The Week That Was: 2010-12-04 (December 4, 2010) Brought to You by SEPP (www.SEPP.org) The Science and Environmental Policy Project

PLEASE NOTE: The complete TWTW, including the articles, can be downloaded in an easily printable form at the web site: http://www.haapala.com/sepp/the-week-that-was.cfm

SEASONS GREETINGS

SEPP Needs Your Support! Donations are fully tax-deductible

SEPP relies on private donors only, does not solicit support from industry or government!

SEPP does not employ fundraisers, mass mailings, or costly advertisements!

SEPP has a modest budget, no employees, pays no salaries, relies on volunteers!

SEPP scientists donate their time pro bono and assign book royalties and speaking fees to SEPP!

Please make checks to SEPP; mail to 1600 S Eads St., #712-S, Arlington, VA 22202

SEASONS GREETINGS

If you are seeking a somewhat unusual holiday gift, may we suggest the weather instrument store of Anthony Watts, creator of the blog *Watts Up With That* (www.wattsupwiththat.com)? Anthony led the invaluable physical examination of US weather stations maintained by NOAA, the bulk of which fail the most basic test for bias. Anthony's store offers a wide variety of instruments at reasonable prices: http://www.weathershop.com/

Quote of the Week:

"There is nothing new to be discovered in physics now. All that remains is more and more precise measurement." Lord Kelvin, 1900, [H/t Dennis Jensen]

Numbers of the Week: 2 deg C and 4 times

THIS WEEK:

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

The 16th Conference of Parties (COP) of the UN Framework Convention on Climate Change started in Cancun with few of the grandiose announcements that occurred at last year's COP in Copenhagen. The somber mood is reflected by decidedly more modest goals. The failure of cap and trade in the US and Canada, and the results of the US elections are no doubt influencing the festivities. Four Republican Senators sent the State Department a letter stating they oppose the transfer of US funds to other nations in accordance to the agreement reached in Copenhagen, but which is not a formal treaty. The impact of this letter may be significant.

In January, Republicans take control of the US House of Representatives and it is in the House where all revenue bills must originate. Many Republicans are skeptics of human caused global warming. Other related events include the announcement by Japan that it will not agree to an extension to the Kyoto Protocol that is set to expire in 2012. At this time it is difficult to predict what will occur at the COP, but it may be of little significance. Please see Article # 1 and articles under On to Cancun.

Roy Spencer reports that, as measured by satellites, in November, the lower troposphere temperature anomaly showed slow cooling, but temperatures for 2010 remain in a dead heat with 1998 for the warmest year since satellite measurements began in 1979. These data contradict claims, such as by NASA-GISS, that 2010 is the hottest year ever. Please see Roy's web site www.drroyspencer.com.

The US Department of Interior announced a new moratorium on drilling in the eastern Gulf of Mexico and along the Atlantic seaboard for up to seven years, as reported in the article under BP Gulf Oil Spill. Last March, the administration announced it would permit such drilling at the same time as it announced it would ban drilling on the West Coast. Now, the administration insists that it needs up to seven years to study the situation as a result of the BP Gulf oil spill.

Major drilling for oil and gas in the turbulent North Sea began in the 1960s. There were mistakes and accidents including one that took over 160 lives. Companies have been drilling in the Gulf of Mexico since the 1940s. Accidents occurred in both the North Sea and the Gulf and lessons were learned, but drilling proceeded. Until the BP spill, there have been no major failures in the Gulf, even in 2005 when hurricanes Katrina and Rita hit. Now, after the BP misadventure, the administration claims it needs seven years of study?

In defending his actions, Interior Secretary Salazar declared oil companies have other areas where they can drill. He committed the logical fallacy of composition whereby something which is true for a part of the whole is assumed to be true for the whole. Apparently, Mr. Salazar would have us believe oil and gas are uniformly distributed throughout the Gulf of Mexico and not concentrated in certain areas. (Also, Mr. Salazar did not state when he will start issuing the necessary permits to drill.)

Please see Article #4 and #5 on offshore oil drilling and the article under BP Oil Spill. Article #5 was published before the new moratorium on drilling, and highlights the differences in the attitude of the US administration and that of Australia.

NUMBERS OF THE WEEK: 2 deg C and 4 times. The environmental ministers of a number of Western nations have announced that they are committed to keep global temperature rise below 2 deg C and stated this as a goal of the Cancun conference. Assuming CO2 is responsible for the recent temperature rise, which SEPP thinks it is not, what does this mean?

As MIT Professor Richard Lindzen tried to patiently explain to the US House Subcommittee on Energy and Environment two weeks ago, assuming there are no feedbacks, the generally accepted calculation is that a doubling of atmospheric carbon dioxide will produce a warming of about 1 deg C. Since the relationship between temperature and CO2 is logarithmic, each subsequent molecule has less an influence than the preceding one, a second doubling of CO2 will produce a warming of an additional 1 deg C.

Thus, to limit warming to no more than 2 deg C requires limiting the increase in CO2 to less than 4 times the preindustrial level. Assuming the preindustrial level was about 270 parts per million (ppm), then to hold the temperature rise below 2 deg C requires limiting CO2 to below 1080 ppm. It is now about 390 ppm, so we have a long way to go.

Applying the calculations further, to reach an increase of 3 deg C, which many IPCC models project, requires an additional doubling of CO2 to about 2160 ppm, which is probably impossible by humans. Thus, many of the models used by the IPCC are inconsistent with the classic theory which assumes no feedbacks.

Of course, the assumption of no feedbacks is the major point of contention, which is glossed over by the IPCC. Generally, the modelers assume that increases in water vapor will amplify the warming from CO2 – a positive feedback. This critical assumption has never been empirically verified. The empirical research by Lindzen, Spencer, and others indicates that natural mechanisms will reduce the warming from CO2 – a negative feedback. There will be some warming from increasing CO2, but tiny – perhaps one-half the calculated amount.

ARTICLES:

For the numbered articles below please see: www.haapala.com/sepp/the-week-that-was.cfm.

1. The Cancun Climate Capers

By S. Fred Singer, American Thinker, Nov 29, 2010 http://www.americanthinker.com/2010/11/the-cancun-climate-capers.html

2. Call for Climate Royal Commission

By Dennis Jensen, Quadrant Online, AU, Nov 16, 2010 [H/t ICECAP] http://www.quadrant.org.au/blogs/doomed-planet/2010/11/climate-royal-commission

3. Germany's Offshore Wind: Wasted Resources, Environmental Blight

By Edgar Gaertner, Master Resource, Dec 1, 2010 http://www.masterresource.org/2010/12/german-offshore-wind-problems/#more-13091

4. Offshore Drilling Curbed Again

By Siobhan Hughes and Stephen Power, WSJ, Dec 2, 2010 http://online.wsj.com/article/SB10001424052748704594804575648623586731384.html?mod=WSJ_Energy_leftHeadlines

5. Gulf Oil Spill Response in Perspective

By Bruce Thompson, American Thinker, Nov 27, 2010

http://www.americanthinker.com/2010/11/gulf oil spill response in per.html

[SEPP Comment: This article was published **before** the new moratorium on drilling in the eastern Gulf of Mexico and the Atlantic seaboard.]

6. On Energy, U.S. Lags Behind China

Letters, Richmond Times-Dispatch, Nov 29, 2010

http://www2.timesdispatch.com/news/2010/nov/29/elmores-ar-681323/

[SEPP Comment: The editors of the Richmond (VA) Times-Dispatch apparently have a sense of humor. They ran these two letters, one after the other.]

NEWS YOU CAN USE:

Climategate Continued

WikiLeaks, The New York Times, and Double Standards

By Rich Trzupek, Front Page Mag, Dec 1, 2010

http://frontpagemag.com/2010/12/01/wikileaks-the-york-times-and-double-standards/?utm_source=FrontPage+Magazine&utm_campaign=f60d47a108-RSS_EMAIL_CAMPAIGN&utm_medium=email

Challenging the Orthodoxy

False prophecies beget faulty policies

By Willie Soon, Townhall, Dec 2, 2010

http://townhall.com/columnists/WillieSoon/2010/12/02/false prophecies beget faulty policies/page/full/

Time For Economic Restoration Now Climate Change Deception Exposed

By Tim Ball, Canada Free Press, Nov 29, 2010 [H/t A.J. Meyer] http://canadafreepress.com/index.php/article/30503

Warming Underestimated – Does It Matter?

By David Whitehouse, The Observatory, Nov 30, 2010

http://thegwpf.org/the-observatory/1951-warming-underestimated-does-it-matter.html

[SEPP Comment: The correction is smaller than the noise level.]

Researchers admit inconvenient finding: CO2 is helping giant redwoods grow

By Anthony Watts, Daily Caller, Nov 29, 2010 [H/t Tom Burch]

http://dailycaller.com/2010/11/28/researchers-admit-inconvenient-finding-co2-is-helping-giant-redwoods-grow/

Defending the Orthodoxy

Chu's Guessing Game

Editorial, IBD, Dec 1, 2010

http://www.investors.com/NewsAndAnalysis/Article/555465/201012011900/Chus-Guessing-Game.htm [SEPP Comment: Apparently, to Department of Energy Secretary Chu, the science is not settled – good enough is enough – who determines enough?]

There are black days ahead for the carbon industry

By Christopher Booker, Telegraph, UK, Nov 27, 2010

http://www.telegraph.co.uk/comment/columnists/christopherbooker/8165189/There-are-black-days-ahead-for-the-carbon-industry.html

[SEPP Comment: According to this article, organizations with collective assets of over \$15 Trillion are calling for governments to implement global warming policies so they can profit from fear of climate change.]

Satellites reveal differences in sea level rises

By Phillip Schewe, Physorg.com, Nov 24, 2010 [H/t Bob Bromley] http://www.physorg.com/news/2010-11-satellites-reveal-differences-sea.html

Oxfam's fantasy 'climate court' is both prescient and practical

Over a thousand legal experts, politicians and economists gathered in Dhaka this week to explore routes to justice for the victims of climate criminals – and found that precedents exist By John Vidal, Poverty Matters, Guardian UK, Nov 30, 2010 [H/t Leon Ashby] http://www.guardian.co.uk/global-development/poverty-matters/2010/nov/12/dhaka-climate-court-criminals

To Fight Climate Change, Clear the Air

Veerabhadran Ramanathan and David Victor, NYT, Nov 27, 2010 http://www.nytimes.com/2010/11/28/opinion/28victor.html?emc=eta1

Seeking a Common Ground

Can environmentalism be saved from itself?

By Margaret Wente, Saturday's Globe and Mail, AU, Nov 27, 2010

http://www.theglobeandmail.com/news/opinions/margaret-wente/can-environmentalism-be-saved-from-itself/article1815408/

On to Cancun

Another Carbon Dioxide Summit Failure, This Time At Cancun, Not Copenhagen

By Robert Bryce, IBD, Nov 30, 2010

http://www.investors.com/NewsAndAnalysis/Article/555235/201011301909/Another-Carbon-Dioxide-Summit-Failure-This-Time-At-Cancun-Not-Copenhagen.htm

Senators petition SecState to freeze climate bailout money

By Anthony Watts, WUWT, Dec 2, 2010

 $\underline{\text{http://wattsupwiththat.com/2010/12/02/senators-petition-secstate-to-freeze-climate-bailout-money/\#more-28800}$

Cancun climate change summit: Japan refuses to extend Kyoto protocol

By John Vidal, Guardian, UK, Dec 1, 2010 [H/t ICECAP]

http://www.guardian.co.uk/environment/2010/dec/01/cancun-climate-change-summit-japan-kyoto

Cancun climate change summit: scientists call for rationing in the developed world

Global warming is now such a serious threat to mankind that climate change experts are calling for Second World War-style rationing in rich countries to bring down carbon emissions.

By Louise Gray, Telegraph, UK, Nov 29, 2010 [H/t Warren Wetmore]

 $\frac{http://www.telegraph.co.uk/earth/copenhagen-climate-change-confe/8165769/Cancun-climate-change-summit-scientists-call-for-rationing-in-developed-world.html}{}$

What Cancun climate talks could achieve

Editorial, Washington Post, Nov 29, 2010 [H/t David Manuta]

http://www.washingtonpost.com/wp-

dyn/content/article/2010/11/29/AR2010112905828.html?referrer=emailarticle

Turn out the lights, the party's over

By Wesley Pruden, Washington Times, Dec 2, 2010 [H/t Thomas Burch]

http://www.washingtontimes.com/news/2010/dec/2/pruden-turn-out-the-lights-the-party-s-over/

The Last Fling of the Thermophobics

Carbon Sense Coalition, Dec 1, 2010

http://carbon-sense.com/wp-content/uploads/2010/12/last-fling-thermophobics..pdf

Extreme Weather

The Met Office: lousier than a dead octopus

By James Delingpole, Telegraph, UK, Dec 2, 2010 [H/t ICECAP]

http://blogs.telegraph.co.uk/news/jamesdelingpole/100066366/why-did-we-slide-into-chaos-well-duh/

Cold comfort for a Britain stuck in the deep freeze

Temperatures plunge as low as -18C in Wales

By Lewis Smith, Independent, UK, Nov 29, 2010

http://www.independent.co.uk/news/uk/home-news/cold-comfort-for-a-britain-stuck-in-the-deep-freeze-2146214.html

The 2010 Global and Northern Hemisphere Hurricane Season: A wrap up

By Anthony Lupo, ICECAP, Nov 30, 2010

http://icecap.us/images/uploads/2010huricanewrapup.pdf

[SEPP Comment: Another dull year for alarmists.]

BP Oil Spill and Aftermath

Today's Prohibition

Editorial, IBD, Dec 2, 2010

http://www.investors.com/NewsAndAnalysis/Article/555576/201012021842/Todayand8217s-Prohibition.htm

Energy Issues

Solar Panel subsidies: A billion dollars to provide cheap electricity to wealthy households By Joanne Nova, AU, Dec 1, 2010

http://joannenova.com.au/2010/12/solar-panel-subsidies-a-billions-dollars-to-provide-cheap-electricity-to-wealthy-

households/?utm_source=feedburner&utm_medium=feed&utm_campaign=Feed%3A+JoNova+%28JoN ova%29

With Money Tight, White House Panel Offers New Path to Energy Research

By Eli Kintisch, Science, Dec 3, 2010 [H/t Toshio Fujita]

http://theeestory.com/topics/7412?page=1#p165443

[SEPP Comment: There is a big difference between spending more money and spending money wisely.]

US: China rise a 'Sputnik moment' for clean energy

By Shaun Tandon, AFP, Dec 1, 2010 [H/t Toshio Fujita]

http://www.google.com/hostednews/afp/article/ALeqM5hKIjjmhwVThTOfWCji1dkJq87OPg?docId=CNG.23afc412c6dd3afe7b5a46ff5c2bc83f.71

[SEPP Comment: In 2008, China increased its net coal fired electricity production by 94 TIMES the net increase in the US and 14 TIMES the nominal capacity of wind generated electricity. Increasing capability to manufacture wind turbines is not the same as installing them. The studies cited in the article are looking at the wrong data.]

Ethanol's Policy Privileges: Heading for History's Dustbin?

By Marlo Lewis, Pajamas Media, Dec 3, 2010

http://pajamasmedia.com/blog/ethanol%E2%80%99s-policy-privileges-heading-for-history%E2%80%99s-dustbin/

Unleashing U.S. energy resources could spark economic recovery

By Ben Lieberman, Washington Examiner, Dec 1, 2010

 $\frac{http://washingtonexaminer.com/opinion/op-eds/2010/12/ben-lieberman-unleashing-us-energy-resources-could-spark-economic-recovery}{}$

Ontario Releases C\$87 Billion Long-Term Energy plan

Power News, Dec 1, 2010

http://www.powermag.com/POWERnews/3253.html?hq_e=el&hq_m=2097992&hq_l=7&hq_v=5e660500d0

[SEPP Comment: Abandoning coal fired power plants does not come cheap.]

Glow From Solar Factories Fails to Match Town's Hopes

By Timothy Aeppel, WSJ, Nov 29, 2010 [H/t Charles Battig] http://online.wsj.com/article/SB10001424052748703585004575604980835504348.html [This article may be behind a paywall.]

Whistling in the Wind

Wind power's staggering price

Editorial, Republican American, Nov 28, 2010

http://www.rep-am.com/articles/2010/11/28/opinion/523672.txt

[SEPP Comment: The Nantucket Sound Cape Wind project appears to be less than financially sound for consumers.]

The Great Wind Rush

By Graham Lloyd, The Australian, Nov 27, 2010 [H/t Leon Ashby] http://www.theaustralian.com.au/national-affairs/the-great-wind-rush/story-fn59niix-1225961297137

EPA and other Regulators On the March

The EPA's And Enron's End-Runs Of Congress

By Leary Bell, Forbes.com, Dec 1, 2010

http://www.forbes.com/2010/11/29/epa-enron-greenhouse-gases-opinions-contributors-larry-bell.html?partner=email

Note to EPA: "Don't Touch My Junk'

By Maureen Martin, Environment & Climate News, Nov 29, 2010 http://www.heartland.org/environmentandclimate-news.org/article/28879/Note to EPA Dont Touch My Junk.html

EPA GHG Guidance is a Deceptive Ruse

By Donn, Power America, Dec 2, 2010

http://dddusmma.wordpress.com/2010/12/02/epa-ghg-guidance-is-a-deceptive-ruse/

Subsidies and Mandates Forever

States Diverting Money From Climate Initiative

By Mireya Navarro, NYT, Nov 28, 2010

http://www.nytimes.com/2010/11/29/nyregion/29greenhouse.html?_r=1&ref=science

[SEPP Comment: Surprise! Surprise!]

Review of Recent Scientific Articles by NIPCC For a full list of articles see www.NIPCCreport.org

Sea Level Response to Global Warming

Reference: von Storch, H., Zorita, E. and Gonzalez-Rouco, J.F. 2008. Relationship between global mean sea-level and global mean temperature in a climate simulation of the past millennium. *Ocean Dynamics* 58: 227-236. http://www.nipccreport.org/articles/2010/dec/1dec2010a1.html "There is currently no known way to predict -- with any reasonable and demonstrable degree of confidence -- what mean global sea level will do over the 21st century, even if mean global air temperature begins to rise once again (after having remained rather stable for the past decade)."

Responses of Scleractinian Corals to Ocean Acidification

Reference: Krief, S., Hendy, E.J., Fine, M., Yam, R., Meibom, A., Foster, G.L. and Shemesh, A. 2010. Physiological and isotopic responses of scleractinian corals to ocean acidification. *Geochimica et Cosmochimica Acta* 74: 4988-5001. http://www.nipccreport.org/articles/2010/dec/1dec2010a6.html

Increasing Climatic Variability

Reference: D'Odorico, P., Laio, F., Ridolfi, L. and Lerdau, M.T. 2008. Biodiversity enhancement induced by environmental noise. *Journal of Theoretical Biology* 255: 332-337. http://www.nipccreport.org/articles/2010/dec/1dec2010a3.html

A Brief History of Climate Change in the Arctic

Reference: White, J.W.C., Alley, R.B., Brigham-Grette, J., Fitzpatrick, J.J., Jennings, A.E., Johnsen, S.J., Miller, G.H., Nerem, R.S. and Polyak, L. 2010. Past rates of climate change in the Arctic. *Quaternary Science Reviews* **29**: 1716-1727.

Other Scientific Issues

Studying Sun's Effects on Earth's Climate

By Staff Writers, Space Daily, Dec 1, 2010

http://www.spacedaily.com/reports/Studying Sun Effects On Earths Climate 999.html

[SEPP Comment: Don't tell the IPCC. Their models already know.]

Bacteria stir debate about 'shadow biosphere'

By Marc Kaufman, Washington Post, Dec 2, 2010 [H/t Warren Wetmore] http://www.washingtonpost.com/wp-dyn/content/article/2010/12/02/AR2010120203102.html?wpisrc=nl natlalert

How Many Stars? Three Times as Many as We Thought, Report Says

By Kenneth Change, NYT, Dec 1, 2010

http://www.nytimes.com/2010/12/02/science/space/02star.html?ref=science

Other Issues that May Be Of Interest

Mystery Surrounds Cyber Missile That Crippled Iran's Nuclear Weapons Ambitions

By Ed Barnes, Fox News, Nov 26, 2010 [H/t Francois Guillaumat]

http://www.foxnews.com/scitech/2010/11/26/secret-agent-crippled-irans-nuclear-ambitions/

BELOW THE BOTTOM LINE:

Swim in the Arctic? I'm hitching a lift: Polar bears develop new tactics to protect their cubs from the chill ... and it's all down to global warming

By Daily Mail Reporter, Daily Mail, UK, Nov 30, 2010 [H/t Malcolm Ross]

http://www.dailymail.co.uk/sciencetech/article-1334280/Swim-Arctic-Im-hitching-lift.html

[SEPP Comment: We have not seen this before, therefore it did not exist before. What did polar bears do during the Medieval Warm Period and other periods warmer than today?]

One scientist's hobby: recreating the ice age

By Arthur Max, Associated Press, Nov 27, 2010 [H/t Best on the Web]

http://news.vahoo.com/s/ap/20101127/ap on re eu/eu russia ice age park

[SEPP Comment: An interesting hobby – but hardly recreating the Ice Age.]

ARTICLES:

1. The Cancun Climate Capers

By S. Fred Singer, American Thinker, Nov 29, 2010 http://www.americanthinker.com/2010/11/the-cancun-climate-capers.html

Today, Nov. 29, marks the beginning of the Cancun COP (Conference of the Parties [to the Kyoto Protocol]). This is the 16th meeting of the nearly two hundred national delegations, which have been convening annually since the Kyoto Protocol was negotiated in 1997 at COP-3.

This conference promises to be another two-week extravaganza for some 20,000 delegates and hangers-on, who will be enjoying the sand, surf, and tequila-sours -- mostly paid for by taxpayers from the U.S. and Western Europe. For most delegates, this annual vacation has become a lifetime career: it pays for their mortgages and their children's education. I suppose a few of them actually believe that they are saving the earth -- even though the Kyoto Protocol (to limit emission of greenhouse [GH] gases, like CO₂, but never submitted for ratification to the U.S. Senate) will be defunct in 2012 and there is -- thankfully -- no sign of any successor treaty.

But never fear: the organizers may "pull a rabbit out of a hat" and spring a surprise on the world. They will likely announce that they have conquered the greenhouse gas hydrofluorocarbon (HFC). Now, HFCs are what replaced HCFCs, which in turn replaced CFCs, thanks to the Montreal Protocol of 1987. This succession of chemical refrigerants has reduced ozone-destroying potential; but unfortunately they are *all* GH gases. So now HFCs must be eradicated, because a single molecule of HFC produces many thousand times the greenhouse effect of a molecule of CO₂. What they don't tell you, of course, is that the total forcing from the HFCs is less than one percent of that of CO₂, according to the IPCC (see page 141). So "slaying the dragon" amounts to slaying a mouse -- or something even smaller. But you can bet that it will be trumpeted as a tremendous achievement and will likely invigorate the search for other mice that can be slain.

Of course, industry has no objection to this maneuver of invoking the Montreal Protocol as a means of reducing the claimed GH-gas effects of global warming. It means more profits from patents, new manufacturing facilities, and sales -- and it will eliminate the bothersome competition from factories in India, China, and Brazil that are still manufacturing HCFCs, and in some cases even CFCs. Very likely, these nations will oppose the maneuver. But so should consumers. It will mean replacing refrigerants in refrigerators, air conditioners, and automobiles -- at huge cost and too little effect. We don't even know yet what chemical will replace HFC and how well it will work in existing equipment.

But nobody is supposed to notice this, it is hoped, amid the clamor for an international agreement, or any kind of agreement, really -- even if it means misusing the Montreal Protocol. Remember that HFCs have no effect on ozone and therefore are not covered by the 1987 Montreal Protocol.

At this point, it is worth remembering how little has been accomplished by the Montreal Protocol -- that "signal achievement" of the global environmental community. As U.S. negotiator Richard Benedick brags (in his book *Ozone Diplomacy*), the Montreal agreement was achieved by skillful diplomacy rather than by relying on science.

When the Montreal Protocol was negotiated and signed in 1987, there was no evidence whatsoever that CFCs were actually destroying stratospheric ozone. At that time, there were no published observations (by leading Belgian researcher Zander or by others) of any increase in stratospheric chlorine, thereby indicating that natural sources, like salt from ocean spray and volcanoes, were dominating over the human contribution of chlorine from CFCs. The scientific evidence changed only in 1988 (thanks to NASA scientist Rinsland), a year *after* the Montreal Protocol was signed.

Nevertheless, the hype of the Antarctic Ozone Hole (AOH), which was discovered, only by chance, in 1985, was driving global fears of a coming disaster. In the U.S., there was talk about an Arctic ozone hole opening up. There was even a scare about a "hole over Kennebunkport," President Bush's summer home. And of course, the EPA, as usual, was hyping the whole matter to the White House. No wonder that poor George Bush (the elder) agreed to phase out CFCs immediately.

And who still remembers all the lurid tales of blind sheep in Patagonia and of ecological disasters in the Southern Ocean -- all the result, supposedly, of the AOH. It turned out later that the unfortunate sheep had pink-eye.

The Montreal Protocol prohibition on manufacturing CFCs has indeed led to the reduction of the atmospheric content of these long-lived CFC molecules. But what about stratospheric ozone itself? There has been little effect on the AOH -- just annual fluctuations. And according to the authoritative reports of the World Meteorological Organization, the depletion at mid-latitudes may have been only about 4% over a period ending in 1992. There seems to have been no further depletion since 1993, even while stratospheric chlorine levels were still rising. Something doesn't quite check out here.

Whatever the cause of the observed 4% ozone depletion may be, compare this piddling amount to the natural variability of total atmospheric ozone, as measured carefully by NOAA: on the order of 100% or more from day to day, seasonal change of 30% to 50%, and an eleven-year sunspot-correlated variation on the order of 3%.

And to top it off, there has been no documented increase at all in solar ultraviolet (UV-B), the radiation that produces sunburn and can lead to skin cancer. All of the monitoring so far has shown no rise over time -- and therefore no biological effects due to ozone depletion.

And in any case, theory tells us -- and measurements agree -- that a 4% depletion amounts to an increase in solar UV equivalent to moving 50 miles to the south, at mid-latitudes. Measured UV-B values increase by 1,000% in going from the pole to equator, as the average solar zenith angle increases.

So look for a "breakthrough" announcement from Cancun, as once again our intrepid negotiators will have "saved the climate" -- maybe. In addition to timing and cost issues, some countries will insist that HFCs have no impact on the ozone layer and thus should be handled under the United Nations climate change talks rather than the Montreal Treaty.

A State Department official dismissed that as a legalistic argument and said that the ozone treaty could and should be used to achieve broader environmental objectives. "What we've found is that the Montreal Protocol has been a very effective instrument for addressing global environmental problems," said Daniel A. Reifsnyder, the nation's chief Montreal Protocol negotiator, in an interview. "It was created to deal with the ozone layer, but it also has tremendous ability to solve the climate problem if people are willing to use it that way."

Mario Molina, the Mexican scientist who shared the Nobel Prize in chemistry for his work in identifying the role of chlorofluorocarbons in depleting stratospheric ozone, said that extending the Montreal Protocol to include HFCs could reduce the threat of climate change by several times what the Kyoto Protocol proposes. (Evidently, he has not read the IPCC report in which he is listed as a lead author.) "We understand it's a stretch to use an international agreement designed for another purpose," he said. "But dealing with these chemicals and using this treaty to protect the planet makes a lot of sense."

Maybe Dr. Molina should stick to chemistry.

2. Call for Climate Royal Commission

By Dennis Jensen, Quadrant Online, AU, Nov 16, 2010 [H/t ICECAP] http://www.quadrant.org.au/blogs/doomed-planet/2010/11/climate-royal-commission

At an assemblage of physicists at the British Association in 1900, one of the 19th Century's most influential physicists and mathematicians, Lord William Thomson Kelvin said, "There is nothing new to be discovered in physics now. All that remains is more and more precise measurement."

This statement appears myopic today and would certainly be lambasted by the likes of Einstein, Schrödinger and Hawking.

Arguments by the Gillard government that the science of climate change is "settled" and "the debate is over" are not dissimilar and will leave future generations in no doubt Labor is using flawed science to drive this tax grab.

Science is all about asking the right questions. If we went back 1000 years we could answer every scientific question someone might have, based on knowledge of the day. However, follow-up questions would lead to a point where we would not yet have discovered definitive answers. Such is the nature of science. Asking the wrong question or one with the presumption of a result fails to respect scientific practice and leads to answers that history will judge as misguided and unscientific.

The Intergovernmental Panel of Climate Change has been asked the wrong question. Its mission statement reads in part,

The role of the IPCC is to assess on a comprehensive, objective, open and transparent basis the scientific, technical and socio-economic information relevant to understanding the scientific basis of risk of human-induced climate change.

The IPCC has presumed anthropogenic factors as the cause of climate change.

A carbon tax is held by the Gillard government as the definitive climate change cure. But this answer comes from questions based on science that is contentious and literature that is outdated.

Independent Scientists have identified flaws in the computer models that form the basis for the IPCC's 2007 global warming predictions. IPCC vice chairman, Professor Jean-Pascal van Ypersele has conceded there "probably would be mistakes" in a larger report scheduled for 2013-14. *The Royal Society states, "There is little confidence in specific projections of future regional climate change, except at continental scales.*" The *French Academy* of Sciences as well says the jury is still out regarding the indirect effects of carbon dioxide and other greenhouse gases produced by human activity.

Bryan Leyland, spokesman for the New Zealand Climate Science Education Trust said when referring to a High Court case against the National Institute of Water and Atmospheric Research and its national climate data,

Many scientists believe that, although the earth has been in a natural warming phase for the past 150 years, it has not heated as much as Government archives claim. The precise trend figure is extremely important, as it forms the sole basis of the claim that human activities are the dominant cause of the warming.

The Federal Government must review its position along with the climate scientists of the world. If it continues down the path of carbon tax, history will judge this solution as unscientific and financially unviable.

An assessment of some of the history of physics demonstrates how dangerous it can be to assume that you have all the answers. In the late 17th century probably the greatest physicist- mathematician of all time, Isaac Newton, derived laws for motion and gravitation. These laws were accepted as the definitive solution for a period of two centuries and the term 'laws' was applied to his work rather than 'theories'. This was despite some exceptions such as the orbit of Mercury that could not be explained using these laws.

Einstein, with his Special and General Theories of Relativity provided a far more complete understanding of mechanics and gravitation but Relativity is still called a 'theory'. It was realised that Newton's Laws in fact represented a special case of more generalised theories. When Einstein won the Nobel Prize for Physics, it was not for Relativity, a theory that overturned centuries of 'accepted fact'. Rather it was for the Photoelectric Effect, a far less confronting discovery for the scientific establishment.

If you had asked astrophysicists only 20 years ago whether the rate of expansion of the universe was speeding up or slowing down, they would have said slowing down. Imagine the surprise when it was discovered that the rate of expansion was increasing. This overturned decades of fundamental forces understanding; gravitation, electromagnetic, nuclear strong and nuclear weak forces. To attempt to explain this, we now have the concept of 'dark energy' to accompany 'dark matter', both of which were unknown 40 years ago.

The fact is in terms of complexity, mechanics, gravitation and astrophysics have nothing on the dynamics of the climate system.

So why are we so comfortable with "the science is settled" argument?

Why do journalists such as Jon Faine see themselves and the "consensus science" as so omnipotent that they refuse to engage with sceptics or countenance scepticism?

When 'accepted science' has massive implications for the welfare of a nation, there needs to be a very thorough audit of the science.

This is why I am calling for a Royal Commission into the science of climate change and the roles played by the CSIRO and the Bureau of Meteorology.

Australia's climate change policies must be based on our best understanding of the latest scientific research coupled with assessment of the relevant economics impacts.

As The International Climate Science Coalition notes:

Attempts by governments to legislate costly regulations on industry and individual citizens to encourage CO2 reduction will slow development while having no appreciable impact on the future trajectory of global climate change.

Such policies will markedly diminish future prosperity and so reduce the ability of societies to adapt to inevitable climate change, thereby increasing, not decreasing human suffering.

A Royal Commission into the science of climate change will allow an honest public debate, free of emotion, based on the evidence.

History demonstrates the science is not "settled" and never will be. Only a Royal Commission into the science of climate change will provide the most climate effective and cost effective solutions in this debate.

Dr. Dennis Jensen is the Federal Member for Tangney

3. Germany's Offshore Wind: Wasted Resources, Environmental Blight

By Edgar Gaertner, Master Resource, Dec 1, 2010 http://www.masterresource.org/2010/12/german-offshore-wind-problems/#more-13091

Thousands of bureaucrats are at another cushy climate confab—this time in Cancun—while Senators Bingaman, Brownback and Reid are contemplating how to ram a federal renewable energy quota through a lame-duck session. Their prospects are not good, which should give them more time to consider the experiences of Europe and windpower. The results of this experiment in energy coercion are humbling.

Germany, specifically, is in the throes of a windpower boundoggle that should be heard the world over. The general lesson is that *energy forcing brings with it technological risk that must be factored into the public policy equation*.

A North Sea Boondoggle

Barely two months after the inauguration ceremony for Germany's first pilot offshore wind farm, "Alpha Ventus" in the North Sea, all six of the newly installed wind turbines were completely idle, due to gearbox damage. Two turbines must be replaced entirely; the other four repaired.

Friends of the project, especially Germany's environment minister, Norbert Roettgen, talked of "teething problems." The problem is far more serious than that, for wind turbines in the high seas are extremely expensive for power consumers, even when they run smoothly. When they don't, the problem intensifies. Germany could face blackouts – a new dark age.

The Alpha Ventus failures created intense pressure for Areva Multibrid, a subsidiary of the semipublic French nuclear power company Areva. Every "standstill day," with the expensive towering turbines standing idle and not generating a single kilowatt hour of electricity, causes lost revenue.

Environmental economist and meteorologist Thomas Heinzow of the University of Hamburg estimated the operator's revenue shortfall at almost \$6,500 (€5,000) per turbine per standstill day. Instilling additional consternation within Areva was the certainly not unreasonable fear that already skittish investors could get cold feet, and wander off in search of less risky ventures.

Actually, Areva, Areva Multibrid and the construction engineers can consider themselves lucky that the North Sea was relatively calm, thanks to the summer heat wave. Installing turbines and blades is done via jack-up platforms, a tricky business under the best circumstances. With anything above Beaufort Wind Force 3 (an 8–10 mph "gentle breeze"), the work becomes downright risky.

The six Areva Multibrid wind turbines stand 280 feet (85 meters) above the waves at the gearbox and turbine hub. Their heavy blades are 380-feet (116-meters) in diameter. Each turbine weighs 1,000 metric tons (2.2 million pounds), including the tripod base, which rises up from the sea floor 100 feet (30 meters) beneath the surface of these notoriously rough and frigid North Sea waters.

Imagine trying to disassemble and then rebuild these monsters in anything other than calm seas.

The good news is that "Alpha Ventus" also includes six even bigger wind turbines, supplied by the formerly German company REpower, which now belongs to India's Suzlon Corporation. These turbines have thus far been running faultlessly. However, there are enough other issues associated with operating offshore turbines to send additional shivers up the spine.

High Costs Remain

Monster turbines rated at 5 megawatt maximum power generation impose high costs even when − perhaps especially when − they are running full blast. Because each turbine costs \$5,200 (€4,000) per kilowatt in upfront investment, Euro legislators have decreed that turbine operators must be rewarded with 20 cents in incentives for every kWh generated on the high seas.

Therefore, Europe's energy consumers must pay 20 cents per kWh generated, plus an additional 5 cents per kWh for transmission costs. They must pay this regardless of whether they need the electricity at the moment, and despite the fact that a kWh of wind electricity is worth less than 3 cents on the Leipzig Power Exchange, due to the intermittent and highly variable nature of wind.

Other Problems

Even crazier, when high winds generate huge quantities of electricity, power consumption is low, the Power Exchanges must then sell the electricity at a loss, to persuade purchasers to buy the excess electricity.

At the moment, the most common purchasers are Austrian pumped storage operators, who use wind turbine power to pump water into mountain lakes, so they can later use the water to run hydroelectric generators during peak demand periods – and sell that power *at premium prices*.

Heinzow calculates that water equivalent to Lake Constance (13 cubic miles or 55 cubic kilometers) must be pumped 1,165 feet (350 meters) high, just to buffer the supply-demand discontinuity caused by the thousands of wind turbines that are already planned for the North and Baltic Seas. There are only two alternatives to this.

Firming Problems

One is gas turbines, to function as backup generators that can supply power whenever winds are not blowing at usable speeds. But unless shale gas development proceeds apace, this would increase Europe's dependence on Russian gas supplies. It would also result in inefficient gas use and higher carbon emissions, as generators ramp up and down every time wind turbine output changes.

The other is nuclear power plants. High performance nuclear plants can adjust their electricity output to replace the highly variable output from wind farms, but that reduces efficiency and causes irregular burnup of fuel rods. This is a serious concern, because high efficiency is the primary way nuclear plants make up for their high capital costs. A bigger concern is that the German government has still not reversed its decision to phase out all nuclear power plants.

Did I Mention Transmission?

However, the lack of suitable or sufficient backup power generation may still be a relatively small problem. Billion-dollar investments in transmission lines are needed to bring expensive wind power from offshore sites north of Germany to big industrial consumers hundreds of miles away in the south. But resistance to new high voltage lines in urban and recreation areas is high and rising.

A Lower Saxony law already prescribes the use of ground cables in certain areas. But those are ten times more expensive than above-ground lines – and less reliable, due to constant assault by water, salt and subterranean animal life.

A Darker Germany?

The bottom line: Germans will have to prepare for significantly higher electricity tariffs – and more frequent blackouts.

"If all German wind power projects are realized as planned, the country will incur economic losses well over 100 billion Euros by 2030," Heinzow says. "The only word that describes this 'world improvement' strategy is suicidal."

Does America really want to go down this path?

Edgar Gaertner is an independent editor and consultant on risk evaluation and sustainability issues, former editor-in-chief for the World Wide Fund for Nature (WWF-Germany), and author of *Eco-Nihilism: A Critique of Political Ecology*.

Gaertner studied biology and political science at the Johann-Wolfgang-Goethe University of Frankfurt, Germany and Mediterranean ecology in Marseilles, France. He has served as a writer and editor for the French magazine *Science & Vie*, an environmental newsletter and the German branch of the World Wide Fund for Nature.

He left the WWF when climate policy began to replace traditional conservation requests as its priority, and since then has served as an independent editor and consultant on risk evaluation and sustainability issues.

4. Offshore Drilling Curbed Again

By Siobhan Hughes and Stephen Power, WSJ, Dec 2, 2010 http://online.wsj.com/article/SB10001424052748704594804575648623586731384.html?mod=WSJ_Energy_leftHeadlines

The Obama administration reversed course Wednesday and said it wouldn't allow drilling off the Atlantic coast and in the eastern Gulf of Mexico near Florida, citing safety concerns after the worst offshore oil spill in U.S. history.

The decision was a fresh setback for the oil industry following the BP PLC spill, and subsequent revelations about events leading up to the April 20 explosion that sank the Deepwater Horizon oil rig and killed 11 people. The industry already faces a virtual freeze on permits to drill new wells on existing leases as regulators weigh tougher safety and environmental requirements.

Environmental groups cheered the decision. The oil industry and its supporters denounced it. Although the administration said it would open up other areas of the Gulf by late 2011, the decision means companies will have gone almost two years without access to new offshore drilling leases. The last auction of offshore leases took place in March 2010, when companies bid a maximum of \$949 million for leases in the central Gulf of Mexico. About 30% of domestic oil production comes from the Gulf.

Only last March—weeks before the BP spill—President Barack Obama had proposed expanding oil and natural-gas exploration to the Atlantic and eastern Gulf of Mexico near Florida, which are now off limits.

Wednesday's decision had likely political repercussions, affecting several states critical in the 2012 presidential race. These include Florida, where opposition to drilling has historically been strong, and Virginia, whose Republican governor backs exploration off his state's coast.

The administration kept alive the industry's hopes to explore new areas along the northern shores of Alaska, which are thought to hold as many as 19 billion barrels of recoverable oil.

The Interior Department said it would process a permit long sought by Royal Dutch Shell PLC to drill off the coast of Alaska, and would consider offering new leases in Alaskan waters by 2017. The agency also said it expected to offer new leases to drill in the Gulf of Mexico by late 2011 after stringent environmental reviews, resuming a process that it had put on hold following the Gulf spill.

Interior Secretary Ken Salazar said Wednesday his decision was "based on the lessons that we have been learning and knowing that there is a robust safety regime that we are [putting in place] to prevent another Deepwater Horizon incident."

Mr. Obama's proposal in March to expand exploration off the Atlantic and eastern Gulf of Mexico came as he sought Republican support for legislation to curb greenhouse-gas emissions.

The climate measure failed, and the BP disaster led the White House to reconsider its offshore oil strategy. The administration canceled a scheduled sales of leases in August, and imposed a moratorium on new deep-water drilling permits. That ban was lifted in October, but the Interior Department has yet to issue a new deep-water drilling permit.

Mr. Salazar noted that about 29 million acres in the Gulf were under lease to oil companies but had not been developed, out of a total 43 million acres leased. "There's plenty of opportunity for oil and gas companies to develop these additional resources," he said.

But the oil industry's main trade group countered that oil companies had already determined much of the acreage in question didn't contain enough petroleum to be worth drilling.

"It's a red herring to suggest there are resources sitting there yet to be developed," said Jack Gerard, president of the American Petroleum Institute.

5. Gulf Oil Spill Response in Perspective

By Bruce Thompson, American Thinker, Nov 27, 2010 http://www.americanthinker.com/2010/11/gulf_oil_spill_response_in_per.html
[SEPP Comment: This article was published before the new moratorium on drilling in the eastern Gulf of Mexico and the Atlantic seaboard.]

AT readers who have been following the Gulf oil spill and its consequences have a new standard of comparison for crisis response, the Honorable Martin Ferguson AM MP, Australia's Minister for Resources and Energy, who was faced with the largest offshore oil spill from a drilling rig (the third-largest after two oil tanker accidents) in Australian history. You are familiar with Interior Secretary Salazar's offshore drilling moratorium. You will find the Australian response quite different.

Causes of the Accidents

The causes of the BP Deepwater Horizon accident in the Gulf of Mexico and the PTTEP AA (PTT Exploration & Production - Australasia Ashmore) Montara Wellhead Platform in the Timor Sea off Australia are amazingly similar. Both were due to failure of the primary cement inside the shoe, not the

annular flow theory so beloved by the president's scientific advisors. Here are the key findings of the Australian inquiry:

The *source* of the Blowout is largely uncontested. While the Inquiry received submissions advancing several theories, it is most likely that hydrocarbons entered the H1 Well through the 95% cemented casing shoe and flowed up the inside of the 95% casing. The Inquiry finds that the primary well control barrier - *the* 95% *cemented casing shoe - failed*.

The preliminary findings of the Oil Spill Commission are remarkably similar in both cases. But the responses by the governments have been quite different. Here are excerpts from Mr. Ferguson's Ministerial Statement.

- 6. At the time of both these incidents, there were calls from some parts of the community for a moratorium on acreage release and industry activities.
- 7. Our approach must be to ensure our oil and gas exploration and production operations are the best and safest in the world.
- 8. Shutting down the industry and putting the nation's energy security, jobs and the economy at risk does nothing towards achieving any of these goals.
- 9. Offshore petroleum activities have been occurring in Australia for over 40 years with approximately 3000 wells safely drilled during this time. The Montara incident was the first well blowout in Australia in over 25 years.
- 10. The Australian Government is committed to applying the lessons from the Montara and Gulf of Mexico incidents so as to improve the protection of human health and safety and the protection of marine environments.
- 11. This is essential if Australia is to continue to have a viable offshore oil and gas industry able to contribute to Australia's and our major trading partners' energy security needs. ...
- 19. During the Inquiry concerns regarding the state of the five remaining suspended wells in the Montara field were raised. On my instruction, on 9 April 2010, my Department requested the Northern Territory Department of Resources to seek advice from PTTEP AA on the status and integrity of the other suspended wells and information on what remedial action would be taken if required.
- 20. PTTEP AA implemented a work program to ensure the integrity of the remaining wells on the Montara Wellhead Platform. AGR (A.g.R Certification), an international company with the requisite expertise, witnessed the satisfactory barrier testing of the wells at the Montara Wellhead Platform. AGR's verification report has been further assessed by Geoscience Australia and the Northern Territory Department of Resources. Geoscience Australia advises that all possible work to ensure the integrity of the suspended wells at the Montara platform has been undertaken and completed and that the AGR verification report provides appropriate assurance that the barriers are competent.
- 21. The Commissioner has recommended that I undertake a review of PTTEP AA's licence to operate at the Montara oil field. He has further recommended that, as the mechanism for instigating this review, I issue a 'show cause' notice to PTTEP AA, pursuant to the cancellation of titles sections of the *Offshore Petroleum and Greenhouse Gas Storage Act 2006*.
- 22. I have accepted the Commissioner's recommendation to review PTTEP AA's licence to operate.

- 23. However, PTTEP through its Australian subsidiaries (of which PTTEP AA is one) is the operator of seven exploration permits, five production licences and seven retention leases and has interests in a further five exploration permits where it is not the operator. A show cause notice can only be issued where a breach of the Act has been identified, and then only in relation to the Title relevant to that breach. I believe a review of PTTEP AA's licence to operate which was restricted to its operations in the Montara field would, in these circumstances, be insufficient.
- 24. After careful consideration, I directed my Department to instigate an independent review of the Action Plan that PTTEP, the parent company of PTTEP AA, submitted to the Commission of Inquiry. This Action Plan was developed to comprehensively address the technical and governance issues identified by the Commissioner and has application across their entire Australian operations. The independent review commenced on 6 September 2010.

6. On Energy, U.S. Lags Behind China

Letters, Richmond Times-Dispatch, Nov 29, 2010 http://www2.timesdispatch.com/news/2010/nov/29/elmores-ar-681323/

[SEPP Comment: The editors of the Richmond (VA) Times-Dispatch apparently have a sense of humor. They ran these two letters, one after the other.]

Editor, Times-Dispatch: A renewable electricity standard (RES) will require consumers to buy expensive and unreliable electricity from green sources, such as solar and wind, while providing no requirements for producers to deliver at competitive prices. Promoters of RES, such as [Virginia Delegate] Del. Ken Plum, in his Commentary column "Pass Renewable Energy Standard," omit many salient facts including conditions in Spain, measurement of useful capacity, and what China is actually doing.

Spain committed to green electricity early. Its economy is now in shambles with 20 percent unemployment, utility bills skyrocketing, green electricity industry imploding, other industries leaving, and a government facing bankruptcy.

Human operators control the flow of electricity from traditional sources, such as nuclear and coal, thus guaranteeing useful capacity -- a specific flow at a definite time. Nature controls the flow of electricity from wind and solar. Regardless of stated capacity, operators cannot guarantee delivery. Thus, green sources require expensive and inefficient backup, making them a waste of resources.

Promoters falsely claim the U.S. is in a race with China for green electricity. China is producing wind turbines and solar panels to sell to Westerners, not for themselves. The following statistics come from the U.S. Energy Information Administration and the World Nuclear Association:

- Today, China is constructing 24 nuclear power plants, the U.S. only one;
- In 2008, China added 20.1 GWe (gigawatts electrical) of hydro capacity; the U.S. has added zero;
- In 2008, China added 65.8 GWe of coal-fired capacity (net increase, while closing 26 GWe of old, inefficient coal-fired capacity; the U.S. added 0.7 GWe;
- In 2008, China added 4.7 GWe of unreliable wind; the U.S. added 8.5 GWe.

China is providing affordable, reliable electricity for its citizens, their children, and grandchildren. Green electricity promoters are providing sub-prime electricity for their benefit, not ours. Expensive, unreliable

electricity will not create prosperity. Neither Virginia nor the nation can afford the RES green electricity mania

Kenneth Haapala,

Virginia Scientists and Engineers for Energy and the Environment. Fairfax.

Let's Get Started On an Honest Debate

[SEPP Clarification: Dominion is an energy company in Virginia.]

<u>Editor, Times-Dispatch</u>: Dominion CEO Tom Farrell says he wants an "honest debate" on energy ["Dominion's Farrell Calls for Honest Debate on Energy"]. If we are to have an honest debate, we must consider all possible options, and look at the facts.

The fact is that Dominion has done very little to expand our <u>renewable energy use</u> and <u>energy efficiency</u>. Dominion lobbyists have fought every piece of legislation that seeks to improve this while <u>Virginia</u> continues to lag behind other states that have taken <u>renewable energy</u> seriously.

The Virginia Coastal Energy Research Consortium (VCERC) found that we could meet 20 percent of our annual electricity demand from offshore wind. <u>Google</u> is now one of the companies investing in the infrastructure to make this happen. Both Maryland and <u>North Carolina</u> have pushed ahead on building offshore wind and it is there that the first turbines will be built while <u>Virginia</u> continues to debate. Farrell is calling for an honest debate when what we really need is action. <u>Virginia</u> will never be a leader if we never get started.

Antigone Ambrose,																																																
Virginia Sierra Club.																																																
Richmond.																																																
	#	#	#:	##	##	#	#	#	#	#	#	#	##	#	##	##	#	##	4	#	##	4	#	##	##	##	#	#	#	#	#	#	#	#	#	##	#	H	#	#	11	+	4	##	#	#	#	#

This document was created with Win2PDF available at http://www.win2pdf.com. The unregistered version of Win2PDF is for evaluation or non-commercial use only. This page will not be added after purchasing Win2PDF.