## \*\*\*Aff\*\*\*

### 1AC – Warming

#### First, warming is real and existential – stopping it is a question of slowing emissions, not total elimination

Deibel 7 (Terry L, Professor of IR @ National War College, “Foreign Affairs Strategy: Logic for American Statecraft”, Conclusion: American Foreign Affairs Strategy Today)

Finally, there is one major existential threat to American security (as well as prosperity) of a nonviolent nature, which, though far in the future, demands urgent action. It is the threat of global warming to the stability of the climate upon which all earthly life depends. Scientists worldwide have been observing the gathering of this threat for three decades now, and what was once a mere possibility has passed through probability to near certainty. Indeed not one of more than 900 articles on climate change published in refereed scientific journals from 1993 to 2003 doubted that anthropogenic warming is occurring. “In legitimate scientific circles,” writes Elizabeth Kolbert, “it is virtually impossible to find evidence of disagreement over the fundamentals of global warming.” Evidence from a vast international scientific monitoring effort accumulates almost weekly, as this sample of newspaper reports shows: an international panel predicts “brutal droughts, floods and violent storms across the planet over the next century”; climate change could “literally alter ocean currents, wipe away huge portions of Alpine Snowcaps and aid the spread of cholera and malaria”; “glaciers in the Antarctic and in Greenland are melting much faster than expected, and…worldwide, plants are blooming several days earlier than a decade ago”; “rising sea temperatures have been accompanied by a significant global increase in the most destructive hurricanes”; “NASA scientists have concluded from direct temperature measurements that 2005 was the hottest year on record, with 1998 a close second”; “Earth’s warming climate is estimated to contribute to more than 150,000 deaths and 5 million illnesses each year” as disease spreads; “widespread bleaching from Texas to Trinidad…killed broad swaths of corals” due to a 2-degree rise in sea temperatures. “The world is slowly disintegrating,” concluded Inuit hunter Noah Metuq, who lives 30 miles from the Arctic Circle. “They call it climate change…but we just call it breaking up.” From the founding of the first cities some 6,000 years ago until the beginning of the industrial revolution, carbon dioxide levels in the atmosphere remained relatively constant at about 280 parts per million (ppm). At present they are accelerating toward 400 ppm, and by 2050 they will reach 500 ppm, about double pre-industrial levels. Unfortunately, atmospheric CO2 lasts about a century, so there is no way immediately to reduce levels, only to slow their increase, we are thus in for significant global warming; the only debate is how much and how serious the effects will be. As the newspaper stories quoted above show, we are already experiencing the effects of 1-2 degree warming in more violent storms, spread of disease, mass die offs of plants and animals, species extinction, and threatened inundation of low-lying countries like the Pacific nation of Kiribati and the Netherlands at a warming of 5 degrees or less the Greenland and West Antarctic ice sheets could disintegrate, leading to a sea level of rise of 20 feet that would cover North Carolina’s outer banks, swamp the southern third of Florida, and inundate Manhattan up to the middle of Greenwich Village. Another catastrophic effect would be the collapse of the Atlantic thermohaline circulation that keeps the winter weather in Europe far warmer than its latitude would otherwise allow. Economist William Cline once estimated the damage to the United States alone from moderate levels of warming at 1-6 percent of GDP annually; severe warming could cost 13-26 percent of GDP. But the most frightening scenario is runaway greenhouse warming, based on positive feedback from the buildup of water vapor in the atmosphere that is both caused by and causes hotter surface temperatures. Past ice age transitions, associated with only 5-10 degree changes in average global temperatures, took place in just decades, even though no one was then pouring ever-increasing amounts of carbon into the atmosphere. Faced with this specter, the best one can conclude is that “humankind’s continuing enhancement of the natural greenhouse effect is akin to playing Russian roulette with the earth’s climate and humanity’s life support system. At worst, says physics professor Marty Hoffert of New York University, “we’re just going to burn everything up; we’re going to heat the atmosphere to the temperature it was in the Cretaceous when there were crocodiles at the poles, and then everything will collapse.” During the Cold War, astronomer Carl Sagan popularized a theory of nuclear winter to describe how a thermonuclear war between the Untied States and the Soviet Union would not only destroy both countries but possibly end life on this planet. Global warming is the post-Cold War era’s equivalent of nuclear winter at least as serious and considerably better supported scientifically. Over the long run it puts dangers from terrorism and traditional military challenges to shame. It is a threat not only to the security and prosperity to the United States, but potentially to the continued existence of life on this planet.

#### The track we’re on now means death before the century ends

Mazo 10 – PhD in Paleoclimatology from UCLA, Jeffrey Mazo, Managing Editor, Survival and Research Fellow for Environmental Security and Science Policy at the International Institute for Strategic Studies in London, 3-2010, “Climate Conflict: How global warming threatens security and what to do about it,” pg. 122

The best estimates for global warming to the end of the century range from 2.5-4.~C above pre-industrial levels, depending on the scenario. Even in the best-case scenario, the low end of the likely range is 1.6°C, and in the worst 'business as usual' projections, which actual emissions have been matching, the range of likely warming runs from 3.1--7.1°C. Even keeping emissions at constant 2000 levels (which have already been exceeded), global temperature would still be expected to reach 1.2°C (O'9""1.5°C)above pre-industrial levels by the end of the century." Without early and severe reductions in emissions, the effects of climate change in the second half of the twenty-first century are likely to be catastrophic for the stability and security of countries in the developing world - not to mention the associated human tragedy. Climate change could even undermine the strength and stability of emerging and advanced economies, beyond the knock-on effects on security of widespread state failure and collapse in developing countries.' And although they have been condemned as melodramatic and alarmist, many informed observers believe that unmitigated climate change beyond the end of the century could pose an existential threat to civilisation." What is certain is that there is no precedent in human experience for such rapid change or such climatic conditions, and even in the best case adaptation to these extremes would mean profound social, cultural and political changes.

#### HSR solves it by eliminating the need for cars and planes

Dutzik et al. 10 — Tony Dutzik, Senior Policy Analyst with Frontier Group specializing in energy, transportation, and climate policy, holds an M.A. in print journalism from Boston University and a B.S. in public service from Penn State University, et al., with Siena Kaplan, Analyst with Frontier Group, and Phineas Baxandall, Federal Tax and Budget Policy Analyst with U.S. PIRG, holds a Ph.D. in Political Science from the Massachusetts Institute of Technology and a B.A. in Economics from the College of Social Studies at Wesleyan University, 2010 (“Why Intercity Passenger Rail?,” *The Right Track: Building a 21st Century High-Speed Rail System for America*, Published by the U.S. PIRG Education Fund, Available Online at http://americanhsra.org/whitepapers/uspirg.pdf, Accessed 06-10-2012, p. 15-16)

Passenger rail is a cleaner form of transportation than car or air travel, emitting less global warming pollution and less health-threatening air pollution. Building a high-speed rail network in the United States would attract passengers who otherwise would have taken cars or planes, reducing the country’s global warming emissions and cleaning up our air. Modernizing our tracks would also benefit freight trains, taking large trucks off of highways and adding to the environmental and health benefits of investment in rail.¶ Passenger rail already emits less global warming pollution than cars or planes, and these savings will increase as the United States develops a high-speed rail network. The Center for Clean Air Policy (CCAP)/ Center for Neighborhood Technology (CNT) study showed that today, passenger rail travel emits 60 percent less carbon dioxide per passenger mile then cars and 66 percent less than planes. The faster diesel trains that would likely be used to upgrade current service would emit slightly more emissions, but would still emit much less than cars and planes and would draw more passengers than current passenger rail.30 (See Figure 3, next page.)¶ Electric trains show the most potential for global warming emission reductions, even using today’s carbon-intensive electricity grid. The CCAP/CNT study surveyed the technology used on three different popular electric train lines, in France, Germany and Japan, and found that all would produce lower carbon dioxide emissions per passenger mile than a fast diesel train when powered by the U.S. electric grid. One train, used on the German ICE line, would produce about half the emissions of America’s current passenger rail system.31 Electric trains are not only more energy efficient, but they are faster, and could eventually be powered at least partially with emission-free renewable energy.¶ By attracting travelers who otherwise would have taken cars or planes, building a high-speed rail network would be much more effective at reducing global warming emissions than our current passenger rail system. The CCAP/CNT study estimated that building the high-speed rail corridors [end page 15] planned by the federal government using fast diesel trains, with top speeds of 99 mph, would attract enough passengers to reduce U.S. global warming emissions by 6.1 billion pounds, the equivalent of taking almost 500,000 cars off the road.33¶ Passenger rail reduces harmful air pollution as well, especially when it is powered by electricity. For example, a passenger on an electric train in Germany produces about 93 percent less air pollution than someone traveling by car, and 91 percent less than someone making the same trip by plane.34 Although the electricity produced in the United States would create more emissions, electric trains would still be much cleaner than diesel trains, cars or planes.¶ When tracks are upgraded for better passenger rail service, freight traffic needs are considered as well, allowing more freight trains to travel faster and with fewer delays and adding to the environmental benefits. Rail transport is much more fuel efficient than truck transport for freight—various studies estimate that train transport is three to nine times as efficient as truck transport for the same amount of freight.35 The resulting fuel savings add to the emissions reductions from improving passenger rail.

#### The U.S. is the main contributor to global warming – that means the plan solves

Gore 7 (Albert, 45th Vice President of the United States, currently an author and environmental activist. He has founded a number of non-profit organizations, including the Alliance for Climate Protection, and has received a Nobel Peace Prize for his work in climate change activism, “An Inconvenient Truth”, <http://cabunch.public.iastate.edu/Revised%20Paper%20An%20Inconvenient%20Truth.pdf>, JNP)

Al Gore talks about several mountains and glacier parks from all over the ¶ world that are melting away to nothing. Some of these are: Mount Kilimanjaro, ¶ Glacier National Park, Colombia Glacier, the Himalayas, the Italian Alps, and ¶ mountains in Switzerland, Argentina, and Peru. The ice shelves in Antarctica are ¶ melting and one of the biggest ice shelves has split in half. Another effect from ¶ the ice melting is that scientists have found that more polar bears are drowning ¶ then in recent years due to the fact that they are swimming longer distances ¶ because they cannot find glaciers to rest on because they are all melting. ¶ Normally the arctic ice caps reflect the sun, but now that the ice caps are smaller ¶ the sun rays are being absorbed in the water. This is making the water warmer ¶ and making the arctic ice caps melt faster. These details express emotion ¶ because they are shocking to viewers and the effects of these problems could result in something devastating. If Antarctica continues to melt or Greenland ¶ melts, the Earth’s sea level will go up about twenty feet. Over 100 million people ¶ would be without homes if this happened in places like: Florida, San Francisco ¶ Bay, the Netherlands, Beijing, Shanghai, Calcutta and Bangladesh. In ¶ Manhattan, the World Trade Center memorial would be under water. This ¶ emotionally affects the viewers because the attacks on 9/11 are a fairly recent ¶ event and now since the US is putting up a memorial, Americans are not going to ¶ want to see the memorial under water. If it does all the people who lost someone ¶ they loved in this catastrophic event, are going to be very angry. “Is it possible ¶ that we should prepare against other threats besides terrorists? Maybe we ¶ should be concerned with other things as well” (An Inconvenient Truth). Many ¶ people in the United States are concerned about the war in Iraq and terrorism ¶ because of the events of September 11¶ th¶ . But what we should be concerned ¶ about is the gradual changes in the environment caused by global warming. The ¶ United States is the leading contributor to greenhouse gases, yet the government ¶ is not making this issue a public concern. ¶ An Inconvenient Truth also demonstrates several examples of logos. ¶ Many people in the public and in the press do not believe that the effects of ¶ global warming are real. They think that the ideas are just myths. But according ¶ to An Inconvenient Truth, a survey was taken from 928 peer-edited scholarly ¶ journals that were read by scientists about the effects of global warming and out ¶ of those 928 articles; zero scientists disagreed with any of the articles. There ¶ was another survey taken from 636 articles in the public press about global ¶ warming and more than half of the readers in the public press were unsure of the ¶ effects for no reason what so ever. Most of the people who do not believe in ¶ global warming are not scientists and are just regular people with no scientific ¶ training, who are by far less credible. Another example is that the ten hottest ¶ years on this planet have been in the past fourteen years and that 2005 was the ¶ hottest year on record since the movie. In addition to this, the United States is ¶ by far the leading contributor to global warming. One of the main reasons why ¶ the United States is the chief contributor is because the United States has the ¶ highest population which puts more pressure on the Earth for more food and ¶ more water.

#### Specifically, U.S. auto emissions are the main contributor to global warming

West 12 (Larry, 20-year professional writer and editor who has written many articles about environmental issues for leading newspapers, magazines and online publications citing from: John DeCicco, author of the report and senior fellow at Environmental Defense, “U.S. Autos Account for Half of Global Warming Linked to Cars Worldwide,” http://environment.about.com/od/globalwarming/a/autoemissions.htm)

U.S. automobiles and light trucks are responsible for nearly half of all greenhouse gases emitted by automobiles globally, according to a new study by Environmental Defense.The study, Global Warming on the Road [PDF], also found that the Big Three automakers—General Motors, Ford and DaimlerChrysler—accounted for nearly three-quarters of the carbon dioxide released by cars and pickup trucks on U.S. roads in 2004, the latest year for which statistics were available.“Cutting greenhouse gas emissions from U.S. automobiles will be critical to any strategy for slowing global warming,” said John DeCicco, author of the report and senior fellow at Environmental Defense, in a press release. “To address global warming, we’ll need a clear picture of what sources are contributing to the problem. This report details, by automaker and vehicle type, the greenhouse gas contributions from America's auto sector, for the first time.”Carbon dioxide emissions from personal vehicles in the United States equaled 314 million metric tons in 2004. That much carbon could fill a coal train 55,000 miles long—long enough to circle the Earth twice. Cars and trucks made by GM gave off 99 million metric tons of carbon dioxide or 31 percent of the total; Ford vehicles emitted 80 million metric tons or 25 percent; and Daimler Chrysler vehicles emitted 51 million metric tons or 16 percent, according to the report.

#### Even if we don’t win solvency other countries will follow us – that means we spill over globally

Wirth et al 3 (Timothy E, President of the UN Foundation – along with C. Boyden Gray and John D. Podesta – also of the UN Foundation, “The Future of Energy Policies,” Foreign Affairs, July/August, p. 132, lexis).

Energy is a common thread weaving through the fabric of critical American interests and global challenges. U.S. strategic energy policy must take into account the three central concerns outlined above -- economic security, environmental protection, and poverty alleviation -- and set aggressive goals for overcoming them. Leadership from Washington is critical because the [U.S.] United States is so big, so economically powerful, and so vulnerable to oil shocks and terrorism. This is a time of opportunity, too -- a major technological revolution is beginning in energy, with great potential markets. And finally, the reality is that where the [U.S.] United States goes, others will likely follow. America's example for good or for ill sets the tempo and the direction of action far beyond its borders and far into the future.

#### Ridership isn’t a problem

Todorovich et al. 11 — Petra Todorovich, Director of America 2050—a national urban planning initiative to develop an infrastructure and growth strategy for the United States, Assistant Visiting Professor at the Pratt Institute Graduate Center for Planning and the Environment, Member of the Board of Advisors of the Eno Transportation Foundation, holds an M.A. in City and Regional Planning from the Bloustein School of Planning and Public Policy at Rutgers University, et al., with Daniel Schned, Associate Planner for America 2050, Lecturer at the Edward J. Bloustein School of Planning and Public Policy at Rutgers University, holds an M.A. in City and Regional Planning and a Certificate in Geographic Information Systems from Rutgers University, and Robert Lane, Senior Fellow for Urban Design at Regional Plan Association, Founding Principal of Plan & Process LLP, former Loeb Fellow at the Harvard Graduate School of Design, holds an M.A. in Architecture from Columbia University, 2011 (“Chapter 2: Potential Benefits of High-Speed Rail,” *High-Speed Rail: International Lessons for U.S. Policy Makers*, Policy Focus Report of the Lincoln Institute of Land Policy, ISBN 9781558442221, Available Online at https://www.lincolninst.edu/pubs/dl/1948\_1268\_High-Speed%20Rail%20PFR\_Webster.pdf, Accessed 06-08-2012, p. 19-20)

Energy mix: High-speed rail is the only available mode of long-distance travel that currently is not dependent on motor fuels. High-speed rail is powered by electricity, which is not without environmental problems depending on its source (see table 2). If it is powered by electricity generated from fossil fuels, such as coal or natural gas that discharge harmful greenhouse gas emissions, then its environmental benefits are limited. However, electricity is generally considered an improvement over petroleum- [end page 19] generated power and provides a crucial advantage as the United States aims to reduce its dependence on foreign oil. Amtrak’s Northeast Corridor and parts of the Keystone Corridor (connecting Harrisburg, Pennsylvania to Philadelphia) are electrified. Most other conventional passenger trains in America operate on freight rail lines and are powered by diesel fuel.¶ Energy planning needs to be a part of the planning for high-speed rail to ensure the reduction of greenhouse gases and other harmful pollutants. Even with the current energy mix that includes fossil fuel sources, however, high-speed rail can yield significant environmental benefits. A recent study by the University of Pennsylvania (2011) found that a new high-speed line in the Northeast Corridor, powered by electricity from the current energy mix, would divert nearly 30 million riders from cars and planes, attract 6 million new riders, and still reduce car emissions of carbon monoxide by more than 3 million tons annually. The system would also result in a reduction of carbon dioxide emissions if the energy mix were shifted to low carbon emitting sources.

## \*\*\*Neg\*\*\*

### NOTE

Lots of your “environment” and “emissions” stuff against the current air pollution advantage are applicable

There’s also more impact D in the Elections Core

### Warming D

#### 1. Icebergs are a negative feedback – none of their evidence takes this into account

Macfarlane, 09 (Jo, The Daily Mail Online. “Amazing discovery of green algae which could save the world from global warming” http://www.dailymail.co.uk/sciencetech/article-1104772/Amazing-discovery-green-algae-save-world-global-warming.html?ITO=1490#)

Melting icebergs, so long the iconic image of global warming, are triggering a natural process that could delay or even end climate change, British scientists have found. A team working on board the Royal Navy’s HMS Endurance off the coast of Antarctica have discovered tiny particles of iron are released into the sea as the ice melts. The iron feeds algae, which blooms and sucks up damaging carbon dioxide (CO2), then sinks, locking away the harmful greenhouse gas for hundreds of years. The team think the process could hold the key to staving off globally rising temperatures. Lead researcher Professor Rob Raiswell, from Leeds University, said: ‘The Earth itself seems to want to save us.’ As a result of the findings, a ground-breaking experiment will be held this month off the British island of South Georgia, 800 miles south east of the Falklands. It will see if the phenomenon could be harnessed to contain rising carbon emissions. Researchers will use several tons of iron sulphate to create an artificial bloom of algae. The patch will be so large it will be visible from space. Scientists already knew that releasing iron into the sea stimulates the growth of algae. But environmentalists had warned that to do so artificially might damage the planet’s fragile ecosystem. Last year, the UN banned iron fertilisation in the Great Southern Ocean. However, the new findings show the mechanism has actually been operating naturally for millions of years within the isolated southern waters. And it has led to the researchers being granted permission by the UN to move ahead with the experiment. The scientist who will lead the next stage of the study, Professor Victor Smetacek, said: ‘The gas is sure to be out of the Earth’s atmosphere for several hundred years.’ The aim is to discover whether artificially fertilising the area will create more algae in the Great Southern Ocean. That ocean is an untapped resource for soaking up CO2 because it doesn’t have much iron, unlike other seas. It covers 20million square miles, and scientists say that if this could all be treated with iron**,** the resulting algae would remove three-and-a-half gigatons of carbon dioxide. This is equivalent to one eighth of all emissions annually created by burning fossil fuels such as oil, gas and coal. It would also be equal to removing all carbon dioxide emitted from every power plant, chimney and car exhaust in the rapidly expanding industries of India and Japan. However, the experts warn it is too early to say whether it will work. The team from ice patrol ship HMS Endurance used sledgehammers to chip deep into the interior of a 33ft-long mass of polar ice from half-a-dozen house-sized icebergs that had blown ashore in Antarctica. Once back in the UK, they used a special microscope to analyse the samples, which revealed what they had been looking for – tiny iron particles, only a few millionths of a millimetre wide, embedded deep within the ice. Until now, it was thought that the only source of iron in the Southern Ocean was wind blowing in metal compounds from the deserts of nearby continents like Australia. But the research has disproved this. Prof Raiswell said: ‘These particles measure only a fraction of a millimetre, but they have great importance for the global climate.’ Rising global temperatures, particularly over the past 50 years, have increased the rate at which polar ice melts, causing sea levels to rise. Ten of the warmest years on record have been since 1991, with experts predicting that 2009 could be the hottest year yet. The climate-change effect is set to substantially increase over the coming decades, as developing industrial nations pump out more CO2. Temperatures along the Antarctic Peninsula alone have increased by 2.5C over the past 50 years.But for every percentage point increase in the amount of ice that breaks off, Prof Raiswell calculates that a further 26million tons of CO2 is removed from the atmosphere.

#### 2. Newest studies prove that CO2 is not anthropogenic – emissions from fossil fuels only stay in the atmosphere for five years and natural forcings are more important

Marohasy 9 (Jennifer, senior fellow at the Australian think tank the Institute of Public Affairs, PhD in biology from the University of Queensland. Cites research from Robert H. Essenhigh, Department of Mechanical Engineering at Ohio State University, “Carbon Dioxide in Atmosphere 5-15 Years Only” 4-17-09. http://jennifermarohasy.com/blog/2009/04/carbon-dioxide-in-atmosphere-5-15-years-only/)

If carbon dioxide emissions from fossil fuels only stayed in the atmosphere a few years, say five years, then there may not be quite the urgency currently associated with anthropogenic global warming. Indeed it might be argued that the problem of elevated levels of atmospheric carbon dioxide could be easily reversed as soon as alternative fuel sources where found and/or just before a tipping point was reached. The general consensus, however, is not five years, but rather more in the range of 50 to 200 years. But in a new technical paper to be published in the journal ‘Energy and Fuels’, Robert Essenhigh from Ohio State University, throws doubt on this consensus. Using the combustion/chemical-engineering Perfectly Stirred Reactor (PSR) mixing structure, or 0-D Box, as the basis of a model for residence time in the atmosphere, he explains that carbon dioxide emissions from fossil fuels are likely to have a residence time of between 5 and 15 years. He further concludes that the current trend of rising atmospheric carbon dioxide concentrations is not from anthropogenic sources, but due to natural factors. Here’s the abstract: The driver for this study is the wide-ranging published values of the CO2 atmospheric residence time (RT), , with the values differing by more than an order of magnitude, where the significance of the difference relates to decisions on whether: (1) to attempt control of combustion-sourced (anthropogenic) CO2 emissions, if >100 years; or (2) not to attempt control, if ~10 years. This given difference is particularly evident in the IPCC First (1990) Climate Change Report where, in the opening Policymakers Summary of the Report, the RT is stated to be in the range 50 to 200 years; and, (largely) based on that, it was also concluded in the Report and from subsequent related studies that the current rising level of CO2 was due to combustion of fossil fuels, thus carrying the, now widely-accepted, rider that CO2 emissions from combustion should therefore be curbed. However, the actual data in the text of the IPCC Report separately states a value of 4 years. The differential of these two times is then clearly identified in the relevant supporting-documents of the report as being, separately: (1) a long-term (~100 years) adjustment or response time to accommodate imbalance increases in CO2 emissions from all sources; and, (2) the actual RT in the atmosphere, of ~4 years.

As check on that differentiation, and its alternative outcome, the definition and determination of RT thus defined the need for and focus of this study. In this study, using the combustion/chemical-engineering Perfectly Stirred Reactor (PSR) mixing structure, or 0-D Box, for the model-basis, as alternative to the more-commonly used Global Circulation Models (GCM’s), to define and determine the RT in the atmosphere, then, using data from the IPCC and other sources for model validation and numerical determination, the data: (1) support the validity of the PSR model-application in this context; and (2) from the analysis, provide (quasi-equilibrium) residence times for CO2 of: ~5 years carrying C12; and of ~16 years carrying C14, with both values essentially in agreement with the IPCC short-term (4-year) value, separately, in agreement with most other data sources and notably a (1998) listing by Segalstad of 36 other published values, also in the range 5 to 15 years. Additionally, the analytical results then also support the IPCC analysis and data on the longer “adjustment time” (~100 years) governing the long-term rising “quasi-equilibrium” concentration of CO2 in the atmosphere. For principal verification of the adopted PSR model, the data source used was outcome of the injection of excess 14CO2 into the atmosphere during the A-bomb tests in the 1950’s/60’s which generated an initial increase of approximately 1000% above the normal value, and which then declined substantially exponentially with time, with = 16 years, in accordance with the (unsteady-state) prediction from, and jointly providing validation for, the PSR analysis. With the short (5-15 year) RT results shown to be in quasi-equilibrium, this then supports the (independently-based) conclusion that the long-term (~100-year) rising atmospheric CO2 concentration is not from anthropogenic sources but, in accordance with conclusions from other studies, is most probably the outcome of the rising atmospheric temperature which is due to other natural factors. This further supports the conclusion that global warming is not anthropogenically driven as outcome of combustion. The economic and political significance of that conclusion will be self-evident.

#### 3. Climate predictions fail – our modeling software is empirically flawed and can’t predict future climate – they fail to distinguish between feedback and forcing

Spencer and Braswell 11 (Roy Spencer, Former Senior Scientist for Climate Studies at NASA, and Danny Braswell, Team leader for NASA’s qua satellite, Principal Research Scientists at the Earth System Science Center at the University of Alabama, 7/25/11 “On the Misdiagnosis of Surface Temperature Feedbacks from Variations in Earth’s Radiant Energy Balance”, Remote Sensing vol 3, og 1603-1613 \*This study was funded entirely by the U.S. Department of Energy, not an oil company)

Abstract:The sensitivity of the climate system to an imposed radiative imbalance remains the largest source of uncertainty in projections of future anthropogenic climate change. Here we present further evidence that this uncertainty from an observational perspective is largely due to the masking of the radiative feedback signal by internal radiative forcing, probably due to natural cloud variations. That these internal radiative forcings exist and likely corrupt feedback diagnosis is demonstrated with lag regression analysis of satellite and coupled climate model data, interpreted with a simple forcing-feedback model. While the satellite-based metrics for the period 2000–2010 depart substantially in the direction of lower climate sensitivity from those similarly computed from coupled climate models, we find that, with traditional methods, it is not possible to accurately quantify this discrepancy in terms of the feedbacks which determine climate sensitivity. It is concluded that 1, due primarily to the inability to distinguish between radiative forcing and radiative feedback in satellite radiative budget observations.The magnitude of the surface temperature response of the climate system to an imposed radiative energy imbalance remains just as uncertain today as it was decades ago [1]. Over 20 coupled ocean-atmosphere climate models tracked by the Intergovernmental Panel on Climate Change (IPCC) produce a wide range of warming estimates in response to the infrared radiative forcing theoretically expected from anthropogenic greenhouse gas emissions [2]. From a modeling standpoint, this lack of progress is evidence of the complexity of the myriad atmospheric processes that combine to determine the sign and magnitude of feedbacks. It is also due to our inability to quantify feedbacks in the real climate system, a contentious issue with a wide range of published feedback diagnoses [1] and disagreements over the ability of existing methods to diagnose feedback [3,4]. Spencer and Braswell ([5] hereafter SB10) discussed what they believed to be the primary difficulty in diagnosing feedback from variations in the Earth’s radiative energy balance between absorbed shortwave (SW) solar radiation and thermally emitted longwave (LW) infrared (IR) radiation. SB10 attributed the difficulty to the contamination of the feedback signature by unknown levels of time-varying, internally generated radiative forcing; for example, ‘unforced’ natural variations in cloud cover. In simple terms, radiative changes resulting fromtemperature change (feedback) cannot be easily disentangled from those causing a temperature change (forcing). Much can be learned about the interaction between radiative forcing and feedback through a simple time dependent forcing-feedback model of temperature variations away from a state of energy equilibrium, *Cp d*Δ*T/dt = S(t) + N(t)* − λΔ*T* (1) Equation (1) states that time-varying sources of non-radiative forcing *S* and radiative forcing *N* cause a climate system with bulk heat capacity *Cp* to undergo a temperature change with time away from its equilibrium state (*d*Δ*T/dt*), but with a net radiative feedback ‘restoring force’ (−λΔ*T*) acting to stabilize the system. For the interannual temperature climate variability we will address here, the heat capacity *Cp* in Equation (1) is assumed to represent the oceanic mixed layer. (Note that if *Cp* is put inside the time differential term, the equation then becomes one for changes in the heat content of the system with time. While it is possible that feedback can be more accurately diagnosed by analyzing changes in the heat content of the ocean over time [6], our intent here is to examine the problems inherent in diagnosing feedback based upon surface temperature changes.) Radiative forcings (N) of temperature change could arise, for example, from natural fluctuations in cloud cover which are not the direct or indirect result of a temperature change (that is, not due to feedback) [7]. Examples of non-radiative forcing (S) would be fluctuations in the heat exchange between the mixed layer and deep ocean, or between the mixed layer and the overlying atmosphere. Importantly, satellite radiative budget instruments measure the combined influence of radiative forcing (*N*) and radiative feedback (−λΔ*T*) in unknown proportions. Although not usually considered a feedback *per se*, the most fundamental component of the net feedback parameter λ is the direct dependence of the rate of IR emission on temperature, estimated to be about 3.3 W m−2 K−1 in the global average [8]. This ‘Planck’ or ‘Stefan-Boltzmann’ response stabilizes the climate system against runaway temperature changes, and represents a baseline from which feedbacks are traditionally referenced. Positive feedbacks in the climate system reduce the net feedback parameter below 3.3, while negative feedbacks increase it above 3.3. Here we will deal with the net feedback parameter exclusively, as it includes the combined influence of all climate feedbacks, as well as the Planck effect. The larger the net feedback parameter λ, the smaller the temperature response to an imposed energy imbalance *N* will be; the smaller λ is, the greater the temperature response will be. A negative value for λ would indicate a climate system whose temperature is unstable to radiative forcing. The coupled ocean-atmosphere climate models tracked by the IPCC have diagnosed long-term net feedback parameters ranging from λ = 0.89 for the most sensitive model, MIROC-Hires, to λ = 1.89 for the least sensitive model, FGOALS [8]. Since this range is below the Planck response of 3.3 W m−2 K−1, all of the IPCC models therefore exhibit net positive feedbacks. Also, since all climate models have net feedback parameters greater than zero, none of the climate models are inherently unstable to perturbations. It is worth reiterating that satellite radiative budget instruments measure the combined effect of the radiative terms on the RHS of Equation (1), that is, the radiative forcing term *N* and the feedback term (− λΔ*T*). That the presence of *N* can have a profound impact on feedback diagnosis is easily demonstrated with a simple time dependent model based upon Equation (1). If we assume *Cp* consistent with a 25 m deep oceanic mixed layer, a net feedback parameter λ = 3, and a sinusoidal forcing with period of one year, the temperature response shown in Figure 1 will result. Figure 1.Simple forcing-feedback model demonstration that satellite radiative budget instrument measurements of Net radiative flux (forcing + feedback) are very different from what is needed to diagnose the net feedback parameter (feedback only). In response to radiative forcing, the model ocean warms, which in turn causes a net radiative feedback response. Significant to our goal of diagnosing feedback, the net feedback response to a temperature change is always smaller than the radiative forcing which caused it, owing to the heat capacity of the system, until radiative equilibrium is once again restored. At that point the radiative feedback equals the radiative forcing. Unfortunately, in the real climate system radiative forcings are continually changing, which means the feedback response will in general be smaller than the radiative forcing. The presence of this radiative forcing tends to confound the accurate determination of feedback. If the only source of radiative variability was feedback, then regression of the time series (−λΔ*T*) against the temperature time series (Δ*T*) in Figure 1 would yield an accurate feedback diagnosis with the regression slope λ = 3 W m−2 K−1. But the presence of time varying radiative forcing in Figure 1 has a very different signature than that of feedback, yet it is the sum of the two which the satellite measures. As shown by SB10, the presence of any time-varying radiative forcing decorrelates the co-variations between radiative flux and temperature. Low correlations lead to regression-diagnosed feedback parameters biased toward zero, which corresponds to a borderline unstable climate system. We believe that the low correlations associated with previous feedback diagnoses with satellite data are themselves *prima facie* evidence of the presence of radiative forcing in the data. In the real climate system, it is likely there is almost always a time-varying radiative forcing present, as various internally-generated changes in clouds and water vapor oscillate between positive and negative values faster than the resulting temperature changes can restore the system to radiative equilibrium. This means that feedback diagnosis will, in general, be contaminated by an unknown amount of time-varying internal radiative forcing *N*. If those forcings were known, they could have been subtracted from the measured radiative flux variations before diagnosing feedback, e.g., as has been done for the feedback response of the coupled climate models to transient carbon dioxide forcing [8]. Central to the difficulty of feedback diagnosis is the very different time-dependent relationships which exist between forcing and temperature, versus between feedback and temperature. While there is a substantial *time lag* between forcing and the temperature response due to the heat capacity of the ocean, the radiative feedback response to temperature is *nearly simultaneous* with the temperature change. This near-simultaneity is due to a combination of the instantaneous temperature effect on the LW portion of λ (the Planck response of 3.3 W m−2 K−1), and the relatively rapid convective coupling of the surface to the atmosphere, which causes surface temperature-dependent changes in water vapor, clouds, and the vertical profile of temperature. While SB10 provided evidence that such radiatively-induced temperature changes do exist, and in general lead to an underestimate of the net feedback parameter, this view has been challenged ([9] hereafter D10) with estimated cloud feedback from satellite observed variations in Earth’s radiative energy balance during 2000–2010. D10 used the usual regression approach. Further, D10 assumed that the temperature changes during 2000–2010 were not radiatively forced by the atmosphere, but non-radiatively forced through changes in ocean circulation associated with the El Niño/Southern Oscillation (ENSO) [10] phenomenon. If D10 is correct that radiative forcing can be neglected (*N(t)* ≈ 0), then satellite observed radiative variations would be dominated by feedback rather than forcing, and one should be able to diagnose feedback through regression of radiative variations against temperature variations. Here we will provide evidence that those temperature changes instead had a strong component of radiative forcing, with radiative accumulation preceding, and radiative loss following temperature maxima. While SB10 used phase space analysis to demonstrate the presence of radiative forcing, here we will use lag regression analysis. By examining regression coefficients between temperature and radiative flux at a variety of leads and lags, rather than at just zero time lag, we can identify behaviors of the climate system that otherwise cannot be discerned.

#### 4. Global Warming theories incorrect- Climate satellite data proves

National Review 7/30/11 (<http://www.nationalreview.com/planet-gore/273239/nasa-study-shatters-climate-alarmists-assumptions-mario-loyola> “NASA Study Shatters Climate Alarmists’ Assumptions”)

Still, I assumed that at least the climate scientists had some firm idea of how much heat a certain amount of carbon dioxide would trap directly and indirectly through increased humidity and cloud cover. Well now it turns out that even on this most essential assumption of all their claims, they didn’t know what they were talking about. An explosive study based on NASA satellite data collected over the past decade shows that the planet’s atmosphere traps far less heat than any of the most frequently cited models presumed. The study, by Dr. Roy Spencer and Dr. William Braswell of the University of Alabama, was published in the peer-reviewed journal Remote Sensing. This is from the press release: “The satellite observations suggest there is much more energy lost to space during and after warming than the climate models show,” Spencer said. “There is a huge discrepancy between the data and the forecasts that is especially big over the oceans.” Not only does the atmosphere release more energy than previously thought, it starts releasing it earlier in a warming cycle. The models forecast that the climate should continue to absorb solar energy until a warming event peaks. Instead, the satellite data shows the climate system starting to shed energy more than three months before the typical warming event reaches its peak. “At the peak, satellites show energy being lost while climate models show energy still being gained,” Spencer said. This is the first time scientists have looked at radiative balances during the months before and after these transient temperature peaks. Applied to long-term climate change, the research might indicate that the climate is less sensitive to warming due to increased carbon dioxide concentrations in the atmosphere than climate modelers have theorized. A major underpinning of global warming theory is that the slight warming caused by enhanced greenhouse gases should change cloud cover in ways that cause additional warming, which would be a positive feedback cycle.