

The Week That Was: 2012-11-17 (November 17, 2012)

Brought to You by SEPP (www.SEPP.org)

The Science and Environmental Policy Project

#####

Quote of the Week: *"Give me four parameters, and I can fit an elephant. Give me five, and I can wiggle its trunk."* John von Neumann

#####

Number of the Week: 30%

#####

Which Way Now for SEPP?

Get ready for the worst -- in 2013 and after:

An avalanche of economy-crippling EPA regulations, soaring energy prices, and a White House that has Climate Change as its centerpiece. President Obama acknowledged as much in his acceptance speech, when he said he wanted to "pass on a country that isn't threatened by the destructive power of a warming planet." [NB: The planet hasn't warmed for the past 16 years!] My real concern is for young people who will never know what America was like -- or might have been. They will pay the price in reduced standard of living and job opportunities -- and, more importantly, in reduced Freedom.

We may already be on the 'slippery slope' -- with the 'takers' outvoting the 'producers.' OECD projects that China will overtake the US as the world's largest economy in 2016. My hope is that the US is not beyond repair. Let us pray -- each in his own way.

What we are up against

The environmental movement is arguably among the best-funded and most popular of the interest groups composing the Left today. They raise and spend billions of dollars a year, a fair amount of it coming from governments and duped donors. The five top energy and environment issues in 2013 will likely be:

- regulations on fracking and mining
- state renewable-energy portfolios (mandates)
- subsidies to renewable-energy firms, environmental advocacy groups, and other cronies
- EPA regulations on coal-powered electric generation to the point of eliminating new coal-fired power plants.
- proposals for carbon taxes -- or worse

Stopping them requires exposing their abuse of sound science (including the hot topic of global warming), abuse of courts, and their alliances with groups on the far anti-human Left. Fortunately, other groups are actively opposing thus; it's not necessary for SEPP to duplicate their good efforts. We already work closely with such groups and support them by providing scientific back-up.

SEPP's past -- and proposed action plan

Although I had been involved in climate science throughout my professional life (see http://z4.invisionfree.com/Popular_Technology/index.php?showtopic=3072), my first policy-oriented publication was in 1988: Fact and Fancy on Greenhouse Earth (*The Wall Street Journal*, August 30, 1988). I founded SEPP in 1990 – just as the UN-IPCC published its first Assessment Report on climate science; we achieved 501-c-3 tax-exempt status in 1992, shortly after the Rio de Janeiro Earth Summit and the World Climate Treaty.

Among SEPP's major achievements was the first demonstration of absence of a 'scientific consensus' (the 1995 'Leipzig Declaration') and the publication of booklets or other responses to the four climate-science assessments of the IPCC, culminating in setting up NIPCC (Non-governmental International Panel on Climate Change) in 2007. Since then, we have published two major NIPCC reports and two summaries. Our plan calls for another (final) report and summary in 2013.

In the case of a Romney election victory, I had planned to lay out a road map for Romney-Ryan, focusing on eliminating the current Endangerment Findings of the EPA. The EF is the basis for all carbon-dioxide regulations, whether for power plants or road vehicles. Remove the EF and most of EPA's proposed regulations would collapse.

With Obama's re-election, our proposed plan consists of two parts: science and environmental policy.

On science we are completing a review of the state of climate science that addresses the same audience as IPCC. "Climate Change Reconsidered – 2013" will be the third of this series of NIPCC reports published for us by the Heartland Institute.

Serving as an "expert reviewer" on the forthcoming 5th Assessment report of the UN-IPCC, I can tell you without breaking confidence that the IPCC fails to make its case for AGW (anthropogenic global warming). Here is the abstract of talks I will be giving over the next couple months.

Evidence for AGW (anthropogenic global warming) is put forward in IPCC's chapter 10 on "Attribution." However, NIPCC (Non-governmental International Panel on Climate Change) demonstrates that this evidence cannot survive scrutiny.

The most feared consequence of putative AGW is an accelerated rise in global Sea Level. However, a detailed analysis of available data does not support the claims of IPCC chapter 13.

We conclude therefore that all current international efforts to limit emissions of CO2 and other greenhouse gases are pointless, expensive, -- and largely counter-productive.

On the policy side, we work mainly with established organizations, such as the Heartland Institute and the Competitive Enterprise Institute. They are larger than we, have a talented staff of policy analysts and access to legal advice. Our contribution is to provide scientific back-up. For example, we were co-plaintiffs against the EPA, challenging their Endangerment Finding.

In 2013 we will face a large number of proposed EPA regulations that will do little for the environment but will certainly retard or even stop economic growth. For a (partial) listing see http://www.americanthinker.com/2012/10/obamas_epa_plans_for_2013.html

Our task is to show that most of these regulations are destructive, unscientific and unnecessary.

We invite your comments and look forward to an active and productive coming year.

SEPP pays no salaries, and does not solicit support from corporations or government agencies. It depends upon contributions from private donors.

SEASON'S GREETINGS

S. Fred Singer, PhD
Chairman, Science & Environmental Policy Project (SEPP)
1600 S. Eads St., Suite 712-S
Arlington, VA 22202-2907
<singer@SEPP.org>
1-703-920-2744

#####

THIS WEEK:

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

On the Road Again: On November 28, Fred Singer will be leaving for another lecture tour in Europe. On November 30 he will be speaking at the EIKE Conference in Munich, co-sponsored by Heartland. On December 3, he will be in Geneva giving three talks: luncheon talk to the BSCC, an afternoon talk with the WMO, and an evening talk “The Climate Debate.” On December 5, he give a 3pm open lecture on “Skeptical about Climate Catastrophes” at the Google building in Zurich To RSVP contact Johan Branstroem +41 76 79 89 579. He will give another open talk in Vienna on Dec 7 at 6 pm. To RSVP contact Gabriella Engler at the F. von Hayek Institute. For additional information please contact Ken@SEPP.org.

The Race to Doha: On Monday, November 26, the 18th annual Conference of Parties (COP 18) of the United Nations Framework Convention on Climate Change (UNFCCC) opens in Doha, Qatar, for a two-week session to try to reach an agreement for the control of carbon dioxide (CO2) emissions replacing the expiring Kyoto Protocol. [The setting is ironic; the opulence of Doha represents the benefits of a petroleum-based state economy.] Up to now, the prospects appear dim for a bold new treaty for international control of the economies of many nations by controlling CO2 emissions. The leaders of China, India, Brazil, and South Africa appear to be unwilling to subject their citizens to international control which would drastically increase the costs of electricity and curtail economic growth. They appear to be aware of the enormous benefits of economic growth to the citizens of their countries – something many leaders of developed countries appear to be blissfully ignorant. As long as the evidence supporting that claim that carbon dioxide emissions are causing unprecedented and dangerous global warming remains illusionary, it is doubtful that China, India, etc will enter into international agreements limiting CO2.

The climate science as proclaimed by the UN Intergovernmental Panel on Climate Change (IPCC) is failing. According to surface temperature data published by the Hadley Center and the Climatic Research Unit (HadCRU), there has been no warming trend for sixteen years. According to satellite data published by the University of Alabama, Huntsville, there has been no atmospheric warming trend (lower troposphere) for at least a decade (depending on how one interprets the data). The climate models on which the IPCC makes dire prophecies are failing significantly, and the knowledge of the climate system proclaimed by the IPCC is blatantly inadequate. The climate establishment is becoming desperate.

Now, many international organizations have become climate soothsayers by predicting dire consequences if an agreement is not reached. They appear to be in a race on who can predict the greatest increase in temperatures in the shortest time. Dire predictions from the UN Environment Programme (UNEP) and the World Meteorological Organization (WMO) were expected, because they are the parent organizations of the IPCC. UNEP claims that current emissions are far greater than those consistent with an artificially contrived 2°C limit to temperature increase for pre-industrial temperatures. Of course, the industrial area began during the Little Ice Age, the coldest period since the last major ice age. UNEP states that without controls temperatures would increase by 3 to 5°C by the end of the century.

Seeing all the fun, other international organizations have joined the race. As discussed in last week's TWTW, the International Energy Agency (IEA) had as point one in its summary of the World Energy Outlook, 2012, a prediction of 3.6°C. Journalist Peter Foster discovered the IEA rather cheated, buried in the report was the statement that the increase would take place by 2200 – not this century as most who read the summary would assume.

Perhaps the most disturbing prediction came from the World Bank which predicted a 4°C rise by the 2060s. This is disturbing because it has long been considered that one of the missions of the World Bank was to promote economic growth in lesser-developed countries. One of the most important components of economic growth is affordable electricity and for many lesser-developed countries, the most affordable electricity comes from coal-fired power plants, which, generally, emit more CO₂ than other major forms of electricity generation.

In its slick publication, **Turn Down the 4° Heat**, the World Bank appears to have changed its mission. No doubt, any country that desires to obtain a World Bank loan for a coal-fired power plant to provide needed electricity for its citizens will face far greater hurdles now than in the past. Please see links under Defending the Orthodoxy, Problems Within the Orthodoxy, Communicating Better to the Public – Exaggerate, or be Vague?, and Communicating Better to the Public – Make things up.

Please note that the word “predictions” was used above rather than the more technically correct word “projections.” The climate models have never been verified and validated, and projections is the correct term. However, the studies are being treated as scientific certainty, which they are not, so the term “predictions” is used.

What about the predictions of the World Meteorological Organization?

Number of the Week: 30% In its November press release stating that greenhouse gas concentrations [GHG] in the atmosphere reached an all time-high in 2011 [a modern high] the World Metrological Organization (WMO) stated: “Between 1990 and 2011 there was a 30% increase in radiative forcing – the warming effect on our climate – because of carbon dioxide (CO2) and other heat-trapping long-lived gases.” Further: “Carbon dioxide is the single-most important greenhouse gas emitted by human activities. **It is responsible for 85% of the increase in radiative forcing over the past decade.**” [Boldface added]. The WMO failed to mention that there has been no corresponding increase in temperatures for over a decade.

Since there is no trend of increasing temperatures, while radiative forcing has increased, clearly there is something wrong with the theory and the models proclaimed by the IPCC. Please see link under Defending the Orthodoxy.

Rewards and Punishments: Ross McKittrick has a slide presentation clearly demonstrating the unequal distribution of benefits and costs to the global society from international limits on CO2 emissions, provided there is not clear evidence that CO2 emissions cause unprecedented and dangerous global warming. According to McKittrick, the benefits are largely psychological, accruing to wealthy urban westerners. The costs are real costs falling on the poor, particularly in 3rd world communities with no electricity.

McKittrick gives an example of the difficulty of obtaining World Bank financing a much needed power plant in South Africa that would benefit the poor. Let us hope that the new World Bank report, discussed above, does not signal a policy change of the World Bank to deny such loans in the future. Please see link under Seeking a Common Ground.

[There is little reason to believe that the bulk of the \$100 Billion in annual transfers from Western nations to 3rd world nations, as demanded by the UN, will actually benefit the poor.]

Limiting Growth: Western politicians are almost falling over themselves in their efforts to limit economic growth and drive up electricity costs to their citizens. Few have taken notice of a report by the Organisation for Economic Co-operation and Development (OECD). It states: “On the basis of 2005 purchasing power parities (PPPs), China is projected to surpass the Euro Area in a year or so and the United States in a few more years, to become the largest economy in the world, and India is projected to surpass Japan in the next year or two and the Euro area in about 20 years.” Further: “**The United States is expected to cede its place as the world's largest economy to China, as early as 2016.** [Boldface added] India’s GDP is also expected to pass that of the United States over the long term.”

Is there any doubt why China and India do not wish to limit carbon dioxide emissions? Please see link under Economic Issues.

EPA Endangerment Finding: There appears to be little doubt that the EPA will use its finding that GHG emissions (actually CO2 emissions) endanger public health and welfare. SEPP has been unable to find any scientific basis for EPA’s claim to the Federal court of 90 to 99% certainty in its findings. If any readers are aware of such a calculated certainty, please contact Ken@SEPP.org.

Climate Dialogue: A new group, Climate Dialogue, has been formed to promote the exchange of ideas regarding Climate Science. Both climate experts and the general public are welcome to participate. The first issue addressed is the melting of the Arctic: “What are the causes of the decline in Arctic sea ice? Is it dominated by global warming or can it be explained by natural variability?”

The discussion questions for the first issue are:

- 1) What are the main processes causing the decline in Arctic sea ice?
- 2) How unusual is the current decline in historical perspective?
- 3) What is the evidence for a substantial role of “global warming” in the current Arctic sea ice decline?
- 4) What is the evidence for a substantial role of natural variability (AO, AMO, NAO, PDO)?
- 5) What percentage of the recent decline would you attribute to anthropogenic greenhouse gases?
- 6) Do you think the Arctic could be ice free in the (near) future and when do you think this could happen?

The editorial staff are: 1) Rob van Dorland of the Royal Netherlands Meteorological Institute (KNMI); 2) Bart Strengers, a climate policy analyst and modeler in the IMAGE-project at the PBL, the Netherlands Environmental Assessment Agency, and 3) Marcel Crok, an investigative science writer.

The organization has promise of being an excellent forum for the exchange of ideas on all sides of the issues. Such forums are much needed and SEPP gives them best wishes. Please see link under Seeking a Common Ground.

ABC: Jo Anne Nova reports that a science program broadcast by the Australian Government - owned Australian Broadcast Corporation (ABC) equated global warming skeptics with pedophiles. *Argumentum ad hominem* has long been a standard tool of those criticizing skeptics and reflects that those making such attacks cannot develop logical reasons why the skeptics are wrong. Let us hope that ABC has not fully reached that level. Please see link under Communicating Better to the Public – Make things up.

WUWT-TV: Anthony Watts is uploading the videos from his 24-hour show on global warming skeptics. Since he is not well financed, the process is slow with the equipment he has. No doubt, there are many installments that TWTW readers may wish to review. Please see links under Challenging the Orthodoxy – WUWT-TV.

Secret Accounts: CEI’s Chris Horner continues to seek the secret email accounts used by public officials to conduct public business away from public scrutiny. He continues to unveil official deception and deceit regarding these accounts that should be open to the public. Please see Article # 1 and link under Cap and Trade and Carbon Taxes.

Amplifications and Corrections: James Wallace correctly noted that the October 6 TWTW contained an error in tense. The corrected statement is: The US has passed Russia as the leading producer of natural gas and **is projected** to pass Russia as the second largest producer of oil.

Richard Lindzen amplified comments on the iris effect:

“[Ken] got the story a little wrong. In paragraph 15 of the attached, Trenberth and Fasullo explicitly indicate that what they are seeing is the iris, but then proceed to cite papers that allegedly disprove what both they and we found. Of course the papers they cite are, in fact, silly, and we did publish the responses, but our responses are never mentioned. There are other papers that have confirmed what we found, and they all go through the litany of saying that our theory has been 'disproven' or, in the environmental literature 'discredited.' Apparently, this is needed in order to publish anything supportive of the iris. I spoke about this long ago at NASA-Goddard.”

Quote of the Week: One can speculate what the famous mathematician John von Neumann would have said about the climate models used by the IPCC. According to reports, the modelers are not limiting the number of parameters by using empirical research to establish values for them. Instead, they are increasing the number of parameters. Would von Neumann say something along the line: with the IPCC parameters I can make an elephant do acrobatics on a tightrope?

#####

ARTICLES:

For the numbered articles below please see this week’s TWTW at: **www.sepp.org**. The articles are at the end of the pdf.

1. Why EPA’s 'alias' email accounts matter

By Christopher Horner, CEI, Nov 26, 2012 [To be published on Monday]

Link not yet available

2. The Scientific Blind Spot

Knowledge is less a canon than a consensus.

By David Shaywitz, WSJ, Nov 18, 2012

http://online.wsj.com/article/SB10001424127887324894104578113590368047244.html?mod=IT_P_opinion_0

[SEPP Comment: A book review on the persistence of error.]

3. Drillers Begin Reusing 'Frack Water'

Energy Firms Explore Recycling Options for an Industry That Consumes Water on Pace With Chicago

By Alison Sider, Russell Gold and Ben Lefebvre, WSJ, Nov 20, 2012

http://online.wsj.com/article/SB10001424052970203937004578077183112409260.html?mod=W_SJ_Energy_leftHeadlines

#####

NEWS YOU CAN USE:

Challenging the Orthodoxy

Another Dissident In Germany Speaks Up In An Open Letter – Even Warmist Science Shows There’s Been No Warming

By P. Gosselin, No Tricks Zone, Nov 21, 2012

<http://notrickszone.com/2012/11/21/another-dissident-in-germany-speaks-up-in-an-open-letter-even-warmist-science-admits-theres-been-no-warming/>

Dissent is growing and skepticism is taking root in Germany, as one prominent figure after another begin to speak out. This all goes back to Prof. Fred Singer's visit to Germany 2010, which produced an uproar, especially among the Greens and Socialists.

In for their COP -- Part III

By Michael Kile, Quadrant, Nov 23, 2012

<http://www.quadrant.org.au/blogs/doomed-planet/2012/11/in-for-their-cop-part-iii>

The United Nations Framework Convention on Climate Change (UNFCCC) is the parent treaty of the 1997 Kyoto Protocol, which now covers only 18 per cent of global GHG emissions. Under the Protocol, 37 states – mainly developed countries – have agreed to legally binding emission limitation and reduction commitments. It has yet to be ratified by the US, while NZ, Canada, Japan and Russia have said they would not sign up to a second round when the commitment lapses at the end of 2012.

[SEPP Comment: The third of a three part essay describing the convoluted process to establish international control of greenhouse gases and the exaggerations by international organizations.]

Challenging the Orthodoxy – WUWT.TV

First WUWT.TV video now online – Senator Inhofe interview

By Anthony Watts, WUWT, Nov 20, 2012

<http://wattsupwiththat.com/2012/11/20/first-wuwt-tv-video-now-online-senator-inhofe-interview/>

The next video from WUWT.TV: Dr. Ross McKittrick

By Anthony Watts, WUWT, Nov 23, 2012

<http://wattsupwiththat.com/2012/11/23/the-next-video-from-wuwt-tv-dr-ross-mckittrick/>

Defending the Orthodoxy

Greenhouse Gas Concentrations Reach New Record

WMO Bulletin highlights pivotal role of carbon sinks

Press Release No. 965

By Staff Writers, WMO, Nov 20, 2012

http://www.wmo.int/pages/mediacentre/press_releases/pr_965_en.html

Warming Temperatures Will Change Greenland's Face

By Staff Writers, New York NY (SPX), Nov 20, 2012

http://www.terraily.com/reports/Warming_Temperatures_Will_Change_Greenlands_Face_999.html

They compared two possible future CO₂ scenarios: a concentration of carbon dioxide in the atmosphere projected for the end of the century of 850 parts per million (ppm) versus a more aggressive projection of 1370 ppm. The first approximates the current rate of increase.

[SEPP Comment: Assuming the assumed climate sensitivity to carbon dioxide is correct.]

Global Carbon Dioxide Levels Hit New Record in 2011, Survey Shows

By Staff Writers, Reuters, Nov 20, 2012

http://www.huffingtonpost.com/2012/11/20/global-carbon-dioxide-levels_n_2163612.html?utm_hp_ref=green

[SEPP Comment: No mention of the failure of temperatures to rise for more than a decade. Reciting the fears of declining ocean alkalinity as ocean acidification.]

IAEA Workshop Warns Ocean Acidification Threatens Seafood Supply

By Peter Rickwood, IAEA, Nov 20, 2012

<http://www.iaea.org/newscenter/news/2012/seafoodsupply.html>

Questioning the Orthodoxy

Another COP-out?

By Martin Livermore, The Scientific Alliance, Nov 23, 2012

<http://www.scientific-alliance.org/scientific-alliance-newsletter/another-cop-out>

Globe and Mail columnist misguided on climate and energy

By Tom Harris, New Ideas, Nov 22, 2012

<http://www.fcpp.org/blog/globe-and-mail-columnist-misguided-on-climate-and-energy/>

Are Al Gore's "Dirty Weather" Claims And Tactics Criminal?

By Tim Ball, A Different Prospective, Nov 22, 2012

<http://drtimball.com/2012/are-al-gores-dirty-weather-claims-and-tactics-criminal/>

Speak loudly and carry a busted hockey stick

By Walter Starck, Quadrant, Nov 19, 2012

<http://www.quadrant.org.au/blogs/doomed-planet/2012/11/speak-loudly-and-carry-a-busted-hockey-stick>

The average temperature for the Earth, or any region or even any specific place is very difficult to determine with any accuracy. At any given time surface air temperatures around the world range over about 100°C. Even in the same place they can vary by nearly that much seasonally and as much as 30°C or more in a day. Weather stations are relatively few and located very irregularly. Well-maintained stations with good records going back a century or more can be counted on one's fingers. Even then only maximum and minimum temperatures or ones at a few particular times of day are usually available. Maintenance, siting, and surrounding land use also all have influences on the temperatures recorded.

Global warming hysteria will kill jobs

Hydraulic fracturing myths threaten U.S. economy

By Paul Driessen, Washington Times, Nov 20, 2012

<http://www.washingtontimes.com/news/2012/nov/20/global-warming-hysteria-will-kill-jobs-by-paul-dri/>

Questioning European Green

A truce over wind farms...but how long will it last?

Both the Conservatives and Lib Dems are claiming a victory after striking a deal which paves the way for a new generation of nuclear power stations and wind farms but how long will it last, asks Rowena Mason.

By Rowena Mason, Telegraph, UK, Nov 23, 2012 [H/t GWPF]

<http://www.telegraph.co.uk/earth/environment/9698624/A-truce-over-wind-farms...but-how-long-will-it-last.html>

Expanding the Orthodoxy

UN Climate Chief: Talks Are

Making Slow, Steady Progress

With a new round of climate negotiations about to get underway, Christiana Figueres, head of the United Nations climate organization, explains in a Yale Environment 360 interview why, despite the obstacles, she thinks the world community is slowly inching its way toward an agreement.

By Elizabeth Kolbert, Environment 360, Nov 21, 2012 [H/t Bishop Hill]

http://e360.yale.edu/feature/un_climate_chief_christiana_figueres_talks_making_progress_on_ev_e_of_doha/2593/#.UK05kQ6CU1g.twitter

[SEPP Comment: As Andrew Montford states, the conclusion can be better termed as scientific socialism, not science.]

Shocker from UEA: ‘consensus-based decision ... stifles progress’

By Anthony Watts, WUWT, Nov 19, 2012

<http://wattsupwiththat.com/2012/11/19/shocker-from-uea-consensus-based-decision-stifles-progress/>

Problems Within the Orthodoxy

China rules out new climate 'regime', setting up US conflict

By Alex Morales, Bloomberg, Nov 21, 2012 [H/t GWPF]

<http://www.independent.co.uk/news/world/americas/china-rules-out-new-climate-regime-setting-up-us-conflict-8339504.html>

China seeks delay over global climate treaty

Beijing wants industrialised countries to commit to cuts in greenhouse gas emissions before agreeing to an extension of the 1997 Kyoto Protocol

By Li Jing, South China Morning Post, Nov 22, 2012 [H/t GWPF]

<http://www.scmp.com/news/china/article/1087804/china-seeks-delay-over-global-climate-treaty>

Climate change no longer a priority

By N.R. Krishnan, Hindu, Nov 21, 2012 [H/t GWPF]

<http://www.thehindubusinessline.com/opinion/climate-change-no-longer-a-priority/article4119896.ece>

Seeking a Common Ground

The BBC and the consensus

By Andrew Montford, Bishop Hill, Nov 22, 2012

<http://bishophill.squarespace.com/blog/2012/11/22/the-bbc-and-the-consensus.html>

[SEPP Comment: According to Montford, the real common ground of disagreement is that we do not know if carbon dioxide emissions are a major problem or not. Can we call this lack of knowledge the consensus?]

Announcing the launch of ClimateDialogue.org

By Anthony Watts, WUWT, Nov 16, 2012

<http://wattsupwiththat.com/2012/11/16/announcing-the-launch-of-climatedialogue-org/>

CIIGI Conference

By Ross McKittrick, Presentation, Center for International Governance Innovation Nov 15, 2012
[About 14 minutes into the video]

<http://new.livestream.com/cigionline2/events/1677785/videos/6418490>

A graphical look at worldwide CO2 numbers

By Anthony Watts, WUWT, Nov 23, 2012

<http://wattsupwiththat.com/2012/11/23/a-graphical-look-at-worldwide-co2-numbers/#more-74808>

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

Targets for limiting global warming further out of reach: UN

By Staff Writers, Paris (AFP), Nov 21, 2012

http://www.terraily.com/reports/Targets_for_limiting_global_warming_further_out_of_reach_UN_999.html

Based on current pledges, global average temperatures could rise by three to five degrees Celsius (5.4 to 9.0 degrees Fahrenheit) this century -- way above the two degree Celsius being targeted, said a UN Environment Programme (UNEP) report.

Report: 'Swift action' needed to prevent 2 C temperature rise

By Zack Colman, The Hill, Nov 21, 2012

<http://thehill.com/blogs/e2-wire/e2-wire/269055-report-swift-action-needed-to-prevent-2-c-temperature-rise>

A Hurricane of Global Warming Lies

By Alan Caruba, Warning Signs, Nov 20, 2012

<http://factsnotfantasy.blogspot.com/2012/11/a-hurricane-of-global-warming-lies.html>

German Die Zeit's Twisted Perception: Doubt Being Fanned Worldwide By Climate Godfather Marc Morano

By P. Gosselin, No Tricks Zone, Nov 23, 2012

<http://notrickszone.com/2012/11/23/german-die-zeits-twisted-perception-doubt-being-fanned-worldwide-by-climate-godfather-marc-morano/>

Die Zeit also focuses on Fred Singer and the late Frederick Seitz, who they write are “part of an industry-financed complex of associations and institutes that has grown up around Washington, a sort of Potemkin village of science, populated by paid experts who serve the interests of their clients. [...] A well-oiled, self-perpetuating denial machine“.

New dating of sea-level records reveals rapid response between ice volume and polar temperature

By Staff Writers, Southampton UK (SPX) Nov 20, 2012

http://www.terraily.com/reports/New_dating_of_sea_level_records_reveals_rapid_response_between_ice_volume_and_polar_temperature_999.html

[SEPP Comment: Over the last 160 years the earth did not warm faster than it did following the Younger Dryas. Further, the total ice mass was far greater than today. Any comparisons must take this into account.

Communicating Better to the Public – Make things up.

Turn Down the 4° Heat

Why 4°C Warmer World Must be Avoided

A Report for the World Bank by the Potsdam Institute for Climate Impact Research and , Climate Analytics, Nov, 2012

http://climatechange.worldbank.org/sites/default/files/Turn_Down_the_Heat_Executive_Summary_English.pdf

4-degrees briefing for the World Bank: The risks of a future without climate policy

By Staff Writers, Berlin, Germany (SPX), Nov 20, 2012

http://www.terradaily.com/reports/4_degrees_briefing_for_the_World_Bank_The_risks_of_a_future_without_climate_policy_999.html

World Bank fears devastating 4.0 degree warming

By Staff Writers, Washington (AFP), Nov 18, 2012

http://www.terradaily.com/reports/World_Bank_fears_devastating_40_degree_warming_999.html

The Emissions Gap Report 2012

A UNEP Synthesis Report

By Staff Writers, United Nations Environment Programme, Nov, 2012

<http://www.unep.org/publications/ebooks/emissionsgap2012/>

[SEPP Comment: The gap is the difference in GHG emissions between what the UNEP projects is needed to keep temperatures from rising above 2 C during the industrial era and the current pledges to reduce emissions. Of course, it is pure speculation because the models used have not been validated.]

Report: 'Swift action' needed to prevent 2 C temperature rise

By Zack Colman, The Hill, Nov 21, 2012

<http://thehill.com/blogs/e2-wire/e2-wire/269055-report-swift-action-needed-to-prevent-2-c-temperature-rise>

BREAKING: Skeptics equated to pedophiles — Robyn Williams ABC. Time to protest.

By Jo Nova, Her Blog, Nov 24, 2012

<http://joannenova.com.au/2012/11/breaking-skeptics-are-like-paedophiles-drug-robyn-williams-abc-time-to-protest/>

BBC Special

The BBC's 'dirty little secret' lands it in a new scandal

The truth of a secret meeting that decided BBC policy on climate change has come out online

By Christopher Booker, Telegraph, UK, Nov 17, 2012 [H/t Number Watch]

<http://www.telegraph.co.uk/comment/9684775/The-BBCs-dirty-little-secret-lands-it-in-a-new-scandal.html>

Changing Seas

What Goes Down Must Come Back Up

By Staff Writers, Pasadena CA (JPL), Nov 20, 2012

http://www.spacedaily.com/reports/What_Goes_Down_Must_Come_Back_Up_999.html

*[SEPP Comment: Sea levels are rising **again**? No alarmists mentioned they had fallen.]*

Caution Urged About Sea Level Claims

By David Whitehouse, GWPF, Nov 20, 2012

<http://www.thegwpf.org/caution-urged-sea-level-claims/>

Changing Sea Ice

“You’ll Be Amazed By What Was Observed” – Inconvenient Arctic Observations Before Satellite Measurements

By P. Gosselin, Translated from Die kalte Sonne, No Tricks Zone, Nov 22, 2012

<http://notrickszone.com/2012/11/22/youll-be-amazed-by-what-was-observed-inconvenient-arctic-observations-before-satellite-measurements/>

Sea ice extent linked to ocean currents – hindcast model works

By Anthony Watts, WUWT, Nov 21, 2012

<http://wattsupwiththat.com/2012/11/21/sea-ice-extent-linked-to-ocean-currents-hindcast-model-works/>

Changing Earth

The Retreat of the Gualas Glacier

Scientists find a surprising cause for diminishing icefields

By Lonny Lippsett, Oceanus, Nov 20, 2012

<http://www.whoi.edu/oceanus/feature/gualas-glacier>

Review of Recent Scientific Articles by NIPCC

For a full list of articles see www.NIPCCreport.org

Coccolithophores in the Bay of Biscay

Reference: Smith, H.E.K., Tyrrell, T., Charalampopoulou, A., Dumousseaud, C., Legge, O.J., Birchenough, S., Pettit, L.R., Garley, R., Hartman, S.E., Hartman, M.C., Sagoo, N., Daniels, C.J., Achterberg, E.P. and Hydes, D.J. 2012. Predominance of heavily calcified coccolithophores at low CaCO₃ saturation during winter in the Bay of Biscay. *Proceedings of the National Academy of Sciences USA* 109: 8845-8849.

<http://www.nipccreport.org/articles/2012/nov/14nov2012a3.html>

[SEPP Comment: Contradicting claims of disaster from changing alkalinity of the oceans.]

Effects of Ocean Warming and Acidification on an Antarctic Echinoid

Reference: Ericson, J.A., Ho, M.A., Miskelly, A., King, C.K., Virtue, P., Tilbrook, B. and Byrne, M. 2012. Combined effects of two ocean change stressors, warming and acidification, on fertilization and early development of the Antarctic echinoid *Sterechinus neumayeri*. *Polar Biology* 35: 1027-1034.

<http://www.nipccreport.org/articles/2012/nov/20nov2012a3.html>

More Evidence for a Truly Global Little Ice Age

Reference: Simms, A.R., Ivins, E.R., DeWitt, R., Kouremenos, P. and Simkins, L.M. 2012.

Timing of the most recent Neoglacial advance and retreat in the South Shetland Islands, Antarctic Peninsula: insights from raised beaches and Holocene uplift. *Quaternary Science Reviews* 47: 41-55.

<http://www.nipccreport.org/articles/2012/nov/21nov2012a2.html>

Eighty Years of Extreme Snowfalls and Snow Depths in Switzerland

Reference: Marty, C. and Blanchet, J. 2012. Long-term changes in annual maximum snow depth and snowfall in Switzerland based on extreme value statistics. *Climatic Change* 111: 705-721.
<http://www.nipccreport.org/articles/2012/nov/21nov2012a3.html>

Economic Issues

Balance of economic power will shift dramatically over the next 50 years, says OECD

By Staff Writers, OECD, Nov 9, 2012

<http://www.oecd.org/newsroom/balanceofeconomicpowerwillshiftdramaticallyoverthenext50yearsaysoced.htm>

Cap-and-Trade and Carbon Taxes

Paying for Carbon

By Donn Dears, Power for USA, Nov 23, 2012

<http://dddusmma.wordpress.com/>

[SEPP Comment: A basic, hard analysis that all politicians who think a carbon tax is free money should be compelled to read.]

Treasury Stonewalls FOIA Request

Vitter questions Treasury stymieing of carbon tax FOIA request

By CJ Ciaramella, Free Beacon, Nov 20, 2012

<http://freebeacon.com/treasury-stonewalls-foia-request/>

[SEPP Comment: Another example of bureaucrats ignoring the law.]

The Case for a Carbon Tax

Americans are paying less than the full cost of their energy use.

By A. Barton Hinkle, Reason, Nov 19, 2012

<http://reason.com/archives/2012/11/19/the-case-for-a-carbon-tax>

[SEPP Comment: The author accepts the proclaimed damages from enhanced atmospheric carbon dioxide and ignores the demonstrated benefits.]

Subsidies and Mandates Forever

Analyzing the cost of federal and other renewable energy subsidies in Texas

By Staff Writers, Austin TX (SPX), Nov 20, 2012

[http://www.energy-](http://www.energy-daily.com/reports/Analyzing_the_cost_of_federal_and_other_renewable_energy_subsidies_in_Texas_999.html)

[daily.com/reports/Analyzing the cost of federal and other renewable energy subsidies in Texas_999.html](http://www.energy-daily.com/reports/Analyzing_the_cost_of_federal_and_other_renewable_energy_subsidies_in_Texas_999.html)

[SEPP Comment: Wind-blown Texas has more wind power subsidies than it needs.]

EPA and other Regulators on the March

Is The Obama EPA Running Its Own Black-Ops Program?

Editorial, IBD, Nov 19, 2012 [H/t Timothy Wise]

<http://news.investors.com/ibd-editorials/111912-634046-epa-lisa-jackson-emailing-as-richard-windsor.htm>

Why Courts Should Repeal EPA's 'Carbon Pollution' Standard (and why you should care)

By Marlo Lewis, Cooler Heads, Nov 19, 2012

<http://www.globalwarming.org/2012/11/19/why-courts-should-repeal-epas-carbon-pollution-standard-and-why-you-should-care/>

[SEPP Comment: A repeat of a Forbes article, but with hyperlinks.]

The EPA vs. State Economies

Its regulations drive up the price of corn.

By Marlo Lewis, National Review, Nov 19, 2012

<http://www.nationalreview.com/articles/333604/epa-vs-state-economies-marlo-lewis#>

Energy Issues – Non-US

Oil sands to be economic driver for Canada

By Staff Writers, Edmonton, Alberta (UPI), Nov 16, 2012

http://www.energy-daily.com/reports/Oil_sands_to_be_economic_driver_for_Canada_999.html

[SEPP Comment: If environmentalists allow it.]

Australia managed the mining boom so well we can't afford cancer treatments

By Jo Nova, Her Blog, Nov 21, 2012

<http://joannenova.com.au/2012/11/australia-managed-the-mining-boom-so-well-we-cant-afford-cancer-treatments/>

Energy Issues -- US

Global warming hysteria will kill jobs

Hydraulic fracturing myths threaten U.S. economy

By Paul Driessen, Washington Times, Nov 20, 2012

<http://www.washingtontimes.com/news/2012/nov/20/global-warming-hysteria-will-kill-jobs-by-paul-dri/>

Oil and Natural Gas – the Future or the Past?

The Next Oil Revolution

By Peter Glover, Energy Tribune, Nov 17, 2012

<http://www.energytribune.com/65437/the-next-oil-revolution>

Return of King Coal?

More than 1,000 new coal plants planned worldwide, figures show

World Resources Institute identifies 1,200 coal plants in planning across 59 countries, with about three-quarters in China and India

By Damian Carrington, The Guardian, UK, Nov 19, 2012 [H/t Energy Tribune]

<http://www.guardian.co.uk/environment/2012/nov/20/coal-plants-world-resources-institute>

Nuclear Energy and Fears

Another Nail

By Donn Dears, Power for USA, Nov 20 2012

<http://dddusmma.wordpress.com/2012/11/20/another-nail/>

[SEPP Comment: The winding down of nuclear energy in the US?]

Bucking the Trend: Nuclear China in a Post Fukushima World

By Tim Daiss, Energy Tribune, Nov 20, 2012
<http://www.energytribune.com/65641/nuclear-china-post-fukushima-world>

Alternative, Green (“Clean”) Solar and Wind
Wind Power Fiasco: Call Your Congressman

By Norman Rogers, American Thinker, Nov 23, 2012
http://www.americanthinker.com/2012/11/wind_power_fiasco_call_your_congressman.html

The great British wind scam

Your taxes are meant to be supporting smaller turbines. In fact, they’re making giant ones less efficient

By Sebastian Payne, Spectator, Nov 24, 2012
<http://www.spectator.co.uk/features/8766481/the-great-british-wind-scam/>

Alternative, Green (“Clean”) Energy -- Other
14,000 Jobs Possible from Military Biofuels Initiative

By Staff Writers, Washington DC (SPX), Nov 16, 2012
http://www.biofueldaily.com/reports/14000_Jobs_Possible_from_Military_Biofuels_Initiative_999.html

[SEPP Comment: The military squandering money can create jobs.]

Health, Energy, and Climate

Smog has to be cleared

By Sunita Narain, Down to Earth, Nov 30, 2012
<http://www.downtoearth.org.in/content/smog-has-be-cleared>

[SEPP Comment: The major environmental issues are in developing countries, not in developed countries.]

Environmental Industry

The fine art of scaring children

By Tony Thomas, Quadrant, Nov 20, 2012
<http://www.quadrant.org.au/blogs/doomed-planet/2012/11/the-fine-art-of-scaring-children>
Ballarat has a great art gallery, with its original architecture and gold-financed 19th century acquisitions. I was stoging around there last week after enjoying its show on floral illustrations, dating back to William Dampier. In the main halls it has an “art trail” for children, directing them to half a dozen works. Each has a screed alongside backgrounding the painting and giving the kids some quizzes.

Other Scientific News

At least one-third of marine species remain undescribed

By Staff Writers, London, UK (SPX), Nov 22, 2012
http://www.terraily.com/reports/At_least_one_third_of_marine_species_remain_undescribed_999.html

[SEPP Comment: Certainly draws into question the claims by some that a third of marine species are going extinct. We don’t know what they are but they are going extinct?]

#####

BELOW THE BOTTOM LINE:

C.I.A. Closes Its Climate Change Office

By John Broder, NYT, Nov 20, 2012

<http://green.blogs.nytimes.com/2012/11/20/c-i-a-closes-its-climate-change-office/>

[SEPP Comment: After an alarmist National Research Council report on global warming / climate change requested by the CIA.]

Another climate sticky wicket – ‘climate change is poised to reduce the viability of the maple syrup industry’

By Anthony Watts, WUWT, Nov 20, 2012

<http://wattsupwiththat.com/2012/11/20/another-climate-sticky-wicket-climate-change-is-poised-to-reduce-the-viability-of-the-maple-syrup-industry/>

[SEPP Comment: The report claims harmful effects of global warming on the moose in the White Mountains of New Hampshire. Fifty years ago there were no moose in the White Mountains of New Hampshire. Perhaps they are the result of global warming.]

Laughing gas bugs

By Anthony Watts, WUWT, Nov 22, 2012

<http://wattsupwiththat.com/2012/11/22/laughing-gas-bugs/>

#####

ARTICLES:

1. Why EPA’s ‘alias’ email accounts matter

By Christopher Horner, CEI, [To be published on Dec 26 in Washington Examiner.]

Link not yet available

The Environmental Protection Agency is the latest Obama bureaucracy exposed for embarrassing efforts to avert transparency. Its administrator, Lisa Jackson, has been using the email alias “Richard Windsor” to conduct agency business, which might allow some policy conversations to avoid scrutiny and circumvent public records laws.

So far, the EPA has offered a two-part defense of such accounts, first revealed in my new book, *The Liberal War on Transparency*. First, everybody does it: “For more than a decade, EPA Administrators have been assigned two official, government-issued email accounts: a public account and an internal account.” Second, the masses made us do it: the overwhelming volume of mail an administrator would receive from the public meant she needed an account she would actually read and write from.

Both excuses, though slight on detail, prove too much.

Consider what lies behind the anodyne phrase “for more than a decade.” While researching my book, I discovered a 2008 EPA memo to the National Archivist reporting a records management problem. The agency had discovered “secondary” non-public email accounts for EPA administrators instigated earlier, under and with the active participation of Clinton-era EPA administrator Carol Browner.

That is remarkable because in 2000, a federal court ordered Browner to preserve her records -- specifically her email -- in a lawsuit filed by Mark Levin’s Landmark Legal Foundation. Although she later pled ignorance of the order, the next morning Browner instructed EPA

information technology staff to erase her hard drive and backup tapes, as a computer contractor later testified.

Her defense for having records destroyed was that she didn't use her computer for email.

You can imagine my surprise, then, to read of her involvement in arranging what is fairly described as a secret email account. The April 11, 2008 memo that I obtained acknowledges that Browner had such an account, and that such accounts were initiated for the first time under her because it would be impractical to correspond with an email account whose address was known to the public.

This, and that she had assisted in creating the account, also raised further questions about her explanation for having her computer's history erased.

The reason EPA was required to report to the Archivist was that its technicians found that these accounts were set on "auto-delete," destroying all records 90 days after they were last modified. As such, EPA said, it was difficult but not impossible to reconstruct the accounts' activity. The Agency did reconstruct some administrators' emails by finding copies sent to or received from the accounts by others in the agency, but they made no effort to reconstruct Ms. Browner's account.

Their reason was that "Former Administrator Browner reportedly did not use her secondary e-mail account, therefore there was no loss of records."

Notice that conclusion is simply an assertion, one EPA elected not to check.

It would seem worthwhile to check, given the massive, costly operation that Browner's cyber-bonfire created. On its face, this destruction of records seemingly violates the U.S. criminal code (Title 18 Section 2071). The same court ordered thousands of hard drives examined in search of Browner's. Once it was found, the FBI conducted a forensic examination leading only to the conclusion that her hard drive had indeed been "reformatted."

There are further reasons why this matters for Obama's administrator Jackson. Has EPA in fact been searching for and producing from the "Richard Windsor" account to satisfy Freedom of Information requests for Jackson's emails? They say yes, but I have found reasons to demand verification (which Congress has also requested).

One reason is a demonstrated bureaucratic practice of inventing excuses to not search or produce certain files when they don't want them released. Another is that Obama officials have moved government over to private email accounts, private computers and even privately owned and managed servers. All of these acts indicate a desire to hide what the supposedly most transparent administration in history is up to.

Finally, for some reason EPA continues to stonewall our request for Jackson's "Windsor" emails about the war on coal and backdoor efforts to cause electricity rates, in President Obama's words, "necessarily skyrocket."

EPA owes a lot of answers. So far, all it has offered is excuses.

*Christopher C. Horner is senior fellow at the Competitive Enterprise Institute and author of the new book *The Liberal War on Transparency (Threshold)*.*

2. The Scientific Blind Spot

Knowledge is less a canon than a consensus.

By David Shaywitz, WSJ, Nov 18, 2012

http://online.wsj.com/article/SB10001424127887324894104578113590368047244.html?mod=IT_P_opinion_0

[SEPP Comment: A book review on the persistence of error.]

In 1870, German chemist Erich von Wolf analyzed the iron content of green vegetables and accidentally misplaced a decimal point when transcribing data from his notebook. As a result, spinach was reported to contain a tremendous amount of iron—35 milligrams per serving, not 3.5 milligrams (the true measured value). While the error was eventually corrected in 1937, the legend of spinach's nutritional power had already taken hold, one reason that studio executives chose it as the source of Popeye's vaunted strength.

The point, according to Samuel Arbesman, an applied mathematician and the author of the delightfully nerdy "The Half-Life of Facts," is that knowledge—the collection of "accepted facts"—is far less fixed than we assume. In every discipline, facts change in predictable, quantifiable ways, Mr. Arbesman contends, and understanding these changes isn't just interesting but also useful. For Mr. Arbesman, Wolf's copying mistake says less about spinach than about the way scientific knowledge propagates.

Copying errors, it turns out, aren't uncommon and fall into characteristic patterns, such as deletions and duplications—exactly the sorts of mistakes that geneticists have identified in DNA. Using approaches adapted from genetics, paleographers—scientists who study ancient writing—use these accumulated errors to trace the age and origins of a document, much in the same way biologists use the accumulation of genetic mutations to assess how similar two species are to each other. For example, by analyzing the oddities and duplicated errors in the 58 surviving versions of "The Wife of Bath's Prologue" from Chaucer's "Canterbury Tales," researchers deduced the content of the original version.

Mr. Arbesman's interest in the spread of knowledge also leads him to the story of Brontosaurus, the lovable, distinct herbivore we all grew up with—only it never existed. Originally described in 1879 by Othniel Marsh, the Brontosaurus was soon determined to be a type of dinosaur that Marsh had already discovered in 1877, the Apatosaurus. But since the original Apatosaurus was just "a tiny collection of bones," while the Brontosaurus that Marsh named "went on to be supplemented with a complete skeleton, beautiful to behold," the second discovery captured the public's imagination and the name "Brontosaurus" stuck for nearly a century. Only recently has the name "Apatosaurus" started to gain traction.

Knowledge, then, is less a canon than a consensus in a state of constant disruption. Part of the disruption has to do with error and its correction, but another part with simple newness—outright discoveries or new modes of classification and analysis, often enabled by technology. A single chapter in "The Half-Life of Facts" looking at the velocity of knowledge growth starts with the author's first long computer download—a document containing Plato's "Republic"—journeys

through the rapid rise of the "@" symbol, introduces Moore's Law describing the growth rate of computing power, and discusses the relevance of Clayton Christensen's theory of disruptive innovation. Mr. Arbesman illustrates the speed of technological advancement with examples ranging from the magnetic properties of iron—it has become twice as magnetic every five years as purification techniques have improved—to the average distance of daily travel in France, which has exponentially increased over the past two centuries.

To cover so much ground in a scant 200 pages, Mr. Arbesman inevitably sacrifices detail and resolution. And to persuade us that facts change in mathematically predictable ways, he seems to overstate the predictive power of mathematical extrapolation. Still, he does show us convincingly that knowledge changes and that scientific facts are rarely as solid as they appear.

In some cases, the facts themselves are variable. For example, the height of Mount Everest changes from year to year, as colliding continental plates push up and erosion wears the mountain down. The mountain even moves laterally at a rate of about six centimeters a year, thus making both its height and location a "mesofact"—a slowly changing piece of knowledge.

More commonly, however, changes in scientific facts reflect the way that science is done. Mr. Arbesman describes the "Decline Effect"—the tendency of an original scientific publication to present results that seem far more compelling than those of later studies. Such a tendency has been documented in the medical literature over the past decade by John Ioannidis, a researcher at Stanford, in areas as diverse as HIV therapy, angioplasty and stroke treatment. The cause of the decline may well be a potent combination of random chance (generating an excessively impressive result) and publication bias (leading positive results to get preferentially published).

If shaky claims enter the realm of science too quickly, firmer ones often meet resistance. As Mr. Arbesman notes, scientists struggle to let go of long-held beliefs, something that Daniel Kahneman has described as "theory-induced blindness." Had the Austrian medical community in the 1840s accepted the controversial conclusions of Dr. Ignaz Semmelweis that physicians were responsible for the spread of childbed fever—and heeded his hand-washing recommendations—a devastating outbreak of the disease might have been averted.

Science, Mr. Arbesman observes, is a "terribly human endeavor." Knowledge grows but carries with it uncertainty and error; today's scientific doctrine may become tomorrow's cautionary tale. What is to be done? The right response, according to Mr. Arbesman, is to embrace change rather than fight it. "Far better than learning facts is learning how to adapt to changing facts," he says. "Stop memorizing things . . . memories can be outsourced to the cloud." In other words: In a world of information flux, it isn't what you know that counts—it is how efficiently you can refresh.

Dr. Shaywitz, a physician, is a strategist at a biopharmaceutical company in San Francisco and co-founder of the CATCH digital health initiative in Boston.

3. Drillers Begin Reusing 'Frack Water'

Energy Firms Explore Recycling Options for an Industry That Consumes Water on Pace With Chicago

By Alison Sider, Russell Gold and Ben Lefebvre, WSJ, Nov 20, 2012

<http://online.wsj.com/article/SB10001424052970203937004578077183112409260.html?mod=W>
[SJ Energy leftHeadlines](#)

Companies are racing to find ways to recycle the water used in hydraulic fracturing, chasing an emerging market that could be worth billions of dollars.

From energy industry giants Halliburton Corp. and Schlumberger Ltd. to smaller outfits such as Ecologix Environmental Systems LLC, companies are pursuing technologies to reuse the "frack water" that comes out of wells after hydraulic fracturing, or "fracking"—the process of using highly pressured water and chemicals to coax oil and gas out of shale-rock formations.

While the recycled water can't currently be cleaned up enough for drinking or growing crops, it can be cleaned of chemicals and rock debris and reused to frack additional wells, which could sharply cut the costs that energy companies face securing and disposing of water.

Some companies are finding it is still cheaper in many parts of the U.S. to inject the wastewater deep underground instead of cleaning it, which has slowed adoption of recycling technology. But experts say that is likely to change as fracking grows.

At Schlumberger, which predicts that a million new wells will be fracked around the world between now and 2035, reducing freshwater use "is no longer just an environmental issue—it has to be an issue of strategic importance," Salvador Ayala, vice president of well-production services, told a recent conference.

Though fracking has brought U.S. oil production to its highest level in more than 14 years and produced a glut of natural gas, it requires huge amounts of water, raising costs for energy companies and spurring opposition from environmental groups at a time when some states are suffering through droughts.

It takes between 70 billion to 140 billion gallons of water to frack 35,000 wells a year, the industry's current pace, according to a 2011 report by the Environmental Protection Agency. That is about the same amount consumed every year by Chicago or Houston—and the price tag for securing that much water can be substantial.

In North Dakota's Bakken Shale, one of the current fracking hot spots, fresh water delivered to a drilling site costs between 10 and 14 cents per gallon, according to Continental Resources Inc., an Oklahoma City-based oil driller. Water alone can cost upward of \$400,000 per fracturing attempt—and Continental plans more than 200 next year in North Dakota.

Energy companies are also struggling with how to get rid of the tainted water that comes out of fractured wells; the fluid, which contains a mix of chemicals and salts, must be taken to a licensed disposal facility.

Companies are researching moving away from using water entirely to fracture rock, with efforts aimed at using propane gel and even compressed air. Moving away from liquids entirely, however, is still several years away—if early laboratory work can be successfully applied in the field.

While the cost of getting rid of the millions of gallons varies from state to state, it can be substantial. In Texas, where there are plenty of emptied-out oil fields, companies can often inject the water into spent wells, which are generally older conventional wells that have been converted to accept oil-field wastewater.

But in places such as Pennsylvania, companies have to haul the water hundreds of miles to the nearest injection wells. Injection wells pump the untreated oil-field liquids deep underground into porous rock formations for permanent disposal. There are less than 10 working injection wells in Pennsylvania, so most of its wastewater is carried by trucks into Ohio.

These injection wells are controversial after being linked by some scientists and state officials to minor earthquakes. The injected liquids are essentially thought to lubricate faults and accelerate movement that causes tremors. Ohio only recently began issuing permits for new injection wells, after imposing rules to prevent tremors.

In the Northeast, oil companies have to pay up to \$8 per 42-gallon barrel to contractors to haul wastewater for disposal elsewhere, said Jeanie Oudin, an analyst with energy consulting firm Wood Mackenzie. She said operators have reported recycling—which eliminates the cost of disposal and the cost of acquiring fresh water for fracking—can cut costs by as much as \$2 per barrel in some areas when done on site, which could equate to a \$200,000 savings over the lifetime of a typical well.

"It's a multibillion-dollar business that someone is going to capture and reap the benefits of," Ms. Oudin said of the sector and its potential annual size.

Chesapeake Energy Corp. has begun recycling 100% of the water it retrieves from wells in northern Pennsylvania. In addition to cutting the company's costs, recycling reduces the number of trucks on the road ferrying clean water to drilling sites, a sore point for local residents, said spokesman Michael Kehs.

After a well is fracked, contractors typically clean the water that flows back out of the well by filtering it or adding a chemical that attracts small solid particles, making it easier to remove these contaminants. Some companies treat water at the well, while others bring it to a facility built nearby.

Fourteen percent of water used to frack a well in central Pennsylvania is now recycled, up from less than 1% two years ago, according to the Susquehanna River Basin Commission, which monitors water usage.

Clay Terry, strategic business manager of Halliburton's Water Solutions unit, said operators in areas such as Texas have been slow to embrace recycling, largely because using injection wells there is fairly inexpensive. But there are growing economic benefits to recycling water, he said, and political ones, too.

"As the political and regulatory environment continues to shift toward protecting and constraining the use of finite resources," he said, "the operating community will continue to move to alternative sources."

The interest in water recycling is creating opportunities for small companies such as Select Energy Services LLC, a closey held Houston firm that said it has had a rapid rise in demand for its water-recycling services. It currently has full-scale operations in four areas including North Dakota and Colorado, up from one at the end of last year, as more companies examine recycling frack water.

Ecologix, an Alpharetta, Ga., recycling company, claims its service can cost as much as 80% less than injecting wastewater into a disposal well. It is building new facilities in west Texas to purify 31,000 barrels a day of wastewater after having earlier sold all of its recycling units to Halliburton.

#####