, not needed!

By Staff Writers, Climate Change Predictions.org, [From New York Times, Aug 3, 2016], Aug 8, 2016

http://climatechangepredictions.org/uncategorized/6653

[SEPP Comment: Latest research: Reducing crime will become a hardship on a community by increasing CO2 emissions.]

The perils of climate science

By Staff Writers, Climate Change Predictions.org, [From Grist.org. Oct 28, 2014] Aug 12, 2016 http://climatechangepredictions.org/uncategorized/6659

[SEPP Comment: Climate change will increase depression, substance abuse, suicide, etc.]

ARTICLES:

1. The All-Time Regulation Record

Team Obama has hit 600 major rules, and 50 more may follow.

Editorial, WSJ, Aug 5, 2016

http://www.wsj.com/articles/the-all-time-regulation-record-1470435716?mod=djemMER

SUMMARY: The editorial states: "The progressive explanation for the slowest economic recovery in nearly 70 years is that expansions after financial crises are always like this. There appears to be no statute of limitations on this excuse, which is especially convenient every four years. But those who want more than a political rationalization might look to the all-time presidential record of costly regulation set by the Obama Administration.

That's the news from a report to be released soon showing that President Obama's regulators have completed their 600th major rule. A major rule imposes costs of more than \$100 million. For

those keeping score, that's an average of 81 big ones a year, or roughly one every three days the government is open. Who says our bureaucracies are inefficient?

The two George W. Bush terms were no deregulatory prize, contrary to progressive myth, having pushed out 496 major rules. These included such charms as rules to implement Sarbanes-Oxley and the expansion of Medicare. But Team Obama has already exceeded that by 20%, with 100 new major rules in the last year, and this crowd still has six long months to go.

Sam Batkins of the American Action Forum, who did the study, calculates that the economic cost of all this adds up to \$743 billion, based on data provided by federal agencies. Mr. Batkins doesn't say this, but that estimate is almost surely an understatement because agencies routinely low-ball the costs and overestimate the benefits of the rules they propose.

Mr. Batkins offers some comparative cost perspective: \$743 billion is larger than the GDP of Norway and Israel combined, and it amounts to a regulatory tax of \$2,294 on every American. This eventually shows up in higher prices, or fewer jobs created, or reduced profits and wages.

Such rules are good for lawyers and compliance officers, however. The report figures that compliance requires 194 million hours a year of shuffling paper. Imagine the entire population of Albany, N.Y. (roughly 100,000) working full-time on following government orders.

The regulatory crush isn't over. Mr. Batkins says the Administration has already issued 40 major rules in 2016 and it may have as many as 50 more in the pipeline. In only the past few months the Administration has issued major rules on drones (\$2.6 billion); a fiduciary rule for retirement savings (\$31.5 billion); and new rules on Arctic drilling (\$2.1 billion).

Going forward, the Administration plans to finish up greenhouse gas standards for heavy-duty trucks (\$31 billion), efficiency rules for manufactured housing (\$4.1 billion), and more. Two-term Presidents often rush out rules in the lame duck months after the election, and Mr. Obama could do so without fear of political override if Hillary Clinton wins the election. She'd surely veto any bill Congress passed under the Congressional Review Act.

The larger story here is that progressive economists talk and behave as if none of this affects economic growth. They focus on macroeconomic matters of taxes, spending and monetary policy, while treating microeconomic policy as an afterthought. Yet any entrepreneur or CEO will tell you that the expanding web of federal rules is a major preoccupation. Meanwhile, the regulatory onslaught continues—and so does 1%-2% growth."

2. Chevron Shakedown Rout

Steven Donziger suffers another legal humiliation. Editorial, WSJ, Aug 8, 2016 http://www.wsj.com/articles/chevron-shakedown-rout-1470698287

The editorial states: "One of the most egregious legal frauds in history may finally be over. On Monday a unanimous three-judge panel of the Second Circuit Court of Appeals ruled that an Ecuadorian judgment against Chevron was the product of fraud, coercion and bribery and couldn't be enforced.

In a 127-page opinion, Judge Amalya Kearse said the court "found no basis for dismissal or reversal" of a lower court's decision and called lawyer Steven Donziger's conduct in pursuit of Chevron "corrupt" and a fiasco of legal terrorism and ransom at the highest level. "Donziger hoped for an astronomic estimate that would have an in terrorem effect," the court wrote, "impelling Chevron to agree to a settlement."

That's an understatement. Readers will recall the parade of malfeasance perpetrated by Mr. Donziger as he pursued a \$113 billion case for what he claimed were oil pits left by Texaco (now merged with Chevron) in the 1970s. Texaco's pits had long been cleaned up and the company had been released from liability by Ecuador's government, but Mr. Donziger lined up environmentalists and even actress Daryl Hannah to create a media circus that would force the company to settle.

He took his show to a court in Ecuador, where he conspired with an environmental firm to falsify expert testimony, bribed a judge to get a \$9.5 billion verdict against the company and then ghostwrote the judge's opinion. He even participated in a documentary film about the exploitation, aptly titled "Crude." Much of the U.S. media played along.

In a 485-page decision in March 2014, federal district judge Lewis Kaplan found that Mr. Donziger had committed acts that would qualify as violations of the federal Racketeer Influence and Corrupt Organizations Act and nearly every standard of decent professional behavior. The lawyer's suit was an exercise in pure extortion, Judge Kaplan wrote, noting that the episode was "offensive to the laws of any nation that aspires to the rule of law, including Ecuador."

3. Germany's E.ON Tumbles to Loss on More Write-Downs

Power utility books charges on fossil-fuel generation and storage assets
By Monica Houston-Waesch, WSJ, Aug 10, 2016
http://www.wsj.com/articles/germanys-e-on-tumbles-to-loss-on-more-writedowns-1470809864

The article highlights the plight of utilities providing reliable electricity when faced with unreliable sources given preference. "German electricity utility E.ON SE swung to a first-half net loss after writing down the value of assets held by its conventional power unit Uniper. [It] fell to a net loss of ϵ 3.03 billion (\$3.38 billion) in the six months to end-June from profit of ϵ 1.15 billion from the same period last year.

The utility said it took an impairment charge of \in 3.8 billion for Uniper, including \in 2.9 billion in write-downs on power stations and gas storage facilities, as well as \in 900 million in provisions.

Revenue also declined, falling 11% to €20.25 billion.

E.ON, like other utilities in Germany and other parts of Europe, has been plagued by dramatically low wholesale electricity prices amid a power glut spawned by a rise in renewable energy and low commodity prices.

In June, E.ON won shareholder approval for a plan to spin off conventional energy and trading activities into a new company, Uniper, and to list around 53% of the new unit by year's end.

E.ON said net debt came to ϵ 24.8 billion at end June, up from ϵ 21.3 billion at the end of 2015.

E.ON backed guidance for the full year, excluding Uniper's operations, for adjusted earnings before interest and taxes of ϵ 2.7 billion to ϵ 3.1 billion and adjusted after-tax income of ϵ 600 million to ϵ 1 billion."