EPA Rules: On June 2, the US Environmental Protection Agency (CO2) released a long-anticipated set of rules for controlling carbon dioxide (CO2) emissions from existing power plants. Already, the EPA has rules on the CO2 emissions from new power plants that effectively prohibit the construction of coal-fired plants, even the new highly efficient clean-coal ultra-critical plants. The EPA and the Department of Energy state that these plants can be built using existing carbon capture and storage, yet the agencies cannot identify an existing plant, together with costs to meet the legal requirement that required facilities must be commercially available.

The stated purpose of the new rules is a reduction of CO2 emissions by 30% by 2030, based on 2005 levels. From 2005 to 2012, US CO2 emissions went down from 5,999 million metric tons to 5,290 million metric tons, or about 12%. Thus another 18% reduction is necessary. The prior reduction is due to a poor economy, environmental groups bitterly fighting new-coal fired plants, and the unexpected boom in natural gas production, with accompanying reduction in prices making natural gas very competitive with coal. The shale-gas revolution occurred without support from the Administration.

The EPA rules require states to develop plans for reducing CO2 emissions, thus the impacts of the rules are different by state. In general, those states that have already adapted plans to reduce CO2 emissions benefit under the EPA rules, those that do not suffer more.

The EPA statement was accompanied by a “fact-sheet” a standard in unsubstantiated low costs and highly questionable health benefits. “But the EPA adds that the regulations will generate more than $90 billion in climate and health benefits compared to $7.3 billion to $8.8 billion in costs. Under the first year alone, the EPA states the rule will avoid up to 150,000 asthma attacks and 2,100 heart attacks.” The EPA has failed to establish any solid evidence of a link between asthma
and CO2. Instead, it claims benefits from reductions in soot, sulfur dioxide and nitrous oxide, which are regulated under different rules.

Another too typical statement was: “EPA chief Gina McCarthy framed the rules as having the potential to dramatically improve public health, saying that for every dollar the government invests in the new climate initiative, families will see $7 in health benefits.” The government is not investing in the new climate initiative, it is requiring the public to pay for more expensive electricity. Many in Washington apparently consider their actions are actions of the general public.

Among the more unusual quotes came from climate experts who claimed that proposed rules will create jobs and benefit the economy. Many of these climate experts cannot create models that are successful in forecasting future temperatures, yet they feel qualified in forecasting the economy.

Using a standard, publically available climate model, Chip Knappenberger and Patrick Michaels estimated that the new rules will reduce future rise in temperatures by about 0.02°C. It appears that the benefits of these rules are as imaginary as the jobs created when government regulations increase electricity prices. The model uses an estimate that a doubling of CO2 will increase temperatures by 3°C, which is significantly above what many empirical studies indicate.

The rules have a 120 day comment period, then the EPA will review the comments and issue final rules scheduled for June 30, 2015. Then will come the legal challenges. There are a number legal issues among them are challenges to the new power-plant rule. If the rules for new power-plants are overturned, the EPA has no grounds for existing power-plant rules. Another major issue is inappropriate application of the Clean Air Act, particularly for requiring regional plans.

According to a database created by the European Commission and Netherlands Environmental Assessment Agency in 2012, CO2 emissions by China were 9,860 million metric tons and the US were 5,190 million metric tons or 53% of China’s (note there are discrepancies among databases). Given that China has shown no interest in curtailing CO2 emissions that will be damaging to the economy and that the next largest producer, India, has brought action against Greenpeace for disrupting its energy security, it is doubtful that this Administration can persuade these countries to follow its CO2 regulations.

Then why is the EPA so engaged in actions that have no clear benefit, but can have significant costs, particularly on lower income groups? Perhaps a pattern of action can be seen in banning of DDT by William Ruckelshaus, using the unsubstantiated claim DDT may cause cancer. By the early 1950s, it was established that the most effective, low-cost way of controlling malaria in tropical countries was indoor spraying with DDT several times a year. By the 1970s, partially thanks to DDT, malaria was no longer a problem in the US. EPA banning DDT gave environmental groups an opening for trying to ban it world-wide, regardless of the cost. Tens of millions died and hundreds of millions suffered from reoccurrences from preventable malaria outbreaks. Neither the EPA nor the environmental groups that support it have shown any remorse for the consequences of this exercise of power. See links under Article # 4, Questioning the Orthodoxy, EPA Rules, Litigation Issues, http://www.eia.gov/environment/emissions/carbon/, and http://edgar.jrc.ec.europa.eu/overview.php?v=CO2ts1990-2012

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Challenging the Orthodoxy – The Reports: On May 29, ecologist Daniel Botkin submitted devastating comments to the US House of Representatives Subcommittee on Science, Space, and Technology cover both the UN Intergovernmental Panel on Climate Change (IPCC) Fifth
Assessment Report (AR-5) and the US National Climate Assessment. Some of the many important points he brings out are:

“My biggest concern is that both the reports present a number of speculative, and sometimes incomplete, conclusions embedded in language that gives them more scientific heft than they deserve. The reports are "scientific-sounding" rather than based on clearly settled facts or admitting their lack. Established facts about the global environment exist less often in science than laymen usually think.” The good science is overwhelmed by these speculative conclusions.

“The reports suffer from the use term “climate change” with two meanings: natural and human-induced. These are both given as definitions in the IPCC report and are not distinguished in the text and therefore confuse a reader. (The Climate Change Assessment uses the term throughout including its title, but never defines it.) There are places in the reports where only the second meaning—human induced---makes sense, so that meaning has to be assumed. There are other places where either meaning could be applied.”

“Some of the reports’ conclusions are the opposite of those given in articles cited in defense of those conclusions.”

“The report for policy makers on Impacts, Adaptation, and Vulnerability repeats the assertion of previous IPCC reports that “large fraction of species” face “increase extinction risks” (p15). Overwhelming evidence contradicts this assertion.”

“THE REPORT GIVES THE IMPRESSION THAT LIVING THINGS ARE FRAGILE AND RIGID [caps in the report], unable to deal with change. The opposite is to case. Life is persistent, adaptable, adjustable.”

“The extreme overemphasis on human-induced global warming has taken our attention away from many environmental issues that used to be front and center but have been pretty much ignored in the 21st century.”

Among his comments on what is wrong and how to fix it include:

“Rather than focus on key, specific and tractable aspects of climate-change science, the long-term approach throughout the 20th century was to try to create de nova a complete model of the climate.”

“This approach has been taken despite a lack of focus on monitoring key variables over time in statistically and scientifically valid ways, e.g. carbon sequestering by forests; polar bear population counts.”

“The attempt to create complete models of every aspect of climate has meant that many factors had to be guessed at, rather than using the best scientific methods. Too many guesses, too little checking against real, observed effects.”

“Return to the former reliance on science done by individuals and small groups with a common specific interest and focus.”

The entire testimony is worthy consideration. See links under Challenging the Orthodoxy.
**Abrupt Climate Change:** On Climate Etc., Judith Curry has a post discussing the Dansgaard-Oeschger cycles of abrupt climate change. These cycles provide the foundation for the book by Fred Singer and Dennis Avery, “Unstopable Global Warming: Every 1,500 Years.” Needless to say these important cycles are largely ignored by the IPCC and the US National Assessment. Until we can address such natural cycles, we cannot understand the human influence on climate. See link under Seeking a Common Ground.

**Mr. Mann and the Climate Denial Machine:** Mr. Mann is back claiming that his hockey-stick is correct, dangerous human-caused (anthropogenic) global warming (AGW) is occurring, etc. The reports of no warming are a cover-up by the privately funded Climate Denial Machine (CDM). In Fiscal Year 2013, the US government spent $22.5 Billion on global warming/climate change. Yet, it is still unable to produce a climate model that makes reliable forecasts or a scientifically viable report. In private enterprise, such activity would leads to bankruptcy. If global warming research is an indication, government funding of such activity leads to bankruptcy of ideas. See links under Oh Mann!

**Number of the Week:** 72 times. According to the BP Statistical Review of World Energy, June 2014, at the end of 1993 the proved reserves of natural gas in the US stood at 4.6 Trillion cubic meters. At the end of 2013 the proved reserves of natural gas in the US stood at 330 Trillion cubic meters, 72 times the amount calculated in 1993. During the same period, world proved reserves increased 56 times. So much for the 1970s claim that the world would run out of oil and the US would run out of natural gas by the end of the 20th century. Price, but mostly changing technology made the difference. The change in “proven reserves’ should be a warming to the followers of the Club of Rome, and others, who use state-of-the-art computer models to make long-term forecasts, without fully understanding the assumptions. See page 20: [http://www.bp.com/content/dam/bp/pdf/Energy-economics/statistical-review-2014/BP-statistical-review-of-world-energy-2014-full-report.pdf](http://www.bp.com/content/dam/bp/pdf/Energy-economics/statistical-review-2014/BP-statistical-review-of-world-energy-2014-full-report.pdf)

**ARTICLES:**
For the numbered articles below, please see this week’s TWTW at: [www.sepp.org](http://www.sepp.org). The articles are at the end of the pdf.

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   By S. Fred Singer, American Thinker, Jun 3, 2014
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2. **Are We Underestimating America’s Fracking Boom?**
   Check Out Sasol’s Energy Complex in Lake Charles, La.
   By Dennis Berman, WSJ, May 27, 2014

3. **Canadian Government Approves Enbridge's Northern Gateway Pipeline**
   Project to Transport Oil-Sands Output From Alberta to Pacific Coast
   By Paul Viera and Chester Dawson, WSJ, Jun 17, 2014
4. Utilities Size Up Emission Cap for Power Plants
Coal Producers Find Relief in Certain Elements of the EPA's Plan
By Amy Harder and Cassandra Sweet, WSJ, Jun 2, 2014

NEWS YOU CAN USE:

Science: Is the Sun Rising?
Chinese study ‘implies that the “modern maximum” of solar activity agrees well with the recent global warming’
By Anthony Watts, WUWT, Jun 5, 2014
Link to article: Periodicities of solar activity and the surface temperature variation of the Earth and their correlations (abstract in English).
By Zhao and Feng, Chinese Science Bulletin, Vol 59, Issue 14
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Commentary: Is the Sun Rising?
Is It the Sun Stupid?
By David Whitehouse, GWPF, Jun 11, 2014
http://www.thegwpf.org/is-it-the-sun-stupid/

 Suppressing Scientific Inquiry
Caleb S. Rossiter Fallout: Academics Worldwide Condemn “Dark Age” Intellect Of Institute For Policy Studies
By P Gosselin, No Tricks Zone, Jun 15, 2014

Exclusive: Prof Fired for Calling Global Warming ‘Unproved Science’ Stands Firm
By Dominic Lynch, The College Fix, Jun 18, 2014 [H/t Bishop Hill]
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Global Warming Witch Hunt Continues With Caleb Rossiter
Editorial, IBD, Jun 16, 2014

AGU: Enforcing the consensus
By Michael Asten, Climate Etc. Jun 3, 2014
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Challenging the Orthodoxy
In House testimony, Botkin dismantles the IPCC 2014 report
By Anthony Watts, WUWT, May 31, 2014
Geologist: “IPCC Confuses Prognoses With Facts” 15-Year Climate Development “No Longer Agrees With IPCC Models”  
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Giant Of Geology/Glaciology Christian Schlüchter Refutes CO2…Feature Interview Throws Climate Science Into Disarray  
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Scientist Reveals Inconvenient Truth to Alarmists  
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Defending the Orthodoxy  
New EPA Rules Make Global Warming Real For Everyone  
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[SEPP Comment: Building unneeded, unreliable, and redundant means of electricity generation is the path to prosperity?]

Questioning the Orthodoxy  
Now That Natural Gas Is Working, Methane Is Being Called More Damaging Than CO2  
By Hank Campbell, Science 2.0, Jun 5, 2014  
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[SEPP Comment: CH4 absorbs more IR radiation than CO2 on a per molecule basis, but not in the real world]

Ontario, Canada: A Mirror of America’s Economic Future Mortgaged To Falsified Climate Science  
By Tim Ball, WUWT, Jun 3, 2014  
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By Judith Curry, Climate Etc., Jun 15, 2014
http://judithcurry.com/2014/06/15/on-the-ar4s-projected-2cdecade-temperature-increase/
[SEPP Comment: Comparing past IPCC reports and the value of projections contained in them.]

Brookings: Public Concern over Climate Still Bottom of the List
By Roy Spencer, His Blog, Jun 11, 2014
Generally speaking, the public has lost faith in scientists whose profession requires them to sound the alarm over climate disruption. Most Americans understand that forecasts of gloom and doom as predicted by “scientific experts” are not as reliable as predictions of, say, this afternoon’s weather…. In fact they have a history of almost zero reliability.

Obama’s New Powerplant CO2 Rules: Guaranteed to Succeed (Retroactively)
By Roy Spencer, His Blog, Jun 2, 2014
Ten years down the road, “global warming” will turn out to be (surprise!) much weaker than predicted. Since we know the climate models that predicted much greater warming can’t be wrong, it must be those new EPA regulations back in 2014 that solved the problem!

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By Tim Ball, WUWT, Jun 8, 2014

Scientists say IPCC puts politics before science, needs reform
By Michael Bastasch, Daily Caller, May 29, 2014

Richard Tol: Examining The IPCC Process For The Fifth Assessment Report
By Richard Tol, Committee on Science, Space and Technology, US House of Representatives, May 29, 2014
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What is the origin of the false belief—constantly repeated—that almost all scientists agree about global warming?
By Joseph Bast and Roy Spencer, WSU, May 26, 2014
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How climate change policies are hurting the world's poor
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By Charles Battig, WUWT, Jun 3, 2014
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EPA Rules
EPA unveils landmark climate rule
By Laura Barron-Lopez, The Hill, Jun 2, 2014
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0.02°C Temperature Rise Averted: The Vital Number Missing from the EPA’s “By the Numbers” Fact Sheet
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Obama Plan Will Have Miniscule Global Impact…Der Spiegel: CO2 Will Keep Rising 1.1% Annually For Next 20 Years!

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Global Warming Threat? Now It’s Asthma
White House playing heartstrings to impose onerous regulation of carbon dioxide
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New White House CO2 Regs Will Kill Jobs, Shrink Growth
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Obama climate rule promises early health benefits
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U.N. climate talks fracture over future of carbon markets
By Ben Garside, Reuters, Jun 15, 2014 [H/t GWPF]
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Seeking a Common Ground
What is skepticism, anyway?
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Can we trust climate models?
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By Judith Curry, Climate Etc. Jun 1, 2014
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What is the measure of scientific ‘success’?
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Public perception of climate change
By Martin Livermore, Scientific Alliance, Jun 20, 2014

U.S. House Hearing on the IPCC Process
By Judith Curry, Climate Etc. May 29, 2014
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The President says there is no debate. Actually the debate has only just begun. When assessing climate change, we need to make sure that findings are driven by science, not an alarmist, partisan agenda. – Committee Chairman Lamar Smith

Senate Hearing – Climate Change: The Need to Act Now
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Steve Burnett’s “Hard vs. the Soft Sciences” Essay; An Ongoing Debate Central To Climate.
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Review of Recent Scientific Articles by NIPCC
For a full list of articles see www.NIPCCreport.org

The Medieval Warm Period on the Northeastern Tibetan Plateau
In light of their findings, the Chinese/Russian research team states in their paper's concluding sentence that in regard to what they discovered, “it follows that the statement of the latest report of the Intergovernmental Panel on Climate Change about the unprecedented nature of the current warming is unjustified.”

Perhaps most important of all, however, is the 31 researchers' conclusion that "even areas of substantial agreement among models may not imply more confidence that projections are correct, as common errors or deficiencies in model parameterizations may provide false confidence in the robustness of future projections."
[SEPP Comment: Seven examples of global models making inconsistent regional projections.]

Simulations of ENSO by CMIP5 Climate Models
[SEPP Comment: Unable to replicate the El Niño and the Southern Oscillation (ENSO)]

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How forecasting has changed
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The temperature forecasting track record of the IPCC
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Junk Science Week: The global warming hiatus? Climate models all wrongly predicted warming, so let’s call it a discrepancy
By Ross McKitrick, Financial Post, Jun 16, 2014
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There are important policy implications of this situation [of the significant and increasing divergence between model projections and observations.] Benefits and costs of climate policy are analyzed using so-called Integrated Assessment Models (IAMs), which build simplified representations of climate processes into dynamic economic models. The problem is that IAMs are calibrated to mimic climate models, not reality. To the extent climate models overstate the effects of CO2, so do IAMs, thereby yielding exaggerated estimates of the social cost of carbon emissions and overly stringent policy prescriptions.

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Standard Deviation, The Overlooked But Essential Climate Statistic
By Tim Ball, WUWT, Jun 15, 2014
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Real scientist politely challenges Climate Central bogus ‘science’ report on the World Cup
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Cold US winters to be more frequent? NO, SILLY
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Changing Climate
Explain(?) abrupt climate change
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President Barack Obama has decided to make “combating climate change” one of the top priorities of his second term; his EPA has pursued policies that amount to a “war on coal” -- or more specifically on emissions of carbon–dioxide. On June 2, EPA announced a goal of a 30% reduction by 2030 -- focusing mainly on coal-fired powerplants that currently supply well over one-third of US electricity.

The proposed EPA rules would cost approximately $51 billion a year and destroy 224,000 jobs each year through 2030. The poor and people on fixed incomes will be hurt the most. And all this pain will be for absolutely no gain: It will have no impact at all on the global climate, according to reports published by the libertarian Heartland Institute – based on peer-reviewed climate science.

Apparently, Mr. Obama has become convinced that CO2 is responsible for Global Warming – and that anthropogenic GW (AGW) is dangerous. Or perhaps, there are more sinister motives.

Never mind the lack of evidence about any significant human influence on climate or the fact that the atmosphere is a “global commons” -- with the US emitting only about one-tenth of all CO2,
while China alone emits nearly one-half. [According to official reports released on May 14, China now burns 49% of the world’s supply of coal, the US only 11%]

But since climate change is nearly all naturally caused, Obama should learn the lesson of King Canute, who supposedly commanded the tides to cease rising and falling.

Yet on May 4, the US Global Change Research Program (USGCRP) issued its third National Climate Assessment (NCA), a collection of imagined future climate catastrophes and disasters for every section of the country. Its purpose is to convince the public that only quick action to cut emissions of carbon dioxide could avert these horrible events. The handsome report comes with beautiful pictures and graphs in color, a total of 841 pages. It was expensive, too; representing four years of work by hundreds; but it sank quickly, like a lead balloon. Consequently, the media, with much help from the White House Office of Science and Technology, have done everything possible to keep the excitement going.

Yet daily we read of new discoveries, generally on the front page of the New York Times, which portend some awful calamity: killer heat waves, more droughts and floods, more hurricanes and tornadoes, looming losses of agriculture in poor countries, raising fears of famines and millions of environmental refugees, collapse of Antarctic ice sheets and rise of sea levels flooding coastal cities, etc -- scenarios dreamt up in Hollywood.

The NCA report ambles on about rising rates of heat waves, droughts, floods, severe weather, hurricanes, etc. But there is no evidence whatsoever to support such claims; the official statistics show no such increase in the rates; there is no recent acceleration in the steady rise of sea level, which has been ongoing since the last ice age -- a 400-foot rise in the past 18,000 years.

A group of retired military brass has rediscovered what they call “strategic climate change.” It is an old fable that started out a few years ago, claiming global warming would enhance conflict over resources throughout the world and create even more environmental refugees,

The media also played up some fairly routine observations about the West Antarctic Ice Sheet (WAIS) in yet another attempt to convince the public that sea level rise is a much greater problem than rising temperatures -- particularly since most citizens are aware by now that global temperatures have been flat for the past 15 years -- in spite of a 10% rise in the level of CO2 [see figure]
During the same 15-year period, the UN-created IPCC has issued three Assessment Reports [in 2001, 2007, and 2013]. Hilariously, their politically-oriented Summaries claim increasing certainty [66%, 90%, and even greater than 95%, respectively] for AGW, based on supposed agreement between models and actual data. LOL!

As documented by the independent NIPCC [2013], the discrepancy between what climate models calculate and what the actual observations tell us is striking. Yet all speculation about future climate is based on these models, which obviously have never been validated.

But let me congratulate the USGCRP for not falling into the same trap as in their first report [2000], initiated by then-vice president Al Gore. In order to enhance the scariness of future impacts on different regions of the United States (they chose 18 regions), the report authors selected two climate models that had particularly high “climate sensitivity” and would give more temperature rise for the same increase of carbon-dioxide level.

Unfortunately for the (Gore) NCA, the two models gave opposite results for most of the 18 regions. For example, one model would predict that North Dakota would turn into a swamp, while the other predicted that it would turn into a desert. Altogether, about half the results were in opposite directions (See figure below, which was also shown in the initial overview report of the NIPCC in 2008, available at www.NIPCCreport.org)
NIPCC can also be read as “Not-IPCC.” And indeed, its conclusions disagree starkly with those of the IPCC. Both groups of climate scientists use the same procedure in summarizing the published literature -- except that NIPCC includes papers which the IPCC ignores since they disagree with the pre-conceived AGW story; these papers also suggest possible natural causes for observed climate changes, such as solar variability and internal oscillations of the atmosphere–ocean system.

On reflection, this third NCA report is probably the worst of all. It represents a full press effort by the White House to scare the public into accepting higher prices for fossil fuels. It goes hand in hand with the effort of the OMB (Office of Management and Budget) to assign a high “social cost” to carbon-based fuels in their so-called SCC (Social Cost of Carbon) calculations. Unfortunately for OMB, the social “cost” of carbon is almost certainly negative: that is, more CO2 is good for us because it benefits agriculture. But the SCC calculations don’t include the benefits of increased CO2. One can learn about these by reading Volume 2 of NIPCC’s “Climate Change Reconsidered-I,” published in April 2014.

The reaction to NCA was not slow in coming. The NCA is more alarming than even the latest IPCC report published in 2013. For example the sea level predictions are about double those of IPCC 2013. Further, the IPCC does not foresee a rise in severe weather, floods, or droughts, based on historical data that show no significant trend with rising temperature. Even the alarmist US National Academy of Sciences has taken a cool stance towards the NCA.

A direct rebuttal of the NCA is provided by an independent group of 15 scientists. It has been picked up by several media outlets -- but of course not by the New York Times or Washington Post. I quote from their rebuttal:

"Unilateral CO2 emission control by the United States promises to damage the economy of the United States without any benefits. In fact, increasing CO2 in the atmosphere facilitates achieving the goal of raising the poor out of poverty through increasing food production."

**What of the future?**

Sometime this summer, the Supreme Court of the United States (SCOTUS) will issue its decision in South-Eastern Legal Foundation vs. EPA, an important case having to do with whether the
EPA’s Endangerment Finding (EF) on CO2 should be upheld. Much is at stake here. SCOTUS can stop the EPA drive to remove plentiful, cheap coal, which the US exports to other nations, and which until recently has provided over half of US electricity. Coal will either remain a preferred fuel or will be replaced and raise the cost of electric generation.

If SCOTUS cannot stop the EPA, perhaps a change in the Senate in the November elections will do the trick. It will certainly put both House and Senate in support of low-cost energy and benefit economic growth and jobs. It would of course go counter to the campaign promise of Barack Obama that “electricity prices would skyrocket”.

**Higher energy cost increases poverty**

Why would the White House want to make energy more costly for Americans? I don’t really think that they believe in limiting CO2 emission as a way to stop the climate from warming -- if indeed CO2 is as effective as the NCA thinks.

I quote here from a letter submitted to OMB [on SCC]:

“Artificially raising the price of energy is the same thing as impoverishing the American People. It is shocking and disgusting that our government would intentionally pursue this goal, particularly without any scientific basis whatsoever.”

“The currently calculated SCC estimates [by OMB] are being used to justify proposed EPA regulations, and also as input regarding a proper carbon tax levels should a future Congress elect to move in this Direction... and these SCC estimates are for the entire world not just for the US. It matters a great deal what other key countries are to do in these regards...And, in short, the current SCC estimates are not only worthless, they are extremely dangerous... to US energy, economic and national security related policy.”

**A final thought**

Why would the White House want to make energy more expensive and depress the standard of living for most of the US population? The problem becomes very acute for those in the lower income brackets where they have to decide between food and heat; whether to starve, or to freeze. Of course, they won’t be permitted to starve or freeze; they will now receive energy vouchers in addition to food stamps. These subsidies will have to be paid for by taxes -- mainly from middle-income earners; they are the ones who will lose out in this scenario.

But perhaps that’s the ultimate purpose: To make a larger fraction of the population more dependent on government handouts -- a Machiavellian scheme. So maybe that’s why the NCA is as alarming as it is: to make people more amenable to accept higher energy costs and more dependent on government.

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**2. Are We Underestimating America’s Fracking Boom?**

Check Out Sasol’s Energy Complex in Lake Charles, La.

By Dennis Berman, WSJ, May 27, 2014


South Africa’s state oil company is embarking on what could be the single-largest foreign-investment project in U.S. history, tapping into cheap, fracked natural gas on the Gulf Coast.
Start with exotic Nazi technology, take a detour with South African apartheidists, and add a bit role for Iranian imams. What you have is—what else?—one of the most improbable and important American business stories of the past decade.

It’s the tale of a company called Sasol, the South African state oil company, which is embarking on what could be the single-largest foreign investment project in U.S. history.

Sasol is building a 3,034-acre energy complex near a bayou in Lake Charles, La. Tapping into cheap, fracked natural gas as well as the pipeline and shipping infrastructure along the Gulf Coast, Sasol plans to spend as much as $21 billion there.

It is expensive, elaborate and dirty work. Sasol plans to reduce, or “crack,” the gas into ethylene, a raw chemical used in plastics, paints and food packaging. It also plans to convert the gas into high-quality diesel and other fuels, using a process once advanced by Nazi scientists to power Panzer tanks. The state of Louisiana is even kicking in $2 billion to make it happen.

This is engineering on a scale so large that it requires closing 26 public roads, buying out 883 public-property lots, and hiring 7,000 workers at peak construction. Some 100 additional trucks will be on the road each day once the complex is completed. Entrepreneurs have already begun construction of a “man camp” to house 4,000 temporary workers streaming into Lake Charles for this and other projects.

In that way, Sasol is a metaphor for what we don’t yet understand about America’s gas boom. Most know what fracking has meant for oil and gas prices. But because much of the work hasn’t started yet, few appreciate the true extent of the industrialization that’s about to begin.

So let’s put it this way: We are building a Qatar on the Bayou. From whole cloth, companies are laying new cities of fertilizer plants, boron manufacturers, methanol terminals, polymer plants, ammonia factories and paper-finishing facilities. In computer renderings, the Sasol site looks like a fearsome, steel-fitted Angkor Wat.

In all, some 66 industrial projects—worth some $90 billion—will be breaking ground over the next five years in Louisiana. Another $55 billion of new investment could be coming, says Louisiana’s economic development secretary, Stephen Moret. How many of them will actually get built remains to be seen.

Assuming that most will, you realize we are still probably underestimating the positive impact of the gas boom on both local and national economies. The entire GDP of the state of Louisiana is about $250 billion annually.

“As an economist, I can only say, ‘Wow. Holy Cow,’” said Loren Scott, a Louisiana economist who has studied the state for 40 years. “We typically measured expansion in terms of hundreds of millions of dollars. Something like that makes your eyes bug out.” He expects, for instance, that once 10-year tax-abatement deals expire, schools boards will “find themselves with a bonanza.”

Similarly, we probably underestimate the deepening shortage of skilled laborers needed to design, weld and operate these mechanical beasts. Wages are already pushing higher, which could delay or even squelch some projects.
So, too, do we not understand the environmental effects of this building binge. The Sasol plant alone is expected to emit 85 times the state’s “threshold” rate of benzene each year. It will also produce massive streams of carbon dioxide and treated water. And it is just one new facility of many. “I don’t want to wear a gas mask to go to bed at night if this plant is coming in,” said Rufus Victorian, a pipe fitter, at a 4½-hour public hearing on the plant in March.

Amid the coming boom, Sasol’s vision is especially audacious. The history of gas-to-liquid plants is mixed, prone to cost overruns and technology snafus. Should gas prices rise, or oil prices fall, they can quickly become huge money losers. Right now, the arbitrage is in Sasol’s favor. Oil trades at around 24 times the price of natural gas. In 2007, by comparison, it was around seven times. Sasol needs the ratio to be at least 16 to make money.

Historically, Sasol did a lot of its work converting coal to fuel, a necessity during the apartheid era in South Africa when oil supplies were constrained by a trade embargo. The company still carries an outsider’s edge, going wherever the best deals may be. That has taken it to Qatar, as well as Iran, Uzbekistan and Nigeria.

U.S. sanctions forced Sasol to leave Iran, where it purchased crude oil for a South African refinery and invested in a chemical venture with a state-backed company.

Iranian imams do not make the best bedfellows—which is partly why Sasol Chief Executive David Constable appreciates doing business in America. “If you’re going to build a plant, from a logistics standpoint…it is No. 1 in the world,” said Mr. Constable in an interview. Access to cheap gas, customers, capital, rule of law and ease of building “ticks all the boxes very nicely. It couldn’t have happened to a better country.”

Louisiana’s waterways are a huge plus, making it easy for Sasol to ship its products via barge. They also make it easier to deliver the four 2,000-ton chemical reactors needed for the plants. The docks are just 1½ miles from the Sasol site.

Then there are the gas pipelines, which make it easy to pull in gas from the shale fields of Texas. “That’s why it’s so much more difficult for a China or Europe to jump into shale gas in a big way. If you look at the natural-gas pipelines around the country, it’s like a spider web,” Mr. Constable said.

There’s much more toil for both Sasol and the country at large. The environmental costs cannot be overlooked.

But in the grand veneers of politics, there is much to work with here. You can almost hear President Obama announcing his begrudging approval of the controversial Keystone XL pipeline with a line that goes something like this:

“Friends, we are taking dollars out of Iran’s pockets and putting them into our own. The energy century is going to reindustrialize America, and if we do it right, this is going to be bigger than we even know.”

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3. Canadian Government Approves Enbridge's Northern Gateway Pipeline
The push to expand pipeline links from Alberta's landlocked oil sands to Canada's Pacific coast got a boost on Tuesday when the federal government approved Enbridge Inc. Northern Gateway project.

Enbridge faces other hurdles before it can start construction on the 7.9 billion Canadian dollar (US$7.3 billion) project. Like TransCanada Corp.'s proposed Keystone XL pipeline in the U.S., Northern Gateway has come up against opposition, from politicians in British Columbia to environmentalists and aboriginal groups who have vowed to stop the project.

In approving Gateway, the federal cabinet said Enbridge must satisfy the 209 conditions set out by Canada's main energy regulator when it approved the project in December after 18 months of highly-charged public hearings. Enbridge "clearly has more work to do in order to fulfill the public commitment it has made to engage with aboriginal groups and local communities along the route," Natural Resources Minister Greg Rickford said in a written statement.

Northern Gateway would carry 525,000 barrels a day of crude oil from near Edmonton, Alberta, to a marine terminal at Kitimat, British Columbia, where the oil would be loaded onto tankers bound for Asia.

"We're pleased with the decision. We think it's an important milestone for Gateway and Canada, but we still have some work to do ahead of us," Enbridge Chief Executive Al Monaco said on a conference call.

With the U.S. increasingly energy self-sufficient, building pipeline capacity to get crude to new markets has become a priority for Canada, which currently sends almost all of its crude exports to the U.S. Keystone XL, which has yet to get a green light from the White House nearly six years after it was proposed, has added to the urgency around tapping new markets.

Failure to win approval for more pipelines could lead to delays for planned oil-sands projects and lower prices for oil from Alberta, which already trades at a discount to other North American crudes. Canadian Finance Minister Joe Oliver this month warned that Canada's failure to find new energy markets would carry stark consequences for its economy. The natural-resources sector accounts for 20% of Canada's economic output, according to the government.

Enbridge has spent C$400 million of the estimated cost to prepare and promote Gateway and has received firm commitments from major oil-sands producers, including domestic companies Suncor Energy Inc., Cenovus Energy Inc. and Husky Energy Inc., as well as the Canadian units of China's Cnooc Ltd. and France's Total SA.

Many of those shippers have hedged their bets by also making commitments to other pipeline projects, including a proposal backed by Kinder Morgan Energy Partners LP to nearly triple the capacity of its Trans Mountain pipeline, which already carries Alberta crude to the Pacific coast.
People in the industry say that not all those pipelines are needed today, but that their capacity will be spoken for over the next decade as oil-sands production grows.

Gateway has polarized Alberta neighbor British Columbia, with opposition strongest among aboriginal groups and environmentalists. The provincial government had demanded environmental guarantees and compensation before construction permits can be issued.

Many of the native tribes that exercise control over land and coastal waters along the proposed route through British Columbia have signaled that they will oppose the project, citing environmental risks and what they say is their lack of influence on a pipeline that will run through land they have lived on for centuries.

"It traverses some of the most rugged terrain in North America and crosses hundreds of streams and rivers that represent the spawning grounds for B.C.'s wild salmon," said Grand Chief Stewart Phillip of the Union of British Columbia Indian Chiefs. "The specter of a tanker spill along the north coast is something that people are not prepared to risk."

The issue also has threatened to complicate discussions between aboriginal groups and provincial government and industry groups seeking to build pipelines to carry natural gas from inland to proposed liquefied-natural-gas terminals on the Pacific coast. The British Columbia government and First Nations have been more receptive to those natural-gas projects.

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4. Utilities Size Up Emission Cap for Power Plants
Coal Producers Find Relief in Certain Elements of the EPA's Plan
By Amy Harder and Cassandra Sweet, WSJ, Jun 2, 2014

New federal limits on greenhouse-gas emissions would force sweeping changes in the U.S. electric system but wouldn't deliver the knockout blow to coal that mining companies and some power producers had feared.

The EPA's plan, part of President Barack Obama's broader effort to combat climate change, also allows states to count measures like energy-efficiency programs to meet a nationwide goal of reducing 2005 greenhouse-gas emission levels by an average of 25% by 2020 and 30% by 2030.

Scott Segal of Bracewell & Giuliani LLP in Washington, D.C., who lobbies on behalf of coal-fired power plants, said he opposes the carbon plan but added that the rule "could have been a whole lot worse."

The 645-page proposal is so complex that companies said they were trying to sort out the potential impacts, which are likely to vary widely by region. Coal consumption is highest in the Midwest, the Ohio Valley and the Southeast, including Florida and Georgia, and coal-burning states tend to have lower electricity prices.

American Electric Power Co. of Columbus, Ohio, said it is concerned that in many states where the company operates, carbon cuts could be more than 30% by 2030. "Climate change is a global issue, and some states should not bear a disproportionate share of the cost of U.S. action to cut emissions," a spokeswoman said.
Obama administration officials stressed that they were giving states a great deal of flexibility both in how the states and utilities meet the goals and when they must come up with a plan, which for some states could be as long as three years from next summer, when the rule becomes final.

Perhaps the biggest concession to the industry was the EPA's use of the 2005 baseline for the cuts. Carbon emissions have dropped 14% since that year, so the overall reduction sought is smaller than it would have been if the EPA had used a more-recent baseline year, as both coal and utility executives had feared. "We aren't sure how that happened, but it's a big relief," said a coal-industry lobbyist Monday.

The EPA said 2005 is an international benchmark year for many statistics including comparing pollution.

Building up to Monday's announcement, senior White House officials reached out extensively to the utility industry and other stakeholders, including labor unions and environmental groups. White House senior adviser John Podesta spent two days last week calling utilities, whose share prices barely moved Monday, and met with coal-mining labor groups, according to a White House official.

But the proposal will face challenges in court from both industry and some states. A spokeswoman for Michigan Attorney General Bill Schuette, a Republican, said Monday that the state, which has challenged the EPA on other rules, may take legal action against the plan.

Industry groups that oppose the administration push to cut greenhouse gases warned the plan would raise the cost of electricity, harming consumers and the economy.

"This proposal may adversely impact the affordability and reliability of electricity supply to major industrial consumers, which will harm workers, jobs and further impede the postrecession growth of American manufacturing," said Thomas Gibson, president of the American Iron and Steel Institute trade group.

The overall costs of the plan remain hotly debated. The administration estimates that utilities would spend as much as $8.8 billion a year to comply with the rule, based on complex assumptions including using more natural gas as a baseload fuel. The U.S. Chamber of Commerce says the rule would cost the economy $50 billion a year.

The utility industry accounts for about one-third of total U.S. carbon emissions, according to the EPA, with coal making up most of that share. Coal use has declined from a decade ago, but the fuel still produced 39% of the nation's electricity last year, according to federal tallies. Plants fired by natural gas produced about 27%, nuclear plants generated 19%, and renewables including hydro, wind and solar produced 13%.

Electric companies that have made big cuts in their emissions in recent years but still have heavy concentrations of coal-fired power plants include American Electric Power, Duke Energy Corp. of Charlotte, N.C., and Atlanta-based Southern Co.

"No one is doing more than Southern Co. to address CO2," said Tom Fanning, chief executive of that company, which says it has slashed emissions by 26% over the past few years. The company,
which says it is still evaluating the impact of the new rules, is building a plant in Mississippi that is supposed to capture carbon emissions. It also operates the nation's biggest single emitter, the Scherer coal plant in Juliette, Ga.

The EPA has set different carbon reduction standards for each state based on what the agency believes is achievable, taking into account cuts that individual states and utilities already have made since 2005. For example, West Virginia must have a rate of 1,620 pounds of carbon dioxide emitted per megawatt hour of electricity by 2030, meaning it must cut its carbon by 19.7% during that time.

That is a relatively low percentage cut compared with some other states that have fossil-fuel-intense economies, such as Colorado, which must cut its emissions by 35.3% by 2030, and Louisiana, which must cut carbon emissions by 39.7% over that period.

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**Power Structure | Behind U.S. electric generation**

Coal produces more electricity than any other fuel in the U.S. ...

<table>
<thead>
<tr>
<th>Power plant</th>
<th>2013 carbon-dioxide emissions, in millions of metric tons</th>
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<tbody>
<tr>
<td>Scherer</td>
<td>22.1</td>
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<tr>
<td>James H. Miller Jr.</td>
<td>21.7</td>
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<tr>
<td>Navajo Generating Sta. Salt River Project</td>
<td>16.2</td>
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<tr>
<td>Bruce Mansfield</td>
<td>16.1</td>
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<td>Martin Lake</td>
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<td>Gibson</td>
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<td>WA Parish</td>
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<td>Monroe</td>
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<td>Labadie</td>
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<td>Rockport</td>
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*Numbers don't equal 100% due to rounding

Sources: U.S. Energy Information Administration (electricity generators); Environmental Protection Agency (carbon emitters) - The Wall Street Journal
Global Emissions
The EPA's proposal would allow states to create new cap-and-trade systems or join existing ones.

How the U.S. approach compares with the rest of the world

<table>
<thead>
<tr>
<th>Cap-and-trade policies implemented or scheduled to be</th>
<th>THE AMERICAS</th>
<th>EUROPE, MIDDLE EAST, AFRICA</th>
<th>ASIA-PACIFIC</th>
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<td>Canada:</td>
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<td>Regional Greenhouse Gas Initiative (Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island, Vermont)</td>
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<td>Carbon taxes implemented or scheduled to be</td>
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Sources: U.S. Energy Information Administration (emissions); World Bank (policies)
The Wall Street Journal

Carbon dioxide emissions from the consumption of energy, in billions of metric tons

Asia-Pacific
Europe, Middle East, Africa
The Americas

2000 02 '04 '06 '08 '10 '11