



- While the forcing from GH gases can be reasonably well estimated, its effect on climate is highly uncertain – mainly because of uncertainties about cloud microphysics and the unknown amount (and even the sign) of feedback from clouds and water vapor. For example, IPCC's climate models show a climate sensitivity typically ranging from 1.5 degC to 4.5 and higher. (Stainforth et al, Nature 2005, have shown that a certain choice of cloud parameters can get values as high as 11.5 degC.) In fact, the absence of agreement between patterns ('fingerprints') of observed and calculated temperature trends leads to climate sensitivities of 0.5 degC or even less.
- The forcings from aerosols are highly uncertain, particularly the indirect effects. This can be seen clearly from the IPCC's graph showing such forcing. In addition, aerosol forcings have a particular geographic and temporal dependence, which is often not incorporated consistently into climate models. Finally, 'black carbon' and 'mineral dust' introduce additional uncertainties that are not even discussed by the IPCC.
- Major internal climate oscillations, such as the North Atlantic Oscillation and the Pacific Decadal Oscillation, are not incorporated into current climate models and must be brought in on an ad hoc basis in order to try to explain observed 20<sup>th</sup> century climate changes.
- The IPCC's treatment of solar effects is disingenuous. Their forcing table only shows changes in Total Solar Irradiance (TSI), which are much too small to produce appreciable climate effects. On the other hand, changes in solar activity, by modulating cosmic ray intensity, can change cloudiness and thereby produce a major impact on climate. But the IPCC totally ignores such effects.

In view of these many uncertainties, the IPCC claim that models can uniquely match the (global mean surface) temperatures of the 20th cy is just not credible. I view it as an exercise in 'curve fitting,' achieved by arbitrarily choosing several adjustable parameters. I note with some amusement that they still maintain this claim --even after the temperature record (of SSTs) had recently been corrected. Will they now adjust their parameters?

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### **1. Cap and Tax Collapse: Congress balks at one more bad Obama idea -- WSJ**

### **2. Waxman-Markey bill: Huge tax for Americans, huge playground for Wall Street**

### **3. Black Carbon responsible for half of Arctic Warming. Dust plays role in Atlantic Warming**

### **4. 100-Plus Scientists: Obama simply incorrect on Global Warming – CATO Institute**

### **5. How the prophets of doom help to spread climate skepticism**

### **6. Self-hating humans need to relax and enjoy the warm weather while it lasts**

### **7. Show us the ball – Tom Friedman, NYT**

### **8. Lessons from the Spanish renewables bubble – Gabriel Calzada**

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### **NEWS YOU CAN USE**

Sen. Benjamin L. Cardin (D-MD) called cap-and-trade "the most significant revenue-generating proposal of our time," and said it would be difficult to pass without use of 'budget reconciliation' because Democrats would be forced to accommodate a handful of Republicans as they did in the debate over the president's stimulus package. Although winning use of the maneuver is unlikely, Cardin said, "a lot of us don't want to give up without a fight." <http://www.washingtonpost.com/wp->

[dyn/content/article/2009/04/02/AR2009040203473.html?hpid=topnews](http://www.americanthinker.com/dyn/content/article/2009/04/02/AR2009040203473.html?hpid=topnews)

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**No Wonder Climate Alarmists Refuse to Debate** Marc Sheppard is the editor of AT's forthcoming Environment Thinker [http://www.americanthinker.com/2009/04/no\\_wonder\\_climate\\_alarmists\\_re.html](http://www.americanthinker.com/2009/04/no_wonder_climate_alarmists_re.html)

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A reasonably unbiased discussion (4/6/2009)

[http://www.healthnewsdigest.com/news/Environment\\_380/Global\\_Warming\\_-\\_Fact\\_or\\_Fiction.shtml](http://www.healthnewsdigest.com/news/Environment_380/Global_Warming_-_Fact_or_Fiction.shtml).

Heartland vs Copenhagen: <http://spectator.org/archives/2009/04/03/the-real-climate-deniers>

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**In Newsweek?** - We all know civilization is doomed if we don't reduce carbon emissions, right? The physicist Freeman Dyson disagrees. Dyson doesn't dispute that human activity is causing warming. But he challenges the consensus that warming will be catastrophic. In a New York Review of Books essay, Dyson wrote that warming "is mostly making cold places warmer rather than making hot places hotter." Carbon emissions could make the earth more fertile and prevent harm from global cooling, which isn't caused by humans. <http://www.newsweek.com/id/192465/output/print>

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**UNDER THE BOTTOM LINE**

Here is a summary that came out of the recent all *soo* important meeting of the climate science community in Copenhagen, from this oh so humble headline article in the UK Guardian, [Six ways to save the world: scientists compile list of climate change clinchers](#) which in part says

*...The congress was conceived as an update of the science of global warming ahead of the UN summit in December. The most recent Intergovernmental Panel on Climate Change report published in 2007 is now three to four years out of date [and not scary enough]. Recent observations confirm that, given high rates of observed emissions, the worst-case IPCC scenario projections (or even worse) are being realized [while global temperatures have been falling]. .... There is a significant risk that many of the trends will accelerate, leading to an increasing risk of abrupt or irreversible climatic shifts*

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Lord Stern, the government's former climate change adviser, yesterday tried to increase the pressure on the G20. He said the argument that the first priority was to deal with the current economic crisis and postpone action on climate change was "wrong and should be confronted". --*The Guardian*, 31 March 2009

But on April 3: Climate change the biggest loser of G20 summit, warn environmental groups

<http://www.guardian.co.uk/environment/2009/apr/03/g20-climate-change-stimulus-package/print>

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<http://www.google.com/hostednews/ap/article/ALeqM5hm1kMpA2nQALOfQL8Y8PxxTHNVtgD97EBF300>

WASHINGTON (AP) The president's new science adviser said that global warming is so dire, the Obama administration is discussing drastic options to cool Earth's air. John Holdren told The Associated Press in his first interview since being confirmed last month that the idea of geo-engineering the climate is being discussed. One such extreme option includes shooting pollution particles into the upper atmosphere to reflect the sun's rays. Holdren said such an experimental measure would only be used as a last resort. As he put it: "It's got to be looked at. We don't have the luxury of taking any approach off the table."

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**1. CAP AND TAX COLLAPSE: CONGRESS BALKS AT ONE MORE BAD OBAMA IDEA**

**WSJ editorial:** Please pass Al Gore a Valium -- and better make it a double -- because his cap-and-trade dreams just took a dive in the U.S. Senate. In a vote late Wednesday, no fewer than 26 Democrats joined all 41 Republicans to insist that any new cap and tax on carbon energy would require at least 60 votes.

Tennessee Republican Lamar Alexander called it "the biggest vote of the year" so far, and he's right. This means Majority Leader Harry Reid can't jam cap and tax through as part of this year's budget resolution with a bare majority of 50 Senators. More broadly, it's a signal that California and East Coast Democrats won't be able to sock it to coal and manufacturing-heavy Midwestern states without a fight. Senators voting in favor of the 60-vote rule included liberals from Wisconsin, Michigan and West Virginia. Now look for Team Obama to attempt to impose cap and tax the non-democratic way, via regulation that hits business and local governments with such heavy costs that they beg Congress for a less-harmful version.

Though the press corps has barely noticed, this means that two of President Obama's most economically destructive priorities have taken major hits in the last two weeks. The cap-and-tax collapse follows Pennsylvania Republican Arlen Specter's decision to oppose Big Labor's attempt to eliminate secret ballots in union organizing elections. If Mr. Specter holds firm, and as swing state Democrats also look for cover, Republicans will be able to prevail on a filibuster.

Opponents can't get complacent because the left will regroup, and the media-liberal activist consortium will start to get nasty with dissenters. But for now these are major victories for the U.S. economy, and we suspect they are also helping the stock market rally.

The most important remaining fight this year is over health care. Democrats seem intent on trying to plow that monumental change through with only 50 votes, even as they negotiate to bring along some Republicans. We hope these Republicans understand that a new health-care "public option" -- a form of Medicare for all Americans -- guarantees that the 17% of GDP represented by the health-care industry will be entirely government-run within a few years. This is precisely Mr. Obama's long-term goal, though he doesn't want to say it publicly.

If Republicans acquiesce, they will spend the rest of their days in public life raising taxes to pay for liabilities that will grow into the trillions of dollars. GOP leaders need to get out of the backrooms and start the same kind of public-education campaign on state-run health care that has helped to stall cap and tax and coercive unionization.

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## **2. WAXMAN-MARKEY: HUGE TAX FOR AMERICANS, HUGE PLAYGROUND FOR WALL STREET**

[http://www.activecampaigns.net/connect/lt/t\\_go.php?i=464&e=NjU5MDQz&l=http://thechillingeffect.org/2009/04/03/waxman-markey-americas-huge-tax-wall-streets-huge-playground/](http://www.activecampaigns.net/connect/lt/t_go.php?i=464&e=NjU5MDQz&l=http://thechillingeffect.org/2009/04/03/waxman-markey-americas-huge-tax-wall-streets-huge-playground/)

*Greenwire* reports that Waxman-Markey has a lot of investors seeing green -- truckloads of it. The cap and tax proposal has been the talk of the Wall Street Green Trading Summit. "There are bucks to be made," said Neal Dikeman, a founding partner of Jane Capital.

Tell that to 3 to 4 million Americans that are likely to lose their jobs under a harsh cap and tax system, or the households that will be paying up to 129% more on their electricity bills.

If you blinked and missed it, then thank CEI's Marlo Lewis for keeping a watchful eye on the Senate floor today and Senator John Thune's crafty amendment, which would prohibit any future greenhouse gas cap-and-trade initiative from increasing gasoline prices and electricity rates for U.S. households and businesses. Die-hard cap and taxers, including Sens. Boxer, McCain, Lieberman and Sanders, all signed on. A bright spot in the debate to be sure, but Lewis still cautions:

*" it ain't over till its over. We should not underestimate the capacity of politicians to insist on having their cake and eating it. Again, Boxer pretends to see no contradiction between voting for Thune and supporting Obama's \$646 billion to \$1.9 trillion energy tax. The Thune amendment could also be jettisoned or vitiated by House-Senate conferees.*

*Nonetheless, the Thune amendment shows the path to victory. Cap-and-traders fear public retribution over high electricity and gasoline prices more than they fear the alleged horrors of global warming. Our*

*task is obvious: keep calling cap-and-trade an energy tax, because that's what it is."*

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### **3. NEW STUDY: BLACK CARBON\* RESPONSIBLE FOR HALF OF ARCTIC WARMING**

Published on 2 April 2009, by *Inscienc.es* [http://inscienc.es/article.php?article\\_id=3985](http://inscienc.es/article.php?article_id=3985)

Washington, D.C., April 2, 2009: An article published this week in *Nature Geoscience* shows that black carbon is responsible for 50 percent, or almost 1 degC of the total 1.9C increased Arctic warming from 1890 to 2007. The paper by Drew Shindell of the NASA Goddard Institute for Space (GISS) and Greg Faluvegi of Columbia University also notes that most of the Arctic warming, 1.48C of the 1.9C, occurred from 1976 to 2007. The study is the first to quantify the Arctic's sensitivity to black carbon emissions from various latitudes, and concludes that the Arctic responds strongly to black carbon emissions from the Northern Hemisphere mid-latitudes, where the emissions and the forcing are greatest.

Black carbon is an aerosol produced from the incomplete combustion of fossil fuels and biomass and is estimated to be the second or third largest contributor to climate change. Its emissions cause damage in two ways: while in the atmosphere, the dark particulates absorb sunlight and emit it as heat; when it falls back to earth it can darken snow and ice, reducing their reflectivity and accelerating melting.

#### **Dust Plays Role in Atlantic Warming**

**AFP, March 27, 2009** -- A decrease in airborne dust and [volcanic emissions](#) has contributed to warming the North Atlantic Ocean in the past three decades, a study showed.

About 70 percent of the Atlantic's warming since 1980, at an average per-decade rate of a half-degree Fahrenheit (a quarter-degree Celsius), was due to less dust blown from African dust storms or to volcanic eruptions, scientists wrote in the journal *Science*.

"Volcanoes and dust storms are really important if you want to understand (climatic) changes over long periods of time," said the study's lead author Amato Evan, a researcher with the University of Wisconsin-<http://dsc.discovery.com/news/2009/03/27/dust-atlantic-warming.html?campaign=w01-101-ae-0002>

**SEPP Comment: These important forcings were not included in IPCC models**

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### **4. 100-PLUS SCIENTISTS: OBAMA SIMPLY INCORRECT ON GLOBAL WARMING**

Over 100 prominent scientists from more than a dozen countries, including a Nobel Prize winner, have signed a letter to President Barack Obama charging that his views on climate change are simply incorrect.

The letter sponsored by the Cato Institute cites a statement Obama made in November: "*Few challenges facing America and the world are more urgent than combating climate change. The science is beyond dispute and the facts are clear.*"

Under the headline, With all due respect, Mr. President, that is not true, the scientists state:

*We, the undersigned scientists, maintain that the case for alarm regarding climate change is grossly overstated. Surface temperature changes over the past century have been episodic and modest and there has been no net global warming for over a decade now*

*The computer models forecasting rapid temperature change abjectly fail to explain recent climate behavior. Mr. President, your characterization of the scientific facts regarding climate change and the degree of certainty informing the scientific debate is simply incorrect.*

The 115 signatories include Ivar Giaever, Ph.D., who shared the Nobel Prize for Physics in 1973 for his

work with superconductors at General Electric; John Blaylock, formerly with the Los Alamos National Laboratory; Richard Lindzen, Ph.D., at the Massachusetts Institute of Technology; and William Gray, Ph.D., the respected hurricane expert at Colorado State University.

The signers include scientists at Princeton University, U.S. Naval Academy, University of Kansas, University of Oklahoma, University of Colorado, and University of Missouri.

Among the countries represented by the signers are Britain, Canada, Italy, Norway, Germany, Australia, New Zealand, Japan, Argentina and South Africa.

A number of the scientists are current or former reviewers with the United Nations Intergovernmental Panel on Climate Change, which shared the 2007 Nobel Peace Prize with climate change crusader Al Gore, and have since reversed their views on man-made global warming.

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## 5. HOW THE PROPHETS OF DOOM HELP TO SPREAD CLIMATE SKEPTICISM

*Michael Shellenberger, Breakthrough Institute, 30 March 2009*

[http://thebreakthrough.org/blog/2009/03/are\\_greens\\_tipping\\_the\\_debate.shtml](http://thebreakthrough.org/blog/2009/03/are_greens_tipping_the_debate.shtml)

Andy Revkin did an incisive piece on the claims around climate tipping points in the *NYTimes* on Sunday. It was nice to have the antidote to Tom Friedman's apocalyptic column on tipping points just pages away.

In 2006 a retired software executive insisted to me that we had only 10 years to do something dramatic about climate change (because that's what James Hansen had told him). When I gently suggested that 10 years was not a scientific number but rather an arbitrarily political one, the executive accused me of being anti-science. But the funny thing is that in January of this year Hansen told the *Guardian* that we have only four years left for the U.S. to act -- coincidentally, the same length of time in Obama's first term in office.

The assumption behind all of it is that throwing out these numbers -- four years, 10 years, 350 ppm, etc. -- will provide the public and policy makers with a sense of urgency that global warming as an issue currently lacks. But there's no evidence to back up that assumptions. If any correlation were to be drawn, it would likely be the opposite, that the increasingly apocalyptic tone of those seeking action on climate change has resulted in an increasing number of voters (according to Gallup) who believe that the threat of global warming is being exaggerated.

While the tipping point discourse might make Hansen, Friedman, Gore, Romm et al. feel powerful and moral, it has done nothing to change the fundamental political economy of their preferred policy agenda, pollution pricing. Sen. Sherrod Brown (D-OH) isn't against cap and trade because he's a right-wing, market fundamentalist ideologue; the truth is that he's an outspoken, anti-globalization liberal. He's against cap and trade because of the impact it would have on his constituents, who depend on coal for 85 percent of their electricity, and who are trying to hang on to the last of their manufacturing facilities by a thread. That's not something that any amount of scary stories about tipping points or inspiring ads about the need to repower America will change.

The only thing that will interrupt that dynamic is a fundamentally different climate policy agenda. Unfortunately, that's not something the big green groups and their allies in Washington have so far shown much interest in. A green group climate lobbyist in Washington who is sympathetic to a larger energy investment agenda recently told me that earlier this year Waxman (with the help of Green allies) killed technology-neutral loan guarantees in the stimulus by saying they all would have gone to nuclear, and to coal-to-liquid (which was clearly not the case), and that Waxman and green groups will now try to kill clean-energy investments outside of any climate bill. This is what Ted and I helped do in 2003 (to our own Apollo energy legislation no less) when we were still being good green soldiers.

So much for urgent action to prevent tipping points.

H/t CCNet

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## 6. SELF-HATING HUMANS NEED TO RELAX AND ENJOY THE WARM WEATHER WHILE IT LASTS

March 31, 2009 - by Matt Patterson

<http://pajamasmedia.com/blog/no-suvs-around-during-the-roman-global-warming-crisis/>

Ah, spring, when the earth slowly wakes from its winter slumber, a warming welcomed by nearly every living thing. Hard to believe some silly people are deathly afraid of warming weather - worried sick because the earth has warmed a degree or two over the last 150 years. Make no mistake - the earth has warmed. Unfortunately for the climate-change catastrophists, warming periods have occurred throughout recorded history, long before the Industrial Revolution and SUVs began spitting man-made carbon into the atmosphere. And as might be expected, these warm periods have invariably proven a blessing for humanity.

Consider: Around the 3rd century B.C., the planet emerged from a long cold spell. The warm period which followed lasted about 700 years, and since it coincided with the rise of Pax Romana, it is known as the Roman Warming. In the 5th century A.D., the earth's climate became cooler. Cold and drought pushed the tribes of northern Europe south against the Roman frontier. Rome was sacked, and the Dark Ages commenced. And it was a dark age, both metaphorically and literally - the sun's light dimmed and gave little warmth; harvest seasons grew shorter and yielded less. Life expectancy and literacy plummeted. The plague appeared and decimated whole populations. Then, inexplicably, about 900 A.D. things began to warm. This warming trend would last almost 400 years, a well-documented era known as the Medieval Warm Period. Once again, as temperatures rose, harvests and populations grew. Vineyards made their way into Northern Europe, including Britain. Art and science flourished in what we now know as the Renaissance.

Then around 1300 A.D. things cooled drastically. This cold spell would last almost 500 years, a severe climate event known as the Little Ice Age. Millions died in famine as glaciers advanced all over the world. The plague returned. In Greenland, the Norse colony that had been established during the Medieval Warming froze and starved. Arctic pack ice descended south, pushing Inuit peoples to the shores of Scotland. People ice skated on the Thames; they walked from Staten Island to Manhattan over a frozen New York Harbor. The year 1816 was remembered as the year without a summer, with some portions of the Northern Hemisphere seeing snowfall in June.

But around 1850 the planet began to warm up yet again. Glaciers retreated. Temperatures rose. This is the warming period which we are still enjoying today. And once again, the warmth brought bounty: The last 150 years have seen an explosion in life expectancy, population, and scientific progress like never before. Of course, even before the appearance of humans, the earth alternated throughout its history between extremes of heat and cold: 700 million years ago the planet was covered entirely in ice; 55 million years ago, a swampy greenhouse. Why?

What drives these ancient cycles? There are a lot of theories. The waxing and waning of solar output; cosmic rays and their role in cloud formation; the earth moving through plumes of galactic dust as it travels up and down through the arm of the Milky Way; plate tectonics redirecting the ocean currents; volcanism. Perhaps it is a combination of all of these things. Perhaps it is something as yet undiscovered. One thing for sure that it's not: SUVs.

Why, then, do otherwise sensible people believe that we are both causing the current warming and that the warmth is a bad thing? To me it seems some grotesque combination of narcissism and self-loathing, a mentality that says at once "I am so important that my behavior is causing this" and "I am so inherently tainted that it must be bad." For these self-hating humans who want us to cut our carbs (carbons, not carbohydrates), I say relax and enjoy the warmth while it lasts. Because it won't. No matter what we do, the ice and the cold and the dark will come again. That should be our worry.

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*Matt Patterson's commentary has appeared in the Washington Examiner, the Baltimore Sun, and Townhall. He is the author of "Union of Hearts: The Abraham Lincoln & Ann Rutledge Story."*

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## 7. SHOW US THE BALL

By Thomas L. Friedman, NYT Op-Ed Columnist, April 8, 2009

<http://topics.nytimes.com/top/opinion/editorialsandoped/oped/columnists/thomasfriedman/index.html?inline=nyt-per>

I am really encouraged by President Obama's commitment to clean energy and combating climate change. I just have three worries: whether he has the right policies, the right politics and the right official to sell his program to the country. Other than that, things look great!

Last week, House Democrats, with administration support, introduced a 600-page draft bill on energy and climate. At the center of it is a plan to reduce greenhouse-gas emissions through a complicated cap-and-trade system. These people have the very best of intentions, but I wish they would step back and ask again: Can cap-and-trade pass? Will it really work? And is it the best strategy, with all the bureaucracy it will require to monitor, auction emissions permits and manage the trading?

Advocates of cap-and-trade argue that it is preferable to a simple carbon tax because it fixes a national cap on carbon emissions and it "hides the ball" — it doesn't use the word "tax" — even though it amounts to one. So it can get through Congress. That was true as long as no one thought cap-and-trade could ever pass, but now that it might under Mr. Obama, opponents are not playing hide the ball anymore.

In the past two weeks, you could hear a chorus of Republicans, coal-state Democrats, right-wing think tanks and enviro-skeptics all singing the same tune: "Cap-and-trade is a tax. Obama is going to raise your taxes and sacrifice U.S. jobs to combat this global-warming charade, which many scientists think is nonsense. Worse, cap-and-trade will be managed by Wall Street. If you liked credit-default swaps, you're going to love carbon-offset swaps."

Some of the refrains from this song have a very catchy appeal. They could easily kill this effort. So, if the Obama team cares about the "ends" of a stronger America and a more livable planet, as much as the "means," I hope it will consider an alternative strategy, message and messenger.

**STRATEGY** Since the opponents of cap-and-trade are going to pillory it as a tax anyway, why not go for the real thing — a simple, transparent, economy-wide carbon tax? Representative John B. Larson, chairman of the House Democratic Caucus, has circulated a draft bill that would impose "a per-unit tax on the carbon-dioxide content of fossil fuels, beginning at a rate of \$15 per metric ton of CO<sub>2</sub> and increasing by \$10 each year." The bill sets a goal, rather than a cap, on emissions at 80 percent below 2005 levels by 2050, and if the goal for the first five years is not met, the tax automatically increases by an additional \$5 per metric ton. The bill implements a fee on carbon-intensive imports, as well, to press China to follow suit. Larson would use most of the income to reduce people's payroll taxes: We tax your carbon sins and un-tax your payroll wins.

People get that — and simplicity matters. Americans will be willing to pay a tax for their children to be less threatened, breathe cleaner air and live in a more sustainable world with a stronger America. They are much less likely to support a firm in London trading offsets from an electric bill in Boston with a derivatives firm in New York in order to help fund an aluminum smelter in Beijing, which is what cap-and-trade is all about. People won't support what they can't explain.

**MESSAGE** Climate change is a real threat to a healthy planet Earth — the only home we have. But because the worst effects are in the future, many Americans have more immediate concerns. That is why our energy policy should be focused around "American renewal," not mitigating climate change.

We need a price on carbon because it will stimulate massive innovation in the next great global industry — E.T. — energy technology. In a warming world with huge population growth, clean power systems are going to be in huge demand. The scientific research and innovation needed for America to dominate E.T. the way it did I.T. could be the foundation for a second American industrial revolution, plus it would tip the whole planet onto a greener path. So American economic renewal is the goal, but mitigating climate change would be the great byproduct.

MESSENGER The Obama administration's carbon tax spokesman — the one who should sell this to the country — should be the president's national security adviser, Gen. James Jones, not the environmentalists. The imposing former head of the Marine Corps could make a powerful case that a carbon tax is vitally necessary to stimulate investments in the clean technologies that would enable the U.S. to dominate E.T., while also shifting consumers to buy these new, more efficient and cleaner power systems, homes and cars.

He could make the case that the country with the most powerful clean-technology industry in the 21st century will have the most energy security, national security, economic security, healthy environment, innovative companies and global respect. That country must be America. So let's stop hiding the ball and have a strategy, message and messenger that tell it like it is — and make it so.

**SEPP comment: We're sure he means well but he's terribly confused (ignorant?) about the science**  
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## **8. LESSONS FROM THE SPANISH RENEWABLES BUBBLE: EXECUTIVE SUMMARY**

*Gabriel Calzada Alvarez et al, University Rey Juan Carlos, March 2009*

***Europe's current policy and strategy for supporting the so-called "green jobs" or renewable energy dates back to 1997, and has become one of the principal justifications for U.S. "green jobs" proposals. Yet an examination of Europe's experience reveals these policies to be terribly economically counterproductive.***

***This study is important for several reasons. First is that the Spanish experience is considered a leading example to be followed by many policy advocates and politicians. This study marks the very first time a critical analysis of the actual performance and impact has been made. Most important, it demonstrates that the Spanish/EU-style "green jobs" agenda now being promoted in the U.S. in fact destroys jobs, detailing this in terms of jobs destroyed per job created and the net destruction per installed MW. The study's results demonstrate how such "green jobs" policy clearly hinders Spain's way out of the current economic crisis, even while U.S. politicians insist that rushing into such a scheme will ease their own emergence from the turmoil. The following are key points from the study:***

1. As President Obama correctly remarked, Spain provides a reference for the establishment of government aid to renewable energy. No other country has given such broad support to the construction and production of electricity through renewable sources. The arguments for Spain's and Europe's "green jobs" schemes are the same arguments now made in the U.S., principally that massive public support would produce large numbers of green jobs. The question that this paper answers is "at what price?"
2. Optimistically treating European Commission partially funded data<sup>1</sup>, we find that for every renewable energy job that the State manages to finance, Spain's experience cited by President Obama as a model reveals with high confidence, by two different methods, that the U.S. should expect a loss of at least 2.2 jobs on average, or about 9 jobs lost for every 4 created, to which we have to add those jobs that non-subsidized investments with the same resources would have created.
3. Therefore, while it is not possible to directly translate Spain's experience with exactitude to claim that the U.S. would lose at least 6.6 million to 11 million jobs, as a direct consequence were it to actually create 3 to 5 million "green jobs" as promised (in addition to the jobs lost due to the opportunity cost of private capital employed in renewable energy), the study clearly reveals the tendency that the U.S. should expect such an outcome.
4. At minimum, therefore, the study's evaluation of the Spanish model cited as one for the U.S. to replicate in quick pursuit of "green jobs" serves a note of caution, that the reality is far from what has typically been presented, and that such schemes also offer considerable employment consequences and implications for emerging from the economic crisis.
5. Despite its hyper-aggressive (expensive and extensive) "green jobs" policies it appears that Spain likely has created a surprisingly low number of jobs, two-thirds of which came in construction, fabrication and installation, one quarter in administrative positions, marketing and projects engineering, and just one out of

ten jobs has been created at the more permanent level of actual operation and maintenance of the renewable sources of electricity.

6. This came at great financial cost as well as cost in terms of jobs destroyed elsewhere in the economy.

7. The study calculates that since 2000 Spain spent €571,138 to create each “green job”, including subsidies of more than €1 million per wind industry job.

8. The study calculates that the programs creating those jobs also resulted in the destruction of nearly 113,000 jobs elsewhere in the economy, or 2.2 jobs destroyed for every “green job” created.

9. Principally, these jobs were lost in metallurgy, non-metallic mining and food processing, beverage and tobacco.

10. Each “green” megawatt installed destroys 5.28 jobs on average elsewhere in the economy: 8.99 by photovoltaics, 4.27 by wind energy, 5.05 by mini-hydro.

11. These costs do not appear to be unique to Spain’s approach but instead are largely inherent in schemes to promote renewable energy sources.

12. The total over-cost – the amount paid over the cost that would result from buying the electricity generated by the renewable power plants at the market price - that has been incurred from 2000 to 2008 (adjusting by 4% and calculating its net present value [NPV] in 2008), amounts to 7,918.54 million Euros (appx. \$10 billion USD)

13. The total subsidy spent and committed (NPV adjusted by 4%) to these three renewable sources amounts to 28,671 million euros (\$36 billion USD).

14. The price of a comprehensive energy rate (paid by the end consumer) in Spain would have to be increased 31% to being to repay the historic debt generated Executive Summary: Lessons from the Spanish renewables bubble by this rate deficit mainly produced by the subsidies to renewables, according to Spain’s energy regulator.

15. Spanish citizens must therefore cope with either an increase of electricity rates or increased taxes (and public deficit), as will the U.S. if it follows Spain’s model.

16. The high cost of electricity due to the green job policy tends to drive the relatively most energy-intensive companies and industries away, seeking areas where costs are lower. The example of Acerinox is just such a case.

17. The study offers a caution against a certain form of green energy mandate. Minimum guaranteed prices generate surpluses that are difficult to manage. In Spain’s case, the minimum electricity prices for renewable-generated electricity, far above market prices, wasted a vast amount of capital that could have been otherwise economically allocated in other sectors. Arbitrary, state-established price systems inherent in “green energy” schemes leave the subsidized renewable industry hanging by a very weak thread and, it appears, doomed to dramatic adjustments that will include massive unemployment, loss of capital, dismantlement of productive facilities and perpetuation of inefficient ones.

18. These schemes create serious “bubble” potential, as Spain is now discovering. The most paradigmatic bubble case can be found in the photovoltaic industry. Even with subsidy schemes leaving the mean sale price of electricity generated from solar photovoltaic power 7 times higher than the mean price of the pool, solar failed even to reach 1% of Spain’s total electricity production in 2008.

19. The energy future has been jeopardized by the current state of wind or photovoltaic technology (more expensive and less efficient than conventional energy sources). These policies will leave Spain saddled with and further artificially perpetuating obsolete fixed assets, far less productive than cutting-edge technologies, the soaring rates for which soon-to-be obsolete assets the government has committed to maintain at high levels during their lifetime.

20. The regulator should consider whether citizens and companies need expensive and inefficient energy – a factor of production usable in virtually every human project- or affordable energy to help overcome the economic crisis instead.

21. The Spanish system also jeopardizes conventional electricity facilities, which are the first to deal with the electricity tariff deficit that the State owes them.

22. Renewable technologies remained the beneficiaries of new credit while others began to struggle, though this was solely due to subsidies, mandates and related programs. As soon as subsequent programmatic changes take effect which became necessary due to “unsustainable” solar growth its credit will also cease.

23. This proves that the only way for the “renewables” sector - which was never feasible by itself on the basis of consumer demand - to be “countercyclical” in crisis periods is also via government subsidies. These schemes create a bubble, which is boosted as soon as investors find in “renewables” one of the few profitable sectors while fleeing other investments. Yet it is axiomatic, as Study about the effects on employment of public aid to renewable energy sources we are seeing now, that when crisis arises, the Government cannot afford this growing subsidy cost either, and finally must penalize the artificial renewable industries which then face collapse.

24. Renewables consume enormous taxpayer resources. In Spain, the average annuity payable to renewables is equivalent to 4.35% of all VAT collected, 3.45% of the household income tax, or 5.6% of the corporate income tax for 2007.