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# 1AC

### Contention 1: Inherency

**No federal program for HSR**

**UPI Energy, 12**

UPI Energy May 22, 2012 Tuesday 6:30 AM EST High-speed rail still a dream in U.S. BYLINE: MARA GRBENICK, MEDILL NEWS SERVICE LENGTH: 1231 words DATELINE: WASHINGTON, May 22

Although comparisons between passenger railroads and the federal highway system are frequently made, there is no official federal program for passenger rail with taxes or other mechanisms to fund it. It's a harder sell to taxpayers since not as many people would benefit from a high-speed or even passenger rail network as have benefitted from the high-way system. Opening more opportunities for the private sector to compete with Amtrak could be a more feasible goal than a full government program, a House Transportation and Infrastructure Committee representative said. Though some of the advantages of rail are clear, more competition might lead to greater efficiency and lower costs, and that could help to build more citizen good will around rail investments.

Plan:

### Advantage 1: Warming

#### First, transportation is the largest proximate cause of warming and pollution

**Jehanno 2011** (Aurélie Jehanno, November 2011, “High Speed Rail and Sustainability,” International Union of Railways, http://goo.gl/6mQfM)

4.1 HSR has a lower impact on climate and environment than all other compatible transport modes. To compare the overall environmental performance of HSR with other competitive transport modes, all environmental impacts must be considered. These are, mainly: energy consumption and the combustion of fossil fuels; air pollutant emissions and noise; and environmental damage like land use and resource depletion. These impacts occur during the construction, operation and maintenance of HSR. The following chapter focuses on the most significant, and on-going, phase, the operation of HSR, and shows how HSR brings solutions to global challenges. 4.1.1 Energy consumption and GHG emissions. The reality of global warming is commonly admitted among the scientific community. The works of the International Panel on Climate Change (IPCC) are unequivocal on the question that climate change is happening and that human activities are largely responsible for it. Global warming is a consequence of the well-known Greenhouse Effect, and the non-natural part of it especially is caused mainly by carbon emissions due to human activity. Anthropogenic emissions have been growing continuously since the 19th century (see Figure 4). The IPCC predicts temperature rises of between 1° a nd 6° Centigrade from current levels by 2100, depending on the levels of future greenhouse gas (GHG) emissions. If the higher estimates are accurate, there could be catastrophic consequences, so decisive action is required. The Kyoto Protocol regulates five GHGs beside CO2: methane (CH4), nitrous oxide (N2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF6). International efforts are now focused on reducing GHG emissions from the activities of modern society to avoid unprecedented impacts from climate change. In March 2007, as part of a wide-ranging attempt to cut emissions, European heads of state agreed to set legally binding targets to reduce Europe-wide GHG emissions by 20% from 1990 levels by 2020 (increased to 30% with a strong global agreement), (EC, 2010) f . The European Commission has further stated that work must begin immediately on a longer-term target of a 50% cut in global emissions by 2050. In July 2008, the European Commission published its ‘Greening Transport’ package which included a series of proposals to make the transport sector more environmentally-friendly and to promote sustainable mobility. Yet the measures agreed so far are not sufficient to contain the negative environmental effects of transport growth. Furthermore, there is still no coherent ‘roadmap’ to reduce emissions from transport. Figure 5 shows total GHG emissions for the EU 27 countries, including international maritime and aviation “bunkers” g , projected on linear trajectory towards 80% and 95% reduction targets, alongside total transport emissions (including bunkers) assuming current trends continue. This shows that if the current growth in transport emissions continues, then even if all other sectors achieve a 100% reduction, targets for total emissions will be exceeded by transport alone by 2050. Transport has a key role to play within solutions to climate change as current transport structures are responsible for extreme pressures on energy resources and ecosystems through a high dependence on fossil fuels (80% of energy consumption is derived from fossil fuels). Producing 23% of all worldwide CO2 emissions, transport is the second largest source of man-made CO2, after energy production (see Figure 6). Among all sectors, the transport sector is the only one in which emissions are continuing to increase in spite of all the technological advances. Moreover, transport emissions, for instance in Europe, increased by 25% between 1990 and 2010. By contrast emissions from the industrial and energy sectors are falling. 9 Reducing transport emissions is therefore one of the most crucial steps in combating global warming and securing our future. In the interests of people and the environment, the rail sector strongly recommends that transport policies in the EU and elsewhere start to make more use of the energy efficiency of railways in order to progress towards the 2020 CO2 reduction targets Railways already offer the most energy efficient performance and are constantly improving in terms of energy use per passenger km (pkm). HSR IS PART OF THE SOLUTION TO FIGHT CLIMATE CHANGE The alarming performance of the transport sector is largely due to road traffic, which accounts for 73% of global transport emissions (see Figure 7). If domestic and international aviation is combined then it is the second largest emitter accounting for 13% of global transport emissions. By contrast, the rail sector accounts for just 2% of total transport emissions. In Europe rail accounts for only 1.6% of emissions, while it transports 6% of all passengers and 10% of all freight. 10 This is a clear indicator that railways can do more for less. A modal shift from road and air towards rail is one obvious way to reduce CO2 emissions. There are three primary strategy responses to the challenge of reducing the environmental impact of transport (Dalkmann and Brannigan, 2007): Avoid - transport is reduced or avoided altogether; such as by land-use planning and public transport integration in order to enable efficient interconnectivity and reductions in km travelled. Shift - journeys are made by lower CO2 per passenger emitting modes such as public transport (including rail), walking and cycling. Improve - efficiency of current transport modes is improved e.g. by innovations in technology. 16 In the context of rail the two most relevant strategies are ‘shift’ and ‘improve’, however rail does have a part to play in ‘avoid’ strategies within integrated land use and spatial planning. 12 HSR IS MORE ENERGY EFFICIENT THAN ALL OTHER TRANSPORT MODES Rail in general is widely acknowledged as the most carbon efficient form of mass transport as Figure 8 illustrates. Calculations for HSR using the average European electricity mix, a 75% load factor and the electric consumption of a Alstom AGV (0.033 kwh/seat.km) h show a crucial advantage in terms of carbon emissions over air and road transport with around 17g CO2 per pkm. Although average emissions depend upon many factors the graph indicates the benefits of railways. Thus, in addition to not being a significant contributor to the transport sector’s problems in terms of emissions, rail needs to be given more attention because of its crucial role as an important part of the solution. In particular, efficient, 100% electric HSR can play a leading role in reducing transport related emissions and contribute to climate protection. HSR offers the best performance in terms of energy consumption and materials use. HSR offers attractive alternatives to short-haul flights and long distance car journeys. Replacing short haul flights with HSR would release capacity constraints at airports, reduce the need for additional expansion whilst helping to tackle the challenges of climate change.

#### Warming is real and human induced – consensus is on our side – numerous studies prove

Rahmstorf 8 – Professor of Physics of the Oceans

Richard, of Physics of the Oceans at Potsdam University, Global Warming: Looking Beyond Kyoto, Edited by Ernesto Zedillo, “Anthropogenic Climate Change?,” pg. 42-4

It is time to turn to statement B: human activities are altering the climate. This can be broken into two parts. The first is as follows: global climate is warming. This is by now a generally undisputed point (except by novelist Michael Crichton), so we deal with it only briefly. The two leading compilations of data measured with thermometers are shown in figure 3-3, that of the National Aeronautics and Space Administration (NASA) and that of the British Hadley Centre for Climate Change. Although they differ in the details, due to the inclusion of different data sets and use of different spatial averaging and quality control procedures, they both show a consistent picture, with a global mean warming of 0.8°C since the late nineteenth century. Temperatures over the past ten years clearly were the warmest since measured records have been available. The year 1998 sticks out well above the longterm trend due to the occurrence of a major El Nino event that year (the last El Nino so far and one of the strongest on record). These events are examples of the largest natural climate variations on multiyear time scales and, by releasing heat from the ocean, generally cause positive anomalies in global mean temperature. It is remarkable that the year 2005 rivaled the heat of 1998 even though no El Nino event occurred that year. (A bizarre curiosity, perhaps worth mentioning, is that several prominent "climate skeptics" recently used the extreme year 1998 to claim in the media that global warming had ended. In Lindzen's words, "Indeed, the absence of any record breakers during the past seven years is statistical evidence that temperatures are not increasing.")33 In addition to the surface measurements, the more recent portion of the global warming trend (since 1979) is also documented by satellite data. It is not straightforward to derive a reliable surface temperature trend from satellites, as they measure radiation coming from throughout the atmosphere (not just near the surface), including the stratosphere, which has strongly cooled, and the records are not homogeneous' due to the short life span of individual satellites, the problem of orbital decay, observations at different times of day, and drifts in instrument calibration.' Current analyses of these satellite data show trends that are fully consistent with surface measurements and model simulations." If no reliable temperature measurements existed, could we be sure that the climate is warming? The "canaries in the coal mine" of climate change (as glaciologist Lonnie Thompson puts it) ~are mountain glaciers. We know, both from old photographs and from the position of the terminal moraines heaped up by the flowing ice, that mountain glaciers have been in retreat all over the world during the past century. There are precious few exceptions, and they are associated with a strong increase in precipitation or local cooling.36 I have inspected examples of shrinking glaciers myself in field trips to Switzerland, Norway, and New Zealand. As glaciers respond sensitively to temperature changes, data on the extent of glaciers have been used to reconstruct a history of Northern Hemisphere temperature over the past four centuries (see figure 3-4). Cores drilled in tropical glaciers show signs of recent melting that is unprecedented at least throughout the Holocene-the past 10,000 years. Another powerful sign of warming, visible clearly from satellites, is the shrinking Arctic sea ice cover (figure 3-5), which has declined 20 percent since satellite observations began in 1979. While climate clearly became warmer in the twentieth century, much discussion particularly in the popular media has focused on the question of how "unusual" this warming is in a longer-term context. While this is an interesting question, it has often been mixed incorrectly with the question of causation. Scientifically, how unusual recent warming is-say, compared to the past millennium-in itself contains little information about its cause. Even a highly unusual warming could have a natural cause (for example, an exceptional increase in solar activity). And even a warming within the bounds of past natural variations could have a predominantly anthropogenic cause. I come to the question of causation shortly, after briefly visiting the evidence for past natural climate variations. Records from the time before systematic temperature measurements were collected are based on "proxy data," coming from tree rings, ice cores, corals, and other sources. These proxy data are generally linked to local temperatures in some way, but they may be influenced by other parameters as well (for example, precipitation), they may have a seasonal bias (for example, the growth season for tree rings), and high-quality long records are difficult to obtain and therefore few in number and geographic coverage. Therefore, there is still substantial uncertainty in the evolution of past global or hemispheric temperatures. (Comparing only local or regional temperature; as in Europe, is of limited value for our purposes,' as regional variations can be much larger than global ones and can have many regional causes, unrelated to global-scale forcing and climate change.) The first quantitative reconstruction for the Northern Hemisphere temperature of the past millennium, including an error estimation, was presented by Mann, Bradley, and Hughes and rightly highlighted in the 2001 IPCC report as one of the major new findings since its 1995 report; it is shown in figure 3\_6.39 The analysis suggests that, despite the large error bars, twentieth-century warming is indeed highly unusual and probably was unprecedented during the past millennium. This result, presumably because of its symbolic power, has attracted much criticism, to some extent in scientific journals, but even more so in the popular media. The hockey stick-shaped curve became a symbol for the IPCC, .and criticizing this particular data analysis became an avenue for some to question the credibility of the IPCC. Three important things have been overlooked in much of the media coverage. First, even if the scientific critics had been right, this would not have called into question the very cautious conclusion drawn by the IPCC from the reconstruction by Mann, Bradley, and Hughes: "New analyses of proxy data for the Northern Hemisphere indicate that the increase in temperature in the twentieth century is likely to have been the largest of any century during the past 1,000 years." This conclusion has since been supported further by every single one of close to a dozen new reconstructions (two of which are shown in figure 3-6).Second, by far the most serious scientific criticism raised against Mann, Hughes, and Bradley was simply based on a mistake. 40 The prominent paper of von Storch and others, which claimed (based on a model test) that the method of Mann, Bradley, and Hughes systematically underestimated variability, "was [itself] based on incorrect implementation of the reconstruction procedure."41 With correct implementation, climate field reconstruction procedures such as the one used by Mann, Bradley, and Hughes have been shown to perform well in similar model tests. Third, whether their reconstruction is accurate or not has no bearing on policy. If their analysis underestimated past natural climate variability, this would certainly not argue for a smaller climate sensitivity and thus a lesser concern about the consequences of our emissions. Some have argued that, in contrast, it would point to a larger climate sensitivity. While this is a valid point in principle, it does not apply in practice to the climate sensitivity estimates discussed herein or to the range given by IPCC, since these did not use the reconstruction of Mann, Hughes, and Bradley or any other proxy records of the past millennium. Media claims that "a pillar of the Kyoto Protocol" had been called into question were therefore misinformed. As an aside, the protocol was agreed in 1997, before the reconstruction in question even existed. The overheated public debate on this topic has, at least, helped to attract more researchers and funding to this area of paleoclimatology; its methodology has advanced significantly, and a number of new reconstructions have been presented in recent years. While the science has moved forward, the first seminal reconstruction by Mann, Hughes, and Bradley has held up remarkably well, with its main features reproduced by more recent work. Further progress probably will require substantial amounts of new proxy data, rather than further refinement of the statistical techniques pioneered by Mann, Hughes, and Bradley. Developing these data sets will require time and substantial effort. It is time to address the final statement: most of the observed warming over the past fifty years is anthropogenic. A large number of studies exist that have taken different approaches to analyze this issue, which is generally called the "attribution problem." I do not discuss the exact share of the anthropogenic contribution (although this is an interesting question). By "most" I imply mean "more than 50 percent.”The first and crucial piece of evidence is, of course, that the magnitude of the warming is what is expected from the anthropogenic perturbation of the radiation balance, so anthropogenic forcing is able to explain all of the temperature rise. As discussed here, the rise in greenhouse gases alone corresponds to 2.6 W/tn2 of forcing. This by itself, after subtraction of the observed 0'.6 W/m2 of ocean heat uptake, would Cause 1.6°C of warming since preindustrial times for medium climate sensitivity (3"C). With a current "best guess'; aerosol forcing of 1 W/m2, the expected warming is O.8°c. The point here is not that it is possible to obtain the 'exact observed number-this is fortuitous because the amount of aerosol' forcing is still very' uncertain-but that the expected magnitude is roughly right. There can be little doubt that the anthropogenic forcing is large enough to explain most of the warming. Depending on aerosol forcing and climate sensitivity, it could explain a large fraction of the warming, or all of it, or even more warming than has been observed (leaving room for natural processes to counteract some of the warming). The second important piece of evidence is clear: there is no viable alternative explanation. In the scientific literature, no serious alternative hypothesis has been proposed to explain the observed global warming. Other possible causes, such as solar activity, volcanic activity, cosmic rays, or orbital cycles, are well observed, but they do not show trends capable of explaining the observed warming. Since 1978, solar irradiance has been measured directly from satellites and shows the well-known eleven-year solar cycle, but no trend. There are various estimates of solar variability before this time, based on sunspot numbers, solar cycle length, the geomagnetic AA index, neutron monitor data, and, carbon-14 data. These indicate that solar activity probably increased somewhat up to 1940. While there is disagreement about the variation in previous centuries, different authors agree that solar activity did not significantly increase during the last sixty-five years. Therefore, this cannot explain the warming, and neither can any of the other factors mentioned. Models driven by natural factors only, leaving the anthropogenic forcing aside, show a cooling in the second half of the twentieth century (for an example, See figure 2-2, panel a, in chapter 2 of this volume). The trend in the sum of natural forcings is downward.The only way out would be either some as yet undiscovered unknown forcing or a warming trend that arises by chance from an unforced internal variability in the climate system. The latter cannot be completely ruled out, but has to be considered highly unlikely. No evidence in the observed record, proxy data, or current models suggest that such internal variability could cause a sustained trend of global warming of the observed magnitude. As discussed, twentieth century warming is unprecedented over the past 1,000 years (or even 2,000 years, as the few longer reconstructions available now suggest), which does not 'support the idea of large internal fluctuations. Also, those past variations correlate well with past forcing (solar variability, volcanic activity) and thus appear to be largely forced rather than due to unforced internal variability." And indeed, it would be difficult for a large and sustained unforced variability to satisfy the fundamental physical law of energy conservation. Natural internal variability generally shifts heat around different parts of the climate system-for example, the large El Nino event of 1998, which warmed, the atmosphere by releasing heat stored in the ocean. This mechanism implies that the ocean heat content drops as the atmosphere warms. For past decades, as discussed, we observed the atmosphere warming and the ocean heat content increasing, which rules out heat release from the ocean as a cause of surface warming. The heat content of the whole climate system is increasing, and there is no plausible source of this heat other than the heat trapped by greenhouse gases. ' A completely different approach to attribution is to analyze the spatial patterns of climate change. This is done in so-called fingerprint studies, which associate particular patterns or "fingerprints" with different forcings. It is plausible that the pattern of a solar-forced climate change differs from the pattern of a change caused by greenhouse gases. For example, a characteristic of greenhouse gases is that heat is trapped closer to the Earth's surface and that, unlike solar variability, greenhouse gases tend to warm more in winter, and at night. Such studies have used different data sets and have been performed by different groups of researchers with different statistical methods. They consistently conclude that the observed spatial pattern of warming can only be explained by greenhouse gases.49 Overall, it has to be considered, highly likely' that the observed warming is indeed predominantly due to the human-caused increase in greenhouse gases. ' This paper discussed the evidence for the anthropogenic increase in atmospheric CO2 concentration and the effect of CO2 on climate, finding that this anthropogenic increase is proven beyond reasonable doubt and that a mass of evidence points to a CO2 effect on climate of 3C ± 1.59C global-warming for a doubling of concentration. (This is, the classic IPCC range; my personal assessment is that, in-the light of new studies since the IPCC Third Assessment Report, the uncertainty range can now be narrowed somewhat to 3°C ± 1.0C) This is based on consistent results from theory, models, and data analysis, and, even in the absence-of any computer models, the same result would still hold based on physics and on data from climate history alone. Considering the plethora of consistent evidence, the chance that these conclusions are wrong has to be considered minute. If the preceding is accepted, then it follows logically and incontrovertibly that a further increase in CO2 concentration will lead to further warming. The magnitude of our emissions depends on human behavior, but the climatic response to various emissions scenarios can be computed from the information presented here. The result is the famous range of future global temperature scenarios shown in figure 3\_6.50 Two additional steps are involved in these computations: the consideration of anthropogenic forcings other than CO2 (for example, other greenhouse gases and aerosols) and the computation of concentrations from the emissions. Other gases are not discussed here, although they are important to get quantitatively accurate results. CO2 is the largest and most important forcing. Concerning concentrations, the scenarios shown basically assume that ocean and biosphere take up a similar share of our emitted CO2 as in the past. This could turn out to be an optimistic assumption; some models indicate the possibility of a positive feedback, with the biosphere turning into a carbon source rather than a sink under growing climatic stress. It is clear that even in the more optimistic of the shown (non-mitigation) scenarios, global temperature would rise by 2-3°C above its preindustrial level by the end of this century. Even for a paleoclimatologist like myself, this is an extraordinarily high temperature, which is very likely unprecedented in at least the past 100,000 years. As far as the data show, we would have to go back about 3 million years, to the Pliocene, for comparable temperatures. The rate of this warming (which is important for the ability of ecosystems to cope) is also highly unusual and unprecedented probably for an even longer time. The last major global warming trend occurred when the last great Ice Age ended between 15,000 and 10,000 years ago: this was a warming of about 5°C over 5,000 years, that is, a rate of only 0.1 °C per century. 52 The expected magnitude and rate of planetary warming is highly likely to come with major risk and impacts in terms of sea level rise (Pliocene sea level was 25-35 meters higher than now due to smaller Greenland and Antarctic ice sheets), extreme events (for example, hurricane activity is expected to increase in a warmer climate), and ecosystem loss. The second part of this paper examined the evidence for the current warming of the planet and discussed what is known about its causes. This part showed that global warming is already a measured and-well-established fact, not a theory. Many different lines of evidence consistently show that most of the observed warming of the past fifty years was caused by human activity. Above all, this warming is exactly what would be expected given the anthropogenic rise in greenhouse gases, and no viable alternative explanation for this warming has been proposed in the scientific literature. Taken together., the very strong evidence accumulated from thousands of independent studies, has over the past decades convinced virtually every climatologist around the world (many of whom were initially quite skeptical, including myself) that anthropogenic global warming is a reality with which we need to deal.

#### Vast scientific consensus warming exists, and is human induced

Monbiot 7 – Professor @ Oxford

George, Professor @ Oxford Brookes University, Heat: How to Stop the Planet from Burning, pg. 5

But the link has also been established directly. A study of ocean warming over the past forty years, for example, published in the journal Science in 2005, records a precise match between the distribution of heat and the intensity of manmade carbon dioxide emissions. Its lead author described his findings thus: The evidence is so strong that it should put an end to any debate about whether humanity is causing global warming." This sounds like a strong statement, but he is not alone. In 2004, another article in Science reported the results of a survey of scientific papers containing the words 'global climate change." The author found 928 of them on the database she searched, 'None of the papers, she discovered, disagreed with the consensus position…Politicians, economists, journalists and others may have the impression of confusion, disagreement, or discord among climate scientists, but that impression is incorrect. In 2001 the Royal Society, the United Kingdom's pre-eminent scientific institution, published the following statement: Despite increasing consensus on the science underpinning predictions of global climate change, doubts have been expressed recently about the need to mitigate the risks posed by global climate change. We do not consider such doubts justified. It was also signed by the equivalent organisations in fifteen other countries."' Similar statements have been published by the US National Academy of Sciences, the American Meteorological Society, the American Geophysical Union" and the American Association for the Advancement of Science."

#### AND, historic data proves that co2 causes warming

The International Institute for Strategic Studies (**IISS**), staff, STRATEGIC SURVEY v. 107 n. 1, September 20**07**, pp. 33-84

The link between CO2 concentration and temperature over the past 650,000 years is well established both theoretically and empirically. It is reasonable to assume that the unprecedented levels of and continued rise in CO2 and other greenhouse-gas concentrations generated by human activity will cause a similarly unprecedented warming. However, because this is uncharted territory, models or simulations of future climate have been developed. These can be run under various assumptions for the rate and level of greenhouse gas emissions. Most projections, including those in the IPCC reports and the Stern Report, use a set of standard scenarios published in the IPCC's Special Report on Emissions Scenarios (SRES). These scenarios incorporate different assumptions about future population trends and development of the global economy.

#### Now is the key time-slowing warming is key to avoid positive feedbacks

James E. **Hanson**, Head, NASA Goddard Institute, Testimony before House Select Committee on Energy Independnece and Global Warming, 6—23—**08**, www.columbia.edu/~jeh1/2008/TwentyYearsLater\_20080623.pdf

Fast feedbacks—changes that occur quickly in response to temperature change—amplify the initial temperature change, begetting additional warming. As the planet warms, fast feedbacks include more water vapor, which traps additional heat, and less snow and sea ice, which exposes dark surfaces that absorb more sunlight. Slower feedbacks also exist. Due to warming, forests and shrubs are moving poleward into tundra regions. Expanding vegetation, darker than tundra, absorbs sunlight and warms the environment. Another slow feedback is increasing wetness (i.e., darkness) of the Greenland and West Antarctica ice sheets in the warm season. Finally, as tundra melts, methane, a powerful greenhouse gas, is bubbling out. Paleoclimatic records confirm that the long-lived greenhouse gases— methane, carbon dioxide, and nitrous oxide—all increase with the warming of oceans and land. These positive feedbacks amplify climate change over decades, centuries, and longer. The predominance of positive feedbacks explains why Earth’s climate has historically undergone large swings: feedbacks work in both directions, amplifying cooling, as well as warming, forcings. In the past, feedbacks have caused Earth to be whipsawed between colder and warmer climates, even in response to weak forcings, such as slight changes in the tilt of Earth’s axis.2 The second fundamental property of Earth’s climate system, partnering with feedbacks, is the great inertia of oceans and ice sheets. Given the oceans’ capacity to absorb heat, when a climate forcing (such as increased greenhouse gases) impacts global temperature, even after two or three decades, only about half of the eventual surface warming has occurred. Ice sheets also change slowly, although accumulating evidence shows that they can disintegrate within centuries or perhaps even decades. The upshot of the combination of inertia and feedbacks is that additional climate change is already “in the pipeline”: even if we stop increasing greenhouse gases today, more warming will occur. This is sobering when one considers the present status of Earth’s climate. Human civilization developed during the Holocene (the past 12,000 years). It has been warm enough to keep ice sheets off North America and Europe, but cool enough for ice sheets to remain on Greenland and Antarctica. With rapid warming of 0.6°C in the past 30 years, global temperature is at its warmest level in the Holocene.3 The warming that has already occurred, the positive feedbacks that have been set in motion, and the additional warming in the pipeline together have brought us to the precipice of a planetary tipping point. We are at the tipping point because the climate state includes large, ready positive feedbacks provided by the Arctic sea ice, the West Antarctic ice sheet, and much of Greenland’s ice. Little additional forcing is needed to trigger these feedbacks and magnify global warming. If we go over the edge, we will transition to an environment far outside the range that has been experienced by humanity, and there will be no return within any foreseeable future generation. Casualties would include more than the loss of indigenous ways of life in the Arctic and swamping of coastal cities. An intensified hydrologic cycle will produce both greater floods and greater droughts. In the US, the semiarid states from central Texas through Oklahoma and both Dakotas would become more drought-prone and ill suited for agriculture, people, and current wildlife. Africa would see a great expansion of dry areas, particularly southern Africa. Large populations in Asia and South America would lose their primary dry season freshwater source as glaciers disappear. A major casualty in all this will be wildlife.

#### These positive feedback loops ensure that climate change will be abrupt and rapid—like flipping a switch—and makes ice and wars inevitable

John **Carey**, journalist, “Global Warming,” BUSINESS WEEK, 8—30—**04**, p. 48.

More worrisome, scientists have learned from the past that seemingly small perturbations can cause the climate to swing rapidly and dramatically. Data from ice cores taken from Greenland and elsewhere reveal that parts of the planet cooled by 10 degrees Celsius in just a few decades about 12,700 years ago. Five thousand years ago, the Sahara region of Africa was transformed from a verdant lake-studded landscape like Minnesota's to barren desert in just a few hundred years. The initial push -- a change in the earth's orbit -- was small and very gradual, says geochemist Peter B. deMenocal of Columbia University's Lamont-Doherty Earth Observatory. ``But the climate response was very abrupt -- like flipping a switch.'' The earth's history is full of such abrupt climate changes. Now many scientists fear that the current buildup of greenhouse gases could also flip a global switch. ``To take a chance and say these abrupt changes won't occur in the future is sheer madness,'' says Wallace S. Broecker, earth scientist at Lamont-Doherty. ``That's why it is absolutely foolhardy to let CO2 go up to 600 or 800 ppm.'' Indeed, Broecker has helped pinpoint one switch involving ocean currents that circulate heat and cold (table, page 68). If this so-called conveyor shuts down, the Gulf Stream stops bringing heat to Europe and the U.S. Northeast. This is not speculation. It has happened in the past, most recently 8,200 years ago. Can it happen again? Maybe. A recent Pentagon report tells of a ``plausible...though not the most likely'' scenario, in which the conveyor shuts off. ``Such abrupt climate change...could potentially destabilize the geopolitical environment, leading to skirmishes, battles, and even war,'' it warns.

#### Moreover fast warming undermines adaptation

James M. **Lindsay**, Senior Fellow, Brookings Institution, BROOKINGS REVIEW, Fall 20**01**, pp. 26-29.

Considerable uncertainty also surrounds future warming trends. The IPCC now projects that global temperatures could rise as little as 2.5 degrees or as much as 10.5 degrees by 2100, or double the range it predicted five years ago. Skeptics insist that the IPCC's computer-generated projections exaggerate possible temperature change because the underlying mathematical models do not capture the complex interaction of natural feedback loops, such as increased cloud formation, that could dampen temperature increases. How much and how fast temperatures rise matters. Small, slow temperature increases make it easier for humans to adapt. (Whether plants and animals could is another matter.) Large, rapid temperature changes, however, could swamp adaptation. Even these statements are guesses. No one knows how higher temperatures will affect the earth's climate. Small changes might disrupt weather patterns and devastate agricultural production. Conversely, higher temperatures might turn frozen wastelands into productive farmland.

#### Independently, CO2 concentrations directly tradeoff with oxygen—risks extinction

John **Brandenberg** and Monica Paxson, PhDs, DEAD MARS DYING EARTH, 19**99**, p. 226-227.

The Amazon provides one quarter of the Earth’s oxygen. Rainforest is highly efficient in trapping light and thus promoting photosynthesis. Photons that penetrate the top canopy of the forest have usually two more canopies to go before they can be absorbed by the ground or reflected. Anywhere they go they run into something green. Grass lands, by contrast, allow most light to reflect or be absorbed by the ground; thus they are less efficient per acre in producing oxygen or trapping carbon dioxide. The fact that carbon dioxide and oxygen are exchanged one for one in photosynthesis and combustion- respiration was part of what led to the discovery that oxygen levels are dropping. Oxygen Inventory Depletion (OlD), the reduction in the Earth’s planetary inventory or reservoir of oxygen, is probably the most alarming and potentially dangerous of all the global environmental problems we face. The drop of approximately 50—70 parts per million, presently estimated since 1958, when it was last measured, is minuscule compared to the 210,000 parts per million that exist in the atmosphere. But oxygen is so vital to life that any drop must be taken seriously. OlD must be stopped while it is still minuscule. The key to stopping OlD is to phase out fossil fuels as rapidly as possible, to reforest great stretches of Earth, and protect the oceans. These seem like easy things to do but in fact they involve enormous economic challenges and are bitter medicine in an era that worships free-market economics. Oxygen is one of the most reactive gases in nature and exists in the biosphere only through photosynthesis. Unlike carbon dioxide, it has no geochemical source, only sinks. It is an extraordinarily sensitive indicator of the health—or lack thereof—of the biosphere. Our oxygen supply is the most vital of the vital signs of life on Earth, and it is beginning to fail. The oxygen inventory is under pressure from two sources: first, the burning of fossil fuels is consuming it, and second, the land-based and oceanic plant life that produces oxygen is being destroyed. Any action that reduces the viability of the algae—plankton complex in the ocean reduces oxygen production, as does any desertification or deforestation.

#### AND, prefer our evidence it is comparable--Climate change is more likely to cause extinction than nuclear war

**NEW YORK END** TIMES ‘06, http://newyorkendtimes.com/extinctionscale.asp

We rate Global Climate Change as a greater threat for human extinction in this century. Most scientists forecast disruptions and dislocations, if current trends persist. The extinction danger is more likely if we alter an environmental process that causes harmful effects and leads to conditions that make the planet uninhabitable to humans. Considering that there is so much that is unknown about global systems, we consider climate change to be the greatest danger to human extinction. However, there is no evidence of imminent danger.

Nuclear war at some point in this century might happen. It is unlikely to cause human extinction though. While several countries have nuclear weapons, there are few with the firepower to annihilate the world. For those nations it would be suicidal to exercise that option. The pattern is that the more destructive technology a nation has, the more it tends towards rational behavior. Sophisticated precision weapons then become better tactical options. The bigger danger comes from nuclear weapons in the hands of terrorists with the help of a rogue state, such as North Korea. The size of such an explosion would not be sufficient to threaten humanity as a whole. Instead it could trigger a major war or even world war. Under this scenario human extinction would only be possible if other threats were present, such as disease and climate change. We monitor war separately. However we also need to incorporate the dangers here .

#### Prices will not fuel the transition.

Ian Bremmer. "Prices Transform Oil Into A Weapon." International Herald Tribune. 27 Aug. 2005. http://www.iht.com/articles/2005/08/26/news/edbremmer.php

Second, petro-states are rethinking their assumptions about the elasticity of global demand for oil. When oil sold for $30 a barrel, they accepted the conventional view that substantial price hikes might lower demand - and hurt their bottom lines - as importing states actively looked for new sources of oil, energy alternatives and other ways to cut fossile-fuel consumption. Now that oil sells for well above $60 a barrel, without (so far) a sharp drop in demand, energy-exporting states are changing their minds. Some now believe they can push the price still further and increase profits without a drop in demand.

### Advantage 2: Economic Competitiveness

#### U.S. competitiveness decreasing in the SQ—multiple factors

Babu et all February 2011 Suresh & 10 others, including reps from NASA, GE, and EWI “strengthening manufacturing competitiveness” Online

Alarming Trends There is an unfortunate gathering of alarming trends in manufacturing that must be recognized and reversed, including:  Decreasing R&D Funding: U.S. growth in R&D has averaged only about 1% per year in real terms since 2000.(13) This is of great concern considering that R&D investment drives innovation, and innovation is thought by many to be the critical strategic imperative to a healthy economy.  Decreasing Manufacturing Output: Manufacturing output as a percentage of U.S. GDP has decreased. From 1996 to 2007, manufacturing’s share of GDP has fallen from 15.5 to 11.7%.(12) Furthermore, manufacturing output since the last recession lags that of earlier economic recoveries ― it has only grown 15%, which is half the pace averaged in recoveries of the past half century.  Declining Employment: The ultimate metric of manufacturing strength, that of jobs, is the most alarming of the trends. The manufacturing employment base has declined by 4 million jobs in the past 10 years, as shown in Figure 1, and is suffering severe losses in the current economy.(12) While improved productivity accounts for some job reductions, the major impact is from factory shutdowns and the exporting of manufacturing overseas. As previously noted, manufacturing jobs generally earn higher wages than other sectors. However, job erosion in the manufacturing sector is difficult to recover and permanently scars the standard of living.

#### The U.S. manufacturing sector is at the tipping point – now’s key to revive the linchpin of the economy

Arvind Kaushal, Thomas Mayor, and Patricia Riedl Autumn 2011 “Manufacturing’s

Wake-Up Call” All authors are senior executives at booz&co, a leading global consulting firm.

A debate over the future of U.S. manufacturing is intensifying. Optimists point to the relatively cheap dol- lar and the shrinking wage gap between China and the U.S. as reasons the manufacturing sector could come back to life, boosting U.S. competitiveness and reviving the fortunes of the American middle class. Whenever production statistics in the U.S. surge, it seems to bol- ster that hope; as New York Times columnist and Nobel laureate Paul Krugman put it in May 2011, “Manufac- turing is one of the bright spots of a generally disap- pointing recovery.” But then when disappointing economic growth in- dicators are released, the pessimists weigh in. They ar- gue that the U.S. has permanently lost its manufactur- ing competitiveness in many sectors to China and other countries, that the sector is still declining after years of offshoring and neglect, and that it might never return to its role as the linchpin of the U.S. economy. Both the optimists and the pessimists are partially correct. U.S. manufacturing is at a moment of truth. Currently, U.S. factories competitively produce about 75 percent of the products that the nation consumes. A series of identifiable smart actions and choices by busi- ness leaders, educators, and policymakers could lead to a robust, manufacturing-driven economic future and push that figure up to 95 percent. Alternatively, if the U.S. manufacturing sector remains neglected, its output could fall by half, meeting less than 40 percent of the nation’s demand, and U.S. manufacturing capa- bilities could then erode past the point of no return.

#### Employment rates are stagnant now – key to the economy

AP 6/15/2012 “Unemployment rates rose or were unchanged in two-thirds of US states in May” http://www.washingtonpost.com/politics/unemployment-rates-rose-or-were-unchanged-in-two-thirds-of-us-states-in-may/2012/06/15/gJQADtELfV\_story.html

Unemployment rates rose in 18 U.S. states in May, the most in nine months. Increasing unemployment in more than a third of U.S. states is the latest evidence of a weaker job market. The Labor Department said that unemployment rates fell in only 14 states. That’s fewer than the previous month, when rates fell in 37 states. Rates were unchanged in 18 states. 0 Comments Weigh InCorrections? Personal Post Nationally, the rate rose to 8.2 percent in May from 8.1 percent in April, the first increase in almost a year. Employers added only 69,000 jobs, the fewest in 12 months. Still, 27 states added jobs in May. California gained the most, adding 33,900. Ohio was next with 19,600. North Carolina reported the biggest loss, shedding 16,500 jobs. It was followed by Pennsylvania, which lost nearly 10,000. Nevada had the nation’s highest unemployment rate, at 11.6 percent, followed by Rhode Island’s 11 percent and California’s 10.8 percent. North Dakota, meanwhile, reported the nation’s lowest rate of 3 percent. Nebraska had the next lowest, at 3.9 percent. Despite the slowdown in hiring in recent months, some of the hardest-hit states have seen substantial improvement in the past year. Michigan and Nevada have both seen their unemployment rates fall 2.1 percentage points in the past 12 months. Both states still have higher unemployment rates than the national average. But Michigan’s rate was 8.5 percent last month, down from 10.6 percent in May 2011. Florida and Mississippi have seen their rates fall 2 percentage points in the past 12 months. Florida’s rate was 8.6 percent, down from 10.6 percent in the same month last year. Mississippi’s is 8.7 percent, down from 10.7 percent in May 2011. Some of those declines reflect more hiring. The nation has gained more than 1 million jobs in the past six months. But the lower rates also are a result of more people becoming discouraged and dropping out of the work force. The government only counts people as unemployed if they are actively looking for work.

#### Bolstering manufacturing is key to the economy and global competitiveness

Clyde Prestowitz founder and president of the Economic Strategy Institute. Prior to founding ESI, he served as counselor to the Secretary of Commerce in the Reagan Administration. YaleGlobal, 13 April 2012 “US Battle to Revive Manufacturing – Part II” http://yaleglobal.yale.edu/content/us-battle-revive-manufacturing-part-ii

In his State of the Union address, President Barack Obama called for revitalization of manufacturing as the basis of an American economy “built to last.” He proposed a number of measures such as special tax credits for investment that creates high valued-added manufacturing jobs in America and greater government support of R&D in manufacturing. Even more telling was another speech given on March 27 at the Washington Manufacturing Conference by National Economic Council Director Gene Sperling, the president’s top economic adviser since Larry Summers returned to Harvard. For those accustomed to Summers’ tight embrace of market fundamentalism and rejection of anything that might smack of government intervention in the market, the speech represented a surprising 180-degree shift. Long Summers’ trusty acolyte, Sperling turned his back on virtually everything the master had preached. Wasn’t it wrong to single out one sector of the economy for special attention? Not necessarily, because if that sector is manufacturing, it accounts for over two thirds of all private R&D spending and a higher than average proportion of productivity gains and innovation. So, if manufacturing contributes disproportionately to economic welfare, perhaps it deserves disproportionate attention. Obama’s instincts are similar to those of most Americans who wonder why so much of what they buy is made in China. But wouldn’t such attention distort markets and cause inefficiencies and misallocation of resources? Well, no, not necessarily, because economic studies have shown that there are positive spillovers, gains for the overall economy that cannot always be captured by one firm and won’t be developed without some public support. These arguments are not at all new. As a member of the Reagan administration, I had this same discussion 30 years ago with a member of the Council of Economic Advisers. The arguments are as valid now as they were then. But they were buried by successive waves of hate-government-intervention-of-any-kind Republican economists and love-rational-expectations-econometric-models-of any-kind Democratic economists. So the arguments are now being exhumed. The reasons are twofold. At one level, it’s simple. The president is asking some fundamental questions. At a White House meeting which I attended more than a year ago, he asked: “Why can’t we build high-speed trains in America? Why can’t we make batteries in America?” So Obama’s instincts are not so different from those of most ordinary Americans who wonder why everything they buy is made in China, Japan or Germany. His questions trigger a search for answers. At a more fundamental level, the president is asking these questions because he knows that America is not paying its way in the world and that its productive base is no longer generating sufficient wealth to maintain America’s far-flung geopolitical commitments while also delivering the American dream to future generations. The president knows that if he can’t revitalize the productive base, he and the country will both fail. And in the search for answers, his advisers have inevitably been driven to industrial policy.

#### Oil shocks independently collapse the economy and causes resource wars

Perl, 11/19/2011 (Anthony – professor of Urban Studies and Political Science at Simon Fraser University, How Green is High-Speed Rail, CNN, p. http://www.cnn.com/2011/11/18/world/how-green-is-hsr/index.html)

Any debate about the future of high-speed rail must consider where this mobility option fits into the 'big picture' of how transportation systems meet looming economic, energy and environmental challenges. In a world where 95% of motorized mobility is currently fueled by oil, high-speed rail offers a proven means of reducing dependence on this increasingly problematic energy source. This value of using proven electric propulsion technology should not be underestimated when both the time and money to deploy energy alternatives are in short supply. In our recent book Transport Revolutions, Richard Gilbert and I documented the economic, environmental and political dividends to be gained from replacing the internal combustion engines powering today's aircraft, cars, and motor vehicles with traction motors that can be powered by multiple energy sources delivered through the electric grid. Since electricity is an energy carrier, it can be generated from a mix of sources that incorporate the growing share of geothermal, hydro, solar, and wind energy that will be produced in the years ahead. And because electric motors are three to four times more efficient than internal combustion engines, an immediate improvement will precede introducing renewable energy into transportation. Grid-connected traction offers the only realistic option for significantly reducing oil use in transportation over the next 10 years. If such a shift does not begin during this decade, the risk of a global economic collapse and/or geo-political conflict over the world's remaining oil reserves would become dangerously elevated. Making a significant dent in transportation's oil addiction within 10 years is sooner than fuel cells, biofuels, battery-electric vehicles and other alternative energy technologies will be ready to deliver change. Biofuels that could power aircraft now cost hundreds of dollars per gallon to produce. Batteries that a big enough charge to power vehicles between cities are still too big and expensive to make electric cars and buses affordable. But grid-connected electric trains have been operating at scale and across continents for over a century. And when the Japanese introduced modern high-speed trains through their Shinkansen, in 1964, the utility of electric trains was greatly extended. Since the 1980s, countries across Asia and Europe have been building new high-speed rail infrastructure to deploy electric mobility between major cities up to 1,000 kilometers apart. For intercity trips between 200 and 1,000 kilometers, high-speed trains have proven their success in drawing passengers out of both cars and planes, as well as meeting new travel demand with a much lower carbon footprint than driving or flying could have done. If we are serious about reducing oil's considerable risks to global prosperity and sustainability, we will not miss the opportunity offered by high-speed rail to decrease transportation's oil consumption sooner, rather than later.

#### Global economic crisis causes war---strong statistical support—also causes great power transitions

Royal 10 – Jedediah Royal, Director of Cooperative Threat Reduction at the U.S. Department of Defense, 2010, “Economic Integration, Economic Signaling and the Problem of Economic Crises,” in Economics of War and Peace: Economic, Legal and Political Perspectives, ed. Goldsmith and Brauer, p. 213-214

Less intuitive is how periods of economic decline may increase the likelihood of external conflict. Political science literature has contributed a moderate degree of attention to the impact of economic decline and the security and defence behaviour of interdependent states. Research in this vein has been considered at systemic, dyadic and national levels. Several notable contributions follow. First, on the systemic level, Pollins (2008) advances Modelski and Thompson’s (1996) work on leadership cycle theory, finding that rhythms in the global economy are associated with the rise and fall of pre-eminent power and the often bloody transition from one pre-eminent leader to the next. As such, exogenous shocks such as economic crises could usher in a redistribution of relative power (see also Gilpin, 10981) that leads to uncertainty about power balances, increasing the risk of miscalculation (Fearon, 1995). Alternatively, even a relatively certain redistribution of power could lead to a permissive environment for conflict as a rising power may seek to challenge a declining power (Werner, 1999). Seperately, Polllins (1996) also shows that global economic cycles combined with parallel leadership cycles impact the likelihood of conflict among major, medium, and small powers, although he suggests that the causes and connections between global economic conditions and security conditions remain unknown. Second, on a dyadic level, Copeland’s (1996,2000) theory of trade expectations suggests that ‘future expectation of trade’ is a significant variable in understanding economic conditions and security behavior of states. He argues that interdependent states are likely to gain pacific benefits from trade so long as they have an optimistic view of future trade relations. However, if the expectation of future trade decline, particularly for difficult to replace items such as energy resources, the likelihood for conflict increases , as states will be inclined to use force to gain access to those resources. Crises could potentially be the trigger for decreased trade expectations either on its own or because it triggers protectionist moves by interdependent states. Third, others have considered the link between economic decline and external armed conflict at a national level. Blomberg and Hess (2002) find a strong correlation between internal conflict and external conflict, particularly during periods of economic downturn. They write, The linkages between internal and external conflict and prosperity are strong and mutually reinforcing. Economic conflict tends to spawn internal conflict, which in turn returns the favour. Moreover, the presence of a recession tends to amplify the extent to which international and external conflicts self-reinforce each other. (Blomberg & Hess, 2002, p.89). Economic decline has also been linked with an increase in the likelihood of terrorism (Blomberg, Hess, & Weerapana, 2004), which has the capacity to spill across borders and lead to external tensions. Furthermore, crises generally reduce the popularity of a sitting government. ‘Diversionary theory’ suggests that, when facing unpopularity arising from economic decline, sitting governments have increased incentives to create a ‘rally round the flag’ effect. Wang (1996), DeRouen (1995), and Blomberg, Hess and Thacker (2006) find supporting evidence showing that economic decline and use of force are at least indirectly correlated. Gelpi (1997) Miller (1999) and Kisanganie and Pickering (2009) suggest that the tendency towards diversionary tactics are greater for democratic states than autocratic states, due to the fact that democratic leaders are generally more susceptible to being removed from office due to lack of domestic support. DeRouen (2000) has provided evidence showing that periods of weak economic performance in the United States, and thus weak presidential popularity, are statistically linked to an increase in the use of force..

#### US dominance is key to solve multiple hotspots that escalate to global war

Robert Kagan (Senior Associate at the Carnegie Endowment for International Peace and Senior Transatlantic Fellow at the German Marshall Fund) 2007 “End of Dreams, Return of History,” Hoover Institution, No. 144, August/September, http://www.hoover.org/publications/policy-review/article/6136

 The jostling for status and influence among these ambitious nations and would-be nations is a second defining feature of the new post-Cold War international system. Nationalism in all its forms is back, if it ever went away, and so is international competition for power, influence, honor, and status. American predominance prevents these rivalries from intensifying — its regional as well as its global predominance. Were the United States to diminish its influence in the regions where it is currently the strongest power, the other nations would settle disputes as great and lesser powers have done in the past: sometimes through diplomacy and accommodation but often through confrontation and wars of varying scope, intensity, and destructiveness. One novel aspect of such a multipolar world is that most of these powers would possess nuclear weapons. That could make wars between them less likely, or it could simply make them more catastrophic.It is easy but also dangerous to underestimate the role the United States plays in providing a measure of stability in the world even as it also disrupts stability. For instance, the United States is the dominant naval power everywhere, such that other nations cannot compete with it even in their home waters. They either happily or grudgingly allow the United States Navy to be the guarantor of international waterways and trade routes, of international access to markets and raw materials such as oil. Even when the United States engages in a war, it is able to play its role as guardian of the waterways. In a more genuinely multipolar world, however, it would not. Nations would compete for naval dominance at least in their own regions and possibly beyond. Conflict between nations would involve struggles on the oceans as well as on land. Armed embargos, of the kind used in World War i and other major conflicts, would disrupt trade flows in a way that is now impossible. Such order as exists in the world rests not merely on the goodwill of peoples but on a foundation provided by American power. Even the European Union, that great geopolitical miracle, owes its founding to American power, for without it the European nations after World War ii would never have felt secure enough to reintegrate Germany. Most Europeans recoil at the thought, but even today Europe ’s stability depends on the guarantee, however distant and one hopes unnecessary, that the United States could step in to check any dangerous development on the continent. In a genuinely multipolar world, that would not be possible without renewing the danger of world war. People who believe greater equality among nations would be preferable to the present American predominance often succumb to a basic logical fallacy. They believe the order the world enjoys today exists independently of American power. They imagine that in a world where American power was diminished, the aspects of international order that they like would remain in place. But that ’s not the way it works. International order does not rest on ideas and institutions. It is shaped by configurations of power. The international order we know today reflects the distribution of power in the world since World War ii, and especially since the end of the Cold War. A different configuration of power, a multipolar world in which the poles were Russia, China, the United States, India, and Europe, would produce its own kind of order, with different rules and norms reflecting the interests of the powerful states that would have a hand in shaping it. Would that international order be an improvement? Perhaps for Beijing and Moscow it would. But it is doubtful that it would suit the tastes of enlightenment liberals in the United States and Europe. The current order, of course, is not only far from perfect but also offers no guarantee against major conflict among the world ’s great powers. Even under the umbrella of unipolarity, regional conflicts involving the large powers may erupt. War could erupt between China and Taiwan and draw in both the United States and Japan. War could erupt between Russia and Georgia, forcing the United States and its European allies to decide whether to intervene or suffer the consequences of a Russian victory. Conflict between India and Pakistan remains possible, as does conflict between Iran and Israel or other Middle Eastern states. These, too, could draw in other great powers, including the United States. Such conflicts may be unavoidable no matter what policies the United States pursues. But they are more likely to erupt if the United States weakens or withdraws from its positions of regional dominance. This is especially true in East Asia, where most nations agree that a reliable American power has a stabilizing and pacific effect on the region. That is certainly the view of most of China ’s neighbors. But even China, which seeks gradually to supplant the United States as the dominant power in the region, faces the dilemma that an American withdrawal could unleash an ambitious, independent, nationalist Japan. In Europe, too, the departure of the United States from the scene — even if it remained the world’s most powerful nation — could be destabilizing. It could tempt Russia to an even more overbearing and potentially forceful approach to unruly nations on its periphery. Although some realist theorists seem to imagine that the disappearance of the Soviet Union put an end to the possibility of confrontation between Russia and the West, and therefore to the need for a permanent American role in Europe, history suggests that conflicts in Europe involving Russia are possible even without Soviet communism. If the United States withdrew from Europe — if it adopted what some call a strategy of “offshore balancing” — this could in time increase the likelihood of conflict involving Russia and its near neighbors, which could in turn draw the United States back in under unfavorable circumstances. It is also optimistic to imagine that a retrenchment of the American position in the Middle East and the assumption of a more passive, “offshore” role would lead to greater stability there. The vital interest the United States has in access to oil and the role it plays in keeping access open to other nations in Europe and Asia make it unlikely that American leaders could or would stand back and hope for the best while the powers in the region battle it out. Nor would a more “even-handed” policy toward Israel, which some see as the magic key to unlocking peace, stability, and comity in the Middle East, obviate the need to come to Israel ’s aid if its security became threatened. That commitment, paired with the American commitment to protect strategic oil supplies for most of the world, practically ensures a heavy American military presence in the region, both on the seas and on the ground. The subtraction of American power from any region would not end conflict but would simply change the equation. In the Middle East, competition for influence among powers both inside and outside the region has raged for at least two centuries. The rise of Islamic fundamentalism doesn ’t change this. It only adds a new and more threatening dimension to the competition, which neither a sudden end to the conflict between Israel and the Palestinians nor an immediate American withdrawal from Iraq would change. The alternative to American predominance in the region is not balance and peace. It is further competition. The region and the states within it remain relatively weak. A diminution of American influence would not be followed by a diminution of other external influences. One could expect deeper involvement by both China and Russia, if only to secure their interests. 18 And one could also expect the more powerful states of the region, particularly Iran, to expand and fill the vacuum. It is doubtful that any American administration would voluntarily take actions that could shift the balance of power in the Middle East further toward Russia, China, or Iran. The world hasn ’t changed that much. An American withdrawal from Iraq will not return things to “normal” or to a new kind of stability in the region. It will produce a new instability, one likely to draw the United States back in again.

### Contention 2 Solvency

#### High speed rail is key to economic growth – urban markets, employment, wages, productivity, and local economies

PETRA TODOROVICH, DANIEL SCHNED, AND ROBERT LANE “High-Speed Rail

International Lessons for U.S. Policy Makers” 2011 Lincoln Institute of Land Policy Policy Focus Report, https://www.lincolninst.edu/pubs/dl/1948\_1268\_High-Speed%20Rail%20PFR\_Webster.pdf

High-speed rail’s ability to promote economic growth is grounded in its capacity to increase access to markets and exert positive effects on the spatial distribution of economic activity (Redding and Sturm 2008). Transportation networks increase market access, and economic development is more likely to occur in places with more and bet- ter transportation infrastructure. In theory, by improving access to urban markets, high- speed rail increases employment, wages, and productivity; encourages agglomeration; and boosts regional and local economies. Empirical evidence of high-speed rail’s impact around the world tends to support the following theoretical arguments for high-speed rail’s economic beneﬁts. Higher wages and productivity: The time savings and increased mobility offered by high-speed rail enables workers in the service sector and in information- exchange industries to move about the megaregion more freely and reduces the costs of face-to-face communication. This enhanced connectivity boosts worker pro- ductivity and business competitiveness, leading to higher wages (Greengauge 21 2010). Deeper labor and employment markets: By connecting more communities to other population and job centers, high- speed rail expands the overall commuter shed of the megaregion. The deepened labor markets give employers access to larger pools of skilled workers, employees access to more employment options, and workers access to more and cheaper hous- ing options outside of expensive city centers (Stolarick, Swain, and Adleraim 2010). Expanded tourism and visitor spending: Just as airports bring visitors and their spending power into the local economy, high-speed rail stations attract new tourists and business travelers who might not have made the trip otherwise. A study by the U.S. Conference of Mayors (2010) concluded that building high-speed rail would increase visitor spending annually by roughly $225 million in the Orlando region, $360 million in metropolitan Los Angeles, $50 million in the Chicago area, and $100 million in Greater Albany, New York. Direct job creation: High-speed rail creates thousands of construction-related jobs in design, engineering, planning, and construction, as well as jobs in ongoing maintenance and operations. In Spain, the expansion of the high-speed AVE system from Malaga to Seville is predicted to create 30,000 construction jobs (Euro Weekly 2010). In China, over 100,000 construction work- ers were involved in building the high-speed rail line that connects Beijing and Shanghai (Bradsher 2010). Sustained investment could foster the development of new manu- facturing industries for rail cars and other equipment, and generate large amounts of related employment. Urban regeneration and station area development: High-speed rail can generate growth in real estate markets and anchor investment in commercial and resi- dential developments around train stations, especially when they are built in coordination with a broader set of public interventions and urban design strategies (see chapter 3). These interventions ensure that high-speed rail is integrated into the urban and regional fabric, which in turn ensures the highest level of ridership and economic activity. For example, the city of Lille, France, experi- enced greater than average growth and sub- stantial ofﬁce and hotel development after its high-speed rail station was built at the crossroads of lines linking London, Paris, and Brussels (Nuworsoo and Deakin 2009). Spatial agglomeration: High-speed rail enhances agglomeration economies by creating greater proximity between business locations through shrinking time distances, especially when the locations are within the rail-friendly 100 to 600 mile range. Agglom- eration economies occur when ﬁrms beneﬁt from locating close to other complementary ﬁrms and make use of the accessibility to varied activities and pools of skilled labor. High-speed rail has also been described as altering the economic geography of megaregions. By effectively bringing eco- nomic agents closer together, high-speed rail can create new linkages among ﬁrms, sup- pliers, employees, and consumers that, over time, foster spatial concentration within re- gions (Ahlfeldt and Feddersen 2010). This interactive process creates net economic gains in addition to the other economic beneﬁts described here.

#### Investing in high speed rail key to bolster manufacturing – jobs and R&D

Susan J. Demas June 5 2009 Syndicated columnist, political analyst “Commerce Secretary Locke: Rail Can Revive Auto Industry” http://www.mirsnews.com/capsule.php?gid=3092#20542

During last year's Michigan presidential primary, John McCain made the mistake of saying that the hundreds of thousands of lost auto jobs weren't coming back. Mitt Romney then blathered something about the triumph of the American spirit and promptly pulled off a 9-point win. A little more than a year later, with Chrysler and GM in bankruptcy, no one could credibly claim that jobs will be flooding back to the industry. So what now for the Rust Belt? On Wednesday, U.S. Commerce Gary Locke was at a town hall in Holt, Michigan. That day, Transportation Secretary Ray LaHood and Vice President Joe Biden were busy meeting with Michigan Gov. Jennifer Granholm in Washington about a Detroit-Pontiac-Chicago high-speed rail line. So I asked Locke if rail was an area for the auto industry to expand into. He gave his enthusiastic endorsement. "Oh, yeah," he told me. "As you see more construction of rail cars, high-speed cars, it's going to require new engineering, new products and services and that's the natural fit and extension for automotive dealers and suppliers and manufacturers." Six hundred miles away in Washington, Granholm was on the same page. "We have lots of capacity in Michigan and workers who know how to make things," she said. It's a bit of an ironic partnership, sure, since GM killed Detroit's street cars in the 1950s and is a key reason why it is the only one in the top 20 cities lacking a decent transit system. But the days of Charles Erwin Wilson musing that "for years I thought what was good for the country was good for General Motors and vice versa" are long gone. Linking up with rail makes perfect sense for a contracting industry, at a time when environmental and economic factors make expanding public transit a necessity. Former U.S. Rep. Joe Schwarz (R-Battle Creek), who has been in the running for a White House job, is perhaps Michigan's foremost authority on railroads. He could be the logical person to help spearhead the autos' transition to rail. He notes the United States is behind the curve on high-speed rail, with countries like France, Italy, Germany, Spain and Japan establishing lines decades ago. But he said even with a White House push, it's still an uphill battle. "It will take a real will on the part of the states and the Congress to get it done. Members of Congress from non-high-speed rail states will fight it," Schwarz predicted. Light-rail would particularly benefit New York, Connecticut, Massachusetts, New Jersey, Pennsylvania, Delaware, Maryland, Washington, D.C., Ohio, Indiana, Michigan, Illinois, Wisconsin, Texas, California, Washington, Oregon and Missouri, he said. If the feds do subsidize the Detroit-Chicago line, Schwarz said, it will be a massive undertaking, but an opportunity to create a lot of jobs in construction and manufacturing. The project will require ballast, tie, track repair and replacement, regrading some curves to accommodate higher speed trains, modern signaling equipment, emergency stop capability for trains that miss signals, dedicated high-speed right of way, new passenger car with special wheels and brakes and new locomotives capable of 135 mph and above. New stations will be required in some cities, as well. "This is a multi-multi billion dollar two decade project that should have been done long ago," Schwarz said.

#### Investment in High speed rail preserves American competitiveness and insulates the economy from oil shocks

Kunz, 3/10/2011 (Andy – president and CEO of the U.S. High Speed Rail Association, U.S. High-Speed Rail: Time to Hop Aboard or Be Left Behind, Environment 360, p. http://e360.yale.edu/feature/us\_high-speed\_rail\_time\_to\_hop\_aboard\_or\_be\_left\_behind/2378/)

China has committed to investing $360 billion to vastly expand its showcase network of high-speed trains, which already carry passengers at more than 200 miles per hour between some of the country’s largest cities. Spain, despite its economic woes, is investing $170 billion to extend its acclaimed high-speed rail system, which now makes the 386-mile Madrid-Barcelona run in just 2 hours, 38 minutes — compared to six hours by car. A similar boom in high-speed rail construction is taking place throughout Europe, from the boot of Italy to the Baltic Sea. Worldwide, nations not normally associated with the bullet train revolution — India, Brazil, Argentina, and Morocco, among others — are making plans to build high-speed rail networks. They understand that rapid, inter-city rail systems will be essential to developing competitive 21st-century economies as oil supplies dwindle, highways and airports face increasing congestion, and pressure to reduce carbon emissions rises. And the United States? For the past several months the news on the high-speed rail front has been dominated by several governors, swept into power by the Tea Party movement, proudly proclaiming that they will have nothing to do with high-speed rail projects, which they contend are boondoggles. Indeed, the governors of Florida, Wisconsin, and Ohio have collectively rejected $3.6 billion in federal funds that would have covered nearly all of the cost of building rail lines on such routes as Orlando to Tampa, Milwaukee to Madison, and Cleveland to Columbus. Fortunately, the foresight of the Obama administration and various states will ensure that the foundation of a national high-speed rail network will be laid in the coming years, with $8 billion in federal stimulus funds going to construct the first links in a high-speed rail network that is envisioned to stretch 17,000 miles by 2030. Bullet trains would eventually whisk people between all major U.S. cities — Los Angeles to Seattle, Dallas to Albuquerque, and Boston to Washington, at 220 miles per hour. The cost of such a network would be significant — $600 billion — but a combination of public and private funds would build the system, which would eventually yield benefits that far exceed the original investment. For now, the U.S. funds rejected by governors Rick Scott of Florida, Scott Walker of Wisconsin, and John Kasich of Ohio, will be distributed to other states such as California and Illinois, which will benefit for years to come from the job creation and economic stimulus that will accompany the establishment of high-speed rail networks. In the future, the actions by these three governors will be viewed as folly, decisions that were made on ideological rather than rational grounds and that undermine the job creation that the three governors tout as central to their administrations. The decisions of the three Republican governors were not isolated acts, but rather a coordinated effort by the Tea Party and its allies to attempt to kill high-speed rail across America. Fortunately, 35 other governors — Republicans and Democrats alike — whose states were eligible for federal high-speed rail funding did accept U.S. grants for rail projects. Last month’s decision by Governor Scott of Florida to reject federal funding for high-speed rail reflects the combination of bad information and partisan thinking that motivated all three governors to turn their backs on the future. In making his decision, Scott says he relied heavily on a January report by the libertarian Reason Foundation, which is funded by major conservative organizations, oil companies, and companies involved in highway construction. The Reason Foundation report was riddled with inaccuracies, exaggerations, and distortions, such as a claim that the construction of the Orlando-Tampa line could cost Florida taxpayers $3 billion in capital cost overruns. That figure was arrived at by comparing the project in Florida to California, which faces far tougher right-of-way and land-use issues. The Tampa-Orlando line already has a long-established right of way on the Interstate 4 median, making it much cheaper to build. In addition, the eight international rail consortia seeking to construct the Florida line have guaranteed that they will cover operation, maintenance, and subsidy costs for 30 years. After rejecting the federal funds, Scott’s office issued a statement that he “is now focused on moving forward with infrastructure projects that create long-term jobs and turn Florida’s economy around.” Those new projects will require far more Florida tax dollars than would ever have been spent on the Tampa to Orlando line, prompting former Republican Governor Jeb Bush to express surprise at Scott’s decision. Fifteen Republican and 11 Democratic state senators in Florida also signed a letter to U.S.Transportation Secretary Ray LaHood asking him to ignore Scott and allow the legislature to work with the consortia to revive the Tampa to Orlando project. In addition, a group of Florida mayors is speaking with LaHood about bypassing the governor and allowing an organization formed by the mayors to receive the federal funds and oversee the building of the Tampa-Orlando line. This effort underscores the broad, bipartisan backing for the project, as evidenced by the fact that eight business associations from 11 counties in central Florida are staunch supporters of the proposed rail line. One key reason: The line would connect Tampa and Orlando with Walt Disney World, one of the world’s top tourist attractions. The reasons that so many disparate interests support the creation of a national high-speed rail network are glaringly obvious, and are becoming more so by the day. The United States has become far too dependent on foreign oil, with Americans consuming six times more oil per capita than Europeans, who enjoy better, faster, and cheaper mobility. The U.S now spends up to $700 billion a year to import foreign oil, 70 percent of which is consumed by cars, trucks, and airplanes. Now, for the second time in less than three years, the price of oil has shot up past $100 a barrel, threatening the fragile economic recovery. And most experts agree that the world has passed the point of peak oil, which means that as demand soars and supplies dwindle, oil prices could hit $300 per barrel this decade. Enhancing U.S. energy security is just one reason the country needs a state-of-the-art high-speed rail system, which by 2030 could transport millions of people each day between America’s cities. A national high-speed rail system would generate millions of jobs; help revive the country’s manufacturing sector by creating a new industry producing the trains, steel, and related components; alleviate pressure on a crumbling transportation infrastructure; and lessen the ever-worsening congestion on America’s highways and at its airports, where delays cause an estimated $156 billion in losses to the U.S. economy annually. And then there is climate change and the large-scale reduction of CO2 emissions that would result from the creation of an interstate high-speed rail system and the expansion of regional commuter rail systems. As a high-speed rail network spreads across the U.S. in the coming decades, the costs of operating the national transportation system will decline each year to the point where the savings will eventually exceed the estimated $600 billion cost of building the rail system. Although public funds will be used to cover much of the construction costs, the network will perform best if operated by private companies. The U.S. must build a national high-speed rail network if it hopes to maintain its competitiveness in the world economy. China and Europe are now moving ahead with their high-speed rail networks at breakneck speed, which means that in a decade or two they will have significantly reduced their dependence on imported oil, created tens of millions of new jobs, and saved their countries trillions of dollars by vastly improving the productivity of their economies thanks to a low-carbon transportation sector that moves people and goods at speeds that could one day hit 300 miles per hour, or more. The U.S. can be part of that future. But if more states follow the example of Florida, Wisconsin, and Ohio, the country will remain shackled by 19th- and 20th-century forms of transportation in a 21st-century world. Contemplate this image: China, Europe, Russia, South America, and other parts of the globe are streaking by at 250 miles per hour while the likes of Governor Scott are stuck in a traffic jam on an interstate, watching the trains whiz past.

#### Federal action key to certainty and implementation

**Todorovich, Schned and Lane 2011** (Petra Todorovich, director of America 2050, Daniel Schned, associate planner for America 2050, and Robert Lane, High-Speed Rail: International Lessons for U.S. Policy Makers, Policy Focus Report, Lincoln Institute of Land Policy, p. 46-47)

Even though PRIIA is authorized through 2013, stakeholders in the rail industry, including one of the drafters of PRIIA, have remarked on the need to adjust federal rail policy to respond to current circumstances, including greater political instability in the Middle East and its implications for America’s dependence on foreign oil; growing international and private sector interest in helping to ﬁnance high-speed rail in the United States; and the president’s own ambitious proposals for a national high-speed rail network to give 80 percent of Americans access to high-speed rail over the next 25 years (Gardner 2011). Such a vision requires a stronger and more active federal commitment that must start with secure funding. The most recent setback of zero funding for high-speed rail in the FY 2011 budget underscores the need for a sustainable revenue source as reliable as funding for highway and transit programs in the past. President Obama’s proposal to include a $53 billion, six-year high-speed rail program as part of the surface transportation bill would help to achieve this kind of equity among transportation modes. In conjunction with a funding strategy, the role of high-speed rail in America’s larger transportation network needs to be better deﬁned (U.S. GAO 2009). A sharper, more narrowly focused program directed at corridors that meet clearly articulated objectives for high-speed rail service would address criticisms that the program is diffuse, ineffective, and dependent on ongoing subsidies. Nationally available data could help to evaluate the most promising regions for attracting ridership and enhancing economic and other beneﬁts. A phasing plan and funding allocation strategy could help develop the full build-out of a national network by helping states secure rights-of-way for high-speed rail corridors. Another challenge is to clarify the differences between conventional and high-speed rail corridors. PRIIA provides federal grants for both conventional passenger rail and new high-speed corridors, although the media has tended to focus on the high-speed program. Neither PRIIA nor ARRA speciﬁed the share of federal funding to be used for high-speed Core Express corridors versus conventional passenger rail. In fact, the dearth of high-speed rail projects in the planning pipeline means that grants will be shared among various types of rail projects. A more active role by the federal government could help clarify the respective roles of high-speed Core Express corridors and conventional Regional and Emerging/Feeder routes, including funding them through separate programs and clearly deﬁning the objectives for each type of rail service. Funding for maintaining and upgrading existing rail corridors could be provided through formula funds based on passenger train movements, track miles, or ridership. President Obama’s FY 2012 budget proposal for the Department of Transportation moved in this direction by establishing different competitive grant programs, including network development for constructing new corridors and system preservation for maintaining safety and reliability on existing corridors (White House 2011).

#### High Speed Rail would have a short-term impact on the economy

**Professor Field, 11**

Alexander J. Field is a professor of economics at Santa Clara University and the author of “A Great Leap Forward: 1930s Depression and U.S. Economic Growth.”, <http://www.ajc.com/opinion/pro-con-could-high-950502.html>, May 18, 2011

Would high-speed rail represent well-chosen infrastructure? In other words, would it help the U.S. “win the future”? This is a more complex question. It requires us to consider not simply whether such projects would help close the output gap, but whether and how effectively they would expand the potential output of the economy. Here there are legitimate concerns about whether the U.S. has enough high density corridors — such as that between Boston and Washington — to yield large benefits. And building in dense areas can be costly. For example, the proposed Los Angeles to San Francisco route would go right through my backyard in Palo Alto, Calif., and the extent to which that part of the route will or will not be put underground has become a contentious political issue. That said, state and federal governments have a long and largely successful record of supporting infrastructure development, from the Erie Canal to regional and transcontinental railroads to the Interstate Highway System and, more recently, to the Internet. The build-out of the surface road network during the Great Depression generated large private-sector benefits, contributing to very fast productivity growth in transportation — railroads and trucking — as well as in wholesale and retail distribution. High-speed rail projects could certainly create jobs and stimulate the economy in the short run. Whether they would generate benefits similar to those of other government funded infrastructure projects is uncertain. History suggests, however, that there’s a good chance they would.

# Inherency Extensions

#### Obama is pushing for high-speed rail but Congress is getting in his way

**Laing 6/4** (Keith Laing, “DOT official: Obama support of high-speed rail 'remains as strong as ever',” The Hill, http://goo.gl/snMBV)

Federal Railroad Administration chief Joseph Szabo said Monday that President Obama is unwavering in his support for high-speed rail projects. Speaking a conference held by the American Public Transportation Conference in Dallas, Szabo said Obama's support for rail "remains as strong as ever. "His Fiscal Year 2013 budget requests $2.5 billion combined with $6 billion in immediate transportation investments – a total of $8.5 billion for the continued development of high-speed and intercity passenger rail projects," Szabo said. "America’s rail renaissance is well underway." Support for high-speed rail in Congress has ebbed to a definitive low since Republicans came to power in the House in 2010. Money from the 2009 economic stimulus package for railways that was offered by the Obama administration was rejected by three prominent Republican governors, and GOP members in the House moved successfully last year to eliminate future funding for high-speed rail.

# Climate Advantage Extensions

### Transportation Key

#### Replacing transportation causes immediate reductions- Renewables can fill-in to supply its electricity long-term

**Perl 2011** (Anthony Perl, Professor of Urban Studies and Political Science at Simon Fraser University in Vancouver, British Columbia, November 19, 2011, “How green is high-speed rail?,” http://goo.gl/PWoc5)

Any debate about the future of high-speed rail must consider where this mobility option fits into the 'big picture' of how transportation systems meet looming economic, energy and environmental challenges. In a world where 95% of motorized mobility is currently fueled by oil, high-speed rail offers a proven means of reducing dependence on this increasingly problematic energy source. This value of using proven electric propulsion technology should not be underestimated when both the time and money to deploy energy alternatives are in short supply. In our recent book Transport Revolutions, Richard Gilbert and I documented the economic, environmental and political dividends to be gained from replacing the internal combustion engines powering today's aircraft, cars, and motor vehicles with traction motors that can be powered by multiple energy sources delivered through the electric grid. Since electricity is an energy carrier, it can be generated from a mix of sources that incorporate the growing share of geothermal, hydro, solar, and wind energy that will be produced in the years ahead. And because electric motors are three to four times more efficient than internal combustion engines, an immediate improvement will precede introducing renewable energy into transportation. Grid-connected traction offers the only realistic option for significantly reducing oil use in transportation over the next 10 years. If such a shift does not begin during this decade, the risk of a global economic collapse and/or geo-political conflict over the world's remaining oil reserves would become dangerously elevated. Making a significant dent in transportation's oil addiction within 10 years is sooner than fuel cells, biofuels, battery-electric vehicles and other alternative energy technologies will be ready to deliver change. Biofuels that could power aircraft now cost hundreds of dollars per gallon to produce. Batteries that a big enough charge to power vehicles between cities are still too big and expensive to make electric cars and buses affordable. But grid-connected electric trains have been operating at scale and across continents for over a century. And when the Japanese introduced modern high-speed trains through their Shinkansen, in 1964, the utility of electric trains was greatly extended. Since the 1980s, countries across Asia and Europe have been building new high-speed rail infrastructure to deploy electric mobility between major cities up to 1,000 kilometers apart. For intercity trips between 200 and 1,000 kilometers, high-speed trains have proven their success in drawing passengers out of both cars and planes, as well as meeting new travel demand with a much lower carbon footprint than driving or flying could have done. If we are serious about reducing oil's considerable risks to global prosperity and sustainability, we will not miss the opportunity offered by high-speed rail to decrease transportation's oil consumption sooner, rather than later.

### Driving is a major source of urban sprawl, air pollution, and greenhouse gases

**Dr. Howard Frumkin, 2002** (Department of Environmental and Occupational Health, Rollins School of Public Health of Emory University, Public Health Reports, May-June,

One of the cardinal features of sprawl is driving, reflecting a well-established, close relationship between lower density development and more automobile travel.4,13–16 For example, in the Atlanta metropolitan area, one of the nation’s leading examples of urban sprawl, the average person travels 34.1 miles in a car each day—an average that includes the entire population, both drivers and non-drivers.17 More densely populated metropolitan areas have far lower per capita daily driving figures than Atlanta, e.g., 16.9 miles for Philadelphia, 19.9 for Chicago, and 21.2 for San Francisco. 17 On a neighborhood scale, the same pattern is observed. In the Los Angeles, San Francisco, and Chicago metropolitan areas, vehicle miles traveled increase as neighborhood density decreases (see Figure 1).18 Automobile use offers extraordinary personal mobility and independence. However, it is also associated with health hazards, including air pollution, motor vehicle crashes, and pedestrian injuries and fatalities. Air pollution Motor vehicles are a leading source of air pollution.20 Even though automobile and truck engines have become far cleaner in recent decades, the sheer quantity of vehicle miles driven results in large releases of carbon monoxide, carbon dioxide, particulate matter, nitrogen oxides, and hydrocarbons into the air.21 Nitrogen oxides and hydrocarbons, in the presence of sunlight, form ozone. Nationwide, “mobile sources” (mostly cars and trucks) account for approximately 30% of emissions of oxides of nitrogen and 30% of hydrocarbon emissions. 22 However, in automobile-dependent metropolitan areas, the proportion may be substantially higher. In the 10-county metropolitan Atlanta area, for example, on-road cars and trucks account for 58% of emissions of nitrogen oxides and 47% of hydrocarbon emissions, figures that underestimate the full impact of vehicle traffic because they exclude emissions from related sources, such as fuel storage facilities and filling stations.23 In various combinations, the pollutants that originate from cars and trucks, especially nitrogen oxides, hydrocarbons, ozone, and particulate matter, account for a substantial part of the air pollution burden of American cities. Of note, the highest air pollution levels in a metropolitan area may occur not at the point of formation but downwind, due to regional transport. Thus, air pollution is a problem not only alongside roadways (or in close proximity to other sources) but also on the scale of entire regions. The health hazards of air pollution are well known.24 Ozone is an airways irritant. Higher ozone levels are associated with higher incidence and severity of respiratory symptoms, worse lung function, more emergency room visits and hospitalizations, more medication use, and more absenteeism from school and work.24 Although healthy people may demonstrate these effects, people with asthma and other respiratory diseases are especially susceptible. Particulate matter is associated with many of the same respiratory effects and, in addition, with elevated mortality.25–27 People who are especially susceptible to the effects of air pollution include the elderly, the very young, and those with underlying cardiopulmonary disease. An additional driving-related emission is carbon dioxide, the end product of burning fossil fuels such as gasoline. Carbon dioxide is the major greenhouse gas, accounting for approximately 80% of emissions with global warming potential.28 Motor vehicles are also a major source of other greenhouse gases, including methane, nitrogen oxides, and volatile organic compounds. As a result, automobile traffic is a major contributor to global climate change, accounting for approximately 26% of U.S. greenhouse gas emissions.28 During the decade of the 1990s, greenhouse gases from mobile sources increased 18%, primarily a reflection of more vehicle miles traveled.28 In turn, global climate change threatens human health in a number of ways, including the direct effects of heat, enhanced formation of some air pollutants, and increased prevalence of some infectious diseases.29–32 Thus, the link between sprawl and respiratory health is as follows: Sprawl is associated with high levels of driving, driving contributes to air pollution, and air pollution causes morbidity and mortality.

### Warming Causes Extinction

#### Warming causes extinction

**Tickell 2008** (Oliver Tickell, Climate Researcher, The Gaurdian, August 11, 2008, “On a planet 4C hotter, all we can prepare for is extinction”, http://www.guardian.co.uk/commentisfree/2008/aug/11/climatechange)

We need to get prepared for four degrees of global warming, Bob Watson told the Guardian last week. At first sight this looks like wise counsel from the climate science adviser to Defra. But the idea that we could adapt to a 4C rise is absurd and dangerous. Global warming on this scale would be a catastrophe that would mean, in the immortal words that Chief Seattle probably never spoke, "the end of living and the beginning of survival" for humankind. Or perhaps the beginning of our extinction. The collapse of the polar ice caps would become inevitable, bringing long-term sea level rises of 70-80 metres. All the world's coastal plains would be lost, complete with ports, cities, transport and industrial infrastructure, and much of the world's most productive farmland. The world's geography would be transformed much as it was at the end of the last ice age, when sea levels rose by about 120 metres to create the Channel, the North Sea and Cardigan Bay out of dry land. Weather would become extreme and unpredictable, with more frequent and severe droughts, floods and hurricanes. The Earth's carrying capacity would be hugely reduced. Billions would undoubtedly die.

#### Human caused CO2 emissions cause extinction

**Brandenburg and Paxon 1999** (John E. Brandenburg (physicist rocket scientist, Mars expert, investigator on MET project, NASA technical advisor, former member of space transport subcommittee) Monica Rix Paxon (writer and scientific editor) Dead Mars, Dying Earth, 1999, p.46 - 47

Gradually, incrementally, we are changing Earth’s atmosphere. But are we slowly altering our atmosphere away from something that supports human life toward something deadly like the atmosphere of Mars? Such an atmosphere would have been very familiar to Joseph Black, who isolated the very first atmospheric gas. Unitarian minister Joseph Priestley would have recognized the atmosphere of Mars as well. So would coal miners from the early part of the 20th century and the canary that lay gasping at the bottom of the cage, for the atmosphere of Mars is made of fixed air. The atmosphere of Mars is made of blackdamp. The atmosphere of Mars is made of carbonic acid gas. The atmosphere of Mars is made of a substance that has over time had many names reflecting the toxic side of its nature. While today we call all of them “carbon dioxide” (which we think of as a benign product of our own bodies and the harmless bubbles in soda pop), this substance has clearly not always been viewed as a harmless gas. Nor should it be in the future, for it is time once again to inform our opinions about this substance and recognize its invisible, dark side. As long as a stylus attached to the monitoring equipment in some lonely station on the top of an inactive volcano in Hawaii continues to etch a line ratcheting upward—showing the increased amounts of carbon dioxide that, year after year, flood our atmosphere, threatening us—then we too must think of it very differently. It isn’t a matter of speculation. It is a matter of hard, cold scientific fact supported by numerous studies conducted by many respected scientists.’7~ In the overwhelming majority they agree: Earth’s atmosphere has far too much of what we now must think of as carbon die-oxide. It is warming our planet to the point where life, human life, is endangered. We are going to have to do something decisive and effective about this killer. No matter how successful or enlightened we think ourselves to be, we are not exempt from the need to act—in the same way that we are not exempt from the need to breathe.

#### Too fast to adapt

**Berger 2000** (John J. Berger, independent energy and environmental consultant with a Ph.D. in ecology from UC Davis, Beating the Heat, 2000, p. 13)

True, global temperatures have risen before and nature has adapted. In that sense, nature is indifferent to how ecosystems jockey for position across the Earth. But previous warmings of the magnitude now projected have taken place over millennia, not over decades or centuries. The natural world has had far more time to adapt to the new conditions. And neither superhighways nor urban sprawl halted those ancient migrations. Moreover, in prehistoric times, the world’s population was thousands of times smaller than the six billion people alive today. Human consumption of the world’s natural resources was minuscule. By contrast, the natural resources on which today’s huge population depend are already overexploited.

### Warming Causes War

#### Climate change makes war more likely

**Shachtman 2008**—(Noah. Contributor to the dangeroom.com.“Nation’s Spies: Climate Change Could Spark War.” June 23, 2008. <http://www.wired.com/dangerroom/2008/06/environmental-g/> Accessed: 8/16/09)

Environmental groups have been warning for years that tense parts of the world could get even worse with the advent of global climate change, and even spark whole new conflicts. Now, the nation’s spies are saying pretty much the same thing. The U.S. intelligence community has finished up its classified assessment of how our changing weather patterns could contribute to "political instability around the world, the collapse of governments and the creation of terrorist safe havens," Inside Defense reports. Congress was briefed on the report last week. And on Wednesday, leading spies — including National Intelligence Council chairman Dr. Thomas Fingar and Energy Department intelligence chief Rolf Mowatt-Larsen — will testify on the Hill about the 58-page document, "The National Security Implications of Global Climate Change Through 2030." In addition to examining how weather could add stress to governments with a weak grip on power … the authors mulled a spectrum of second- and third-order consequences for Washington policymakers to consider — including indirect security concerns like impacts on economies, energy, social unrest and migration. Foreign-policy concerns were also weighed, including how flooding, rising water levels or drought might create humanitarian crises. Also examined was how extreme weather events could challenge the response capabilities of governments around the world. "Climate change is a threat multiplier in the world’s most unstable regions," a source familiar with the document tells Danger Room. "It’s like a match to the tinder." Just think about the fights over water already under way in the Middle East and Africa, or the tensions exacerbated by the hurricanes and tsunamis in Asia.

#### More evidence—Will cause wars

**Shachtman 2008**—(Noah. Contributor to the dangeroom.com.“Nation’s Spies: Climate Change Could Spark War.” June 23, 2008. <http://www.wired.com/dangerroom/2008/06/environmental-g/> Accessed: 8/16/09)

But the nation’s military leadership, at least, is paying closer attention. "Climate change and other projected trends will compound already difficult conditions in many developing countries. These trends will increase the likelihood of humanitarian crises, the potential for epidemic diseases, and regionally destabilizing population migrations," the Army says in its 2008 posture statement. "We are [f]acing challenges from multiple sources: a new, more malignant form of terrorism inspired by jihadist extremism, ethnic strife, disease, poverty, climate change, failed and failing states, resurgent powers, and so on," Defense Secretary Robert Gates told an audience at American University in April.

#### Climate Change empirically causes wars

**Thompson 2007**—(Andrea. LiveScience Staff writer. “Climate Change Can Spark War.” November 21, 2007. <http://www.livescience.com/environment/071121-gw-war.html> Accessed: 8/16/09)

History may be bound to repeat itself as Earth’s climate continues to warm, with changing temperatures causing food shortages that lead to wars and population declines, according to a new study that builds on earlier work. The previous study, by David Zhang of the University of Hong Kong, found that swings in temperature were correlated with times of war in Eastern China between 1000 and 1911. Zhang's newer work, detailed in the Nov. 19 online edition of the journal Proceedings of the National Academy of Sciences, broadens its outlook to climate and war records worldwide and also found a correlation between the two. "This current study covers a much larger spatial area and the conclusions from the current research could be considered general principles," Zhang said.

### Warming Bad- Economy

#### Global warming negatively affects the economy in more ways than the case

**Mongo Bay News 2007**—(“Climate change will impact U.S. economy.” October 16, 2007. <http://news.mongabay.com/2007/1016-climate.html> Accessed: 8/16/09)

Climate change will have a significant economic impact on the United States, reports a new study published by researchers from the University of Maryland. The report, The U.S. Economic Impacts of Climate Change and the Costs of Inaction, aggregates and analyzes previous economic research in order to develop a better estimate of the costs of climate change. "The range of climatic changes anticipated in the United States — from rising sea levels to stronger and more frequent storms and extreme temperature events — will have real impacts on the natural environment as well as human-made infrastructure and their ability to contribute to economic activity and quality of life," write the authors. "These impacts will vary across regions and sectors of the economy, leaving future governments, the private sector and citizens to face the full spectrum of direct and indirect costs accrued from increasing environmental damage and disruption." The authors say there has been limited research on the long-term costs of addressing the economic impacts of climate change on the agricultural, manufacturing and public service sectors. They argue that inaction could steeply increase the cost of adaptation. "Climate change will affect every American economically in significant, dramatic ways, and the longer it takes to respond, the greater the damage and the higher the costs," said lead researcher Matthias Ruth, director of the University of Maryland's Center for Integrative Environmental Research. "The national debate is often framed in terms of how much it will cost to reduce greenhouse gases, with little or no consideration of the cost of no response or the cost of waiting. Review and analysis of existing data suggest that delay will prove costly and tip the economic scales in favor of quicker strategic action." The report concludes: Economic impacts of climate change will occur throughout the country. Economic impacts will be unevenly distributed across regions and within the economy and society. Negative climate impacts will outweigh benefits for most sectors that provide essential goods and services to society. Climate change impacts will place immense strains on public sector budgets. Secondary effects of climate impacts can include higher prices, reduced income and job losses.

### Warming Bad- Disease

#### Global warming exacerbates disease outbreaks

**Boyles and Chang, 2009**—(Salynn. Louise. MD. “Report: Climate Change Threatens Health: Scientists Say Global Warming Will Increase Malaria and Other Diseases.” May 13, 2009. WebMD Health News. <http://www.webmd.com/news/20090513/report-climate-change-threatens-health> Accessed: 6/3/09)

Deaths from heat waves, malaria, and other vector-borne diseases (diseases transmitted by sources such as mosquitoes or ticks) are projected to rise as global temperatures increase. But the report identifies food and water shortages and increasingly violent weather events as the biggest climate-change-related threats to human health. Pediatrician Anthony Costello, MD, who chaired the commission that issued the report, says there is new evidence that climate change is occurring faster than many experts had anticipated. He tells WebMD that recent findings on greenhouse gas emissions, global temperature changes, sea level rise, ocean acidification, and extreme climatic events suggest that climate forecasts made in 2007 by an international panel evaluating climate change may be optimistic. "

#### Extinction

**Steinbruner 1998**— (John D- Senior Fellow at Brookings Institution, “Biological weapons: A plague upon all houses,” Foreign Policy)

That deceptively simple observation has immense implications. The use of a manufactured weapon is a singular event. Most of the damage occurs immediately. The aftereffects, whatever they may be, decay rapidly over time and distance in a reasonably predictable manner. Even before a nuclear warhead is detonated, for instance, it is possible to estimate the extent of the subsequent damage and the likely level of radioactive fallout. Such predictability is an essential component for tactical military planning. The use of a pathogen, by contrast, is an extended process whose scope and timing cannot be preciselys controlled. For most potential biological agents, the predominant drawback is that they would not act swiftly or decisively enough to be an effective weapon. But for a few pathogens--ones most likely to have a decisive effect and therefore the ones most likely to be contemplated for deliberately hostile use-the risk runs in the other direction. A lethal pathogen that could efficiently spread from one victim to another would be capable of initiating an intensifying cascade of disease that might ultimately threaten the entire world population. The 1918 influenza epidemic demonstrated the potential for a global contagion of this sort but not necessarily its outer limit.

### Warming Bad- Terrorism

#### Environmental disruption results in terrorist attacks

**Gelbspan 1997**—Ross Gelbspan (editor and reporter at The Boston Globe and The Washington Post and professor at the Columbia University School of Journalism) The Heat is On, 1997, p. 165

Environmental disruptions in the poor areas of the globe will not remain conveniently compartmentalized within their borders. If displaced refugees in South America, Asia, and Africa continue to burn trees and grasslands for fuel and settlements, that removal of vegetation will accelerate global warming. The plants and trees of the terrestrial ecosystem are the largest absorbers of carbon dioxide, which otherwise rises into the atmosphere. Nor is it the environ¬ment alone that overflows national borders. The economy is also global. As more and more inhabitants of the poor countries are displaced, the emerging markets of the developing world will begin to collapse—exerting a tremendous downward pressure on centers of trade, finance, and manufacturing in the North. Without the continued development of emerging markets, the international economy will begin to contract, severely eroding the basis of its survival. The United States, like any open society, is vulnerable to terrorism. A significant surge in terrorism is the likeliest result of the desperation that is overtaking many people in environmentally disrupted countries. “The World Trade Center was easy,” Norman Myers says. “The next time a nuclear device is set off, it most likely will not be by a government. It will probably be set off by some group of people who are so frustrated at being consigned to desperation that they will be driven to potentially outrageous acts of terrorism.”

#### Extinction

**Alexander 2003**—(Yonah prof and dir. of Inter-University for Terrorism Studies, Washington Times, August 28)

Last week's brutal suicide bombings in Baghdad and Jerusalem have once again illustrated dramatically that the international community failed, thus far at least, to understand the magnitude and implications of the terrorist threats to the very survival of civilization itself. Even the United States and Israel have for decades tended to regard terrorism as a mere tactical nuisance or irritant rather than a critical strategic challenge to their national security concerns. It is not surprising, therefore, that on September 11, 2001, Americans were stunned by the unprecedented tragedy of 19 al Qaeda terrorists striking a devastating blow at the center of the nation's commercial and military powers. Likewise, Israel and its citizens, despite the collapse of the Oslo Agreements of 1993 and numerous acts of terrorism triggered by the second intifada that began almost three years ago, are still "shocked" by each suicide attack at a time of intensive diplomatic efforts to revive the moribund peace process through the now revoked cease-fire arrangements [hudna]. Why are the United States and Israel, as well as scores of other countries affected by the universal nightmare of modern terrorism surprised by new terrorist "surprises"? There are many reasons, including misunderstanding of the manifold specific factors that contribute to terrorism's expansion, such as lack of a universal definition of terrorism, the religionization of politics, double standards of morality, weak punishment of terrorists, and the exploitation of the media by terrorist propaganda and psychological warfare. Unlike their historical counterparts, contemporary terrorists have introduced a new scale of violence in terms of conventional and unconventional threats and impact. The internationalization and brutalization of current and future terrorism make it clear we have entered an Age of Super Terrorism [e.g. biological, chemical, radiological, nuclear and cyber] with its serious implications concerning national, regional and global security concerns.

### A2 No Warming

#### Warming is occuring in line with projections

**Fischer 2010**—Douglas Fischer, March 22, 2010, “Has Global Warming Slowed?” Scientific American, http://www.scientificamerican.com/article.cfm?id=has-global-warming-slowed

Global warming has neither stopped nor slowed in the past decade, according to a draft analysis of temperature data by NASA's Goddard Institute for Space Studies. The analysis, led by Goddard director Jim Hansen, attempts to debunk popular belief that the planet is cooling. It finds that global temperatures over the past decade have "continued to rise rapidly," despite large year-to-year fluctuations associated with the tropical El Niño–La Niña cycles. The analysis also predicts, assuming current El Niño conditions hold, that 2010 will go down in history as the hottest year on record despite an unusually snowy winter in the Northern Hemisphere. "Communicating the reality of climate change to the public is hampered by the large natural variability of weather and climate," the Goddard scientists wrote in the draft, which was circulated by Hansen Friday evening and posted on the ClimateProgress.org blog shortly after. "We conclude there has been no reduction in the global warming trend of 0.15 (to) 0.20ºC (per) decade that began in the late 1970s." The new analysis combines sea-surface temperature records with meteorological station measurements and tests alternative choices for ocean records, urban warming and tropical and Arctic oscillations. It concludes the urban "heat island" impacts are small compared to the warming attributed to greenhouse gas emissions. And it finds that, while this winter's unusually strong Arctic Oscillation - which funnels cold northern air to the East Coast and pulls warm mid-latitude air up to the Arctic - is predicted as atmospheric carbon dioxide levels rise, seasonal temperature anomalies associated with it aren't enough to blunt long-term warming trends. "In the United States only one of the past 10 winters and two of the past 10 summers were cooler than the 1951-1980 climatology, a frequency consistent with the expected 'loading of the climate dice,' " the scientists wrote. Hansen and other co-authors could not be reached for comment. The analysis has not been subjected to a peer review, though Hansen, in an email sent discussing the paper, said he intended to revise it for submission to a journal "within a month or so." Michael Mann, director of the Earth System Science Center at Pennsylvania State University, called the analysis solid. "Essentially he's just pointing out that we've come out of this short-term, relatively cool period," Mann said. "The globe clearly continues to warm."

#### Even if temperatures haven’t warmed in the past decade, it doesn’t disprove the trend

**Rennie 2009**—John Rennie, November 30, 2009, “Seven Answers to Climate Contrarian Nonsense,” Scientific American, http://www.scientificamerican.com/article.cfm?id=seven-answers-to-climate-contrarian-nonsense

1998 was the world's warmest year in the U.K. Met Office Hadley Centre’s records; recent years have been cooler; therefore, the previous century's global warming trend is over, right? Anyone with even a glancing familiarity with statistics should be able to spot the weaknesses of that argument. Given the extended duration of the warming trend, the expected (and observed) variations in the rate of increase and the range of uncertainties in the temperature measurements and forecasts, a decade's worth of mild interruption is too small a deviation to prove a break in the pattern, climatologists say. Recently, Associated Press reporter Seth Borenstein asked four independent statisticians to look for trends in the temperature data sets without telling them what the numbers represented. "The experts found no true temperature declines over time," he wrote. If a lull in global warming continues for another decade, would that vindicate the contrarians' case? Not necessarily, because climate is complex. For instance, Mojib Latif of the Leibniz Institute of Marine Sciences in Germany and his colleagues published a paper in 2008 that suggested ocean circulation patterns might cause a period of cooling in parts of the northern hemisphere, even though the long-term pattern of warming remained in effect. Fundamentally, contrarians who have resisted the abundant evidence that supports warming should not be too quick to leap on evidence that only hints at the opposite.

### A2 Not Anthropogenic

#### Warming is real and anthropogenic- Overwhelming consensus concludes aff

**Rahmstorf 2008** (Richard Rahmstorf, physics professor at Potsdam University, “Anthropogenic Climate Change?” Page 42-49)

It is time to turn to statement B: human activities are altering the climate. This can be broken into two parts. The first is as follows: global climate is warming. This is by now a generally undisputed point (except by novelist Michael Crichton), so we deal with it only briefly. The two leading compilations of data measured with thermometers are shown in figure 3-3, that of the National Aeronautics and Space Administration (NASA) and that of the British Hadley Centre for Climate Change. Although they differ in the details, due to the inclusion of different data sets and use of different spatial averaging and quality control procedures, they both show a consistent picture, with a global mean warming of 0.8°C since the late nineteenth century. Temperatures over the past ten years clearly were the warmest since measured records have been available. The year 1998 sticks out well above the longterm trend due to the occurrence of a major El Nino event that year (the last El Nino so far and one of the strongest on record). These events are examples of the largest natural climate variations on multiyear time scales and, by releasing heat from the ocean, generally cause positive anomalies in global mean temperature. It is remarkable that the year 2005 rivaled the heat of 1998 even though no El Nino event occurred that year. (A bizarre curiosity, perhaps worth mentioning, is that several prominent "climate skeptics" recently used the extreme year 1998 to claim in the media that global warming had ended. In Lindzen's words, "Indeed, the absence of any record breakers during the past seven years is statistical evidence that temperatures are not increasing.")33 In addition to the surface measurements, the more recent portion of the global warming trend (since 1979) is also documented by satellite data. It is not straightforward to derive a reliable surface temperature trend from satellites, as they measure radiation coming from throughout the atmosphere (not just near the surface), including the stratosphere, which has strongly cooled, and the records are not homogeneous' due to the short life span of individual satellites, the problem of orbital decay, observations at different times of day, and drifts in instrument calibration.' Current analyses of these satellite data show trends that are fully consistent with surface measurements and model simulations." If no reliable temperature measurements existed, could we be sure that the climate is warming? The "canaries in the coal mine" of climate change (as glaciologist Lonnie Thompson puts it) ~are mountain glaciers. We know, both from old photographs and from the position of the terminal moraines heaped up by the flowing ice, that mountain glaciers have been in retreat all over the world during the past century. There are precious few exceptions, and they are associated with a strong increase in precipitation or local cooling.36 I have inspected examples of shrinking glaciers myself in field trips to Switzerland, Norway, and New Zealand. As glaciers respond sensitively to temperature changes, data on the extent of glaciers have been used to reconstruct a history of Northern Hemisphere temperature over the past four centuries (see figure 3-4). Cores drilled in tropical glaciers show signs of recent melting that is unprecedented at least throughout the Holocene-the past 10,000 years. Another powerful sign of warming, visible clearly from satellites, is the shrinking Arctic sea ice cover (figure 3-5), which has declined 20 percent since satellite observations began in 1979. While climate clearly became warmer in the twentieth century, much discussion particularly in the popular media has focused on the question of how "unusual" this warming is in a longer-term context. While this is an interesting question, it has often been mixed incorrectly with the question of causation. Scientifically, how unusual recent warming is-say, compared to the past millennium-in itself contains little information about its cause. Even a highly unusual warming could have a natural cause (for example, an exceptional increase in solar activity). And even a warming within the bounds of past natural variations could have a predominantly anthropogenic cause. I come to the question of causation shortly, after briefly visiting the evidence for past natural climate variations. Records from the time before systematic temperature measurements were collected are based on "proxy data," coming from tree rings, ice cores, corals, and other sources. These proxy data are generally linked to local temperatures in some way, but they may be influenced by other parameters as well (for example, precipitation), they may have a seasonal bias (for example, the growth season for tree rings), and high-quality long records are difficult to obtain and therefore few in number and geographic coverage. Therefore, there is still substantial uncertainty in the evolution of past global or hemispheric temperatures. (Comparing only local or regional temperature; as in Europe, is of limited value for our purposes,' as regional variations can be much larger than global ones and can have many regional causes, unrelated to global-scale forcing and climate change.) The first quantitative reconstruction for the Northern Hemisphere temperature of the past millennium, including an error estimation, was presented by Mann, Bradley, and Hughes and rightly highlighted in the 2001 IPCC report as one of the major new findings since its 1995 report; it is shown in figure 3\_6.39 The analysis suggests that, despite the large error bars, twentieth-century warming is indeed highly unusual and probably was unprecedented during the past millennium. This result, presumably because of its symbolic power, has attracted much criticism, to some extent in scientific journals, but even more so in the popular media. The hockey stick-shaped curve became a symbol for the IPCC, .and criticizing this particular data analysis became an avenue for some to question the credibility of the IPCC. Three important things have been overlooked in much of the media coverage. First, even if the scientific critics had been right, this would not have called into question the very cautious conclusion drawn by the IPCC from the reconstruction by Mann, Bradley, and Hughes: "New analyses of proxy data for the Northern Hemisphere indicate that the increase in temperature in the twentieth century is likely to have been the largest of any century during the past 1,000 years." This conclusion has since been supported further by every single one of close to a dozen new reconstructions (two of which are shown in figure 3-6). Second, by far the most serious scientific criticism raised against Mann, Hughes, and Bradley was simply based on a mistake. 40 The prominent paper of von Storch and others, which claimed (based on a model test) that the method of Mann, Bradley, and Hughes systematically underestimated variability, "was [itself] based on incorrect implementation of the reconstruction procedure."41 With correct implementation, climate field reconstruction procedures such as the one used by Mann, Bradley, and Hughes have been shown to perform well in similar model tests. Third, whether their reconstruction is accurate or not has no bearing on policy. If their analysis underestimated past natural climate variability, this would certainly not argue for a smaller climate sensitivity and thus a lesser concern about the consequences of our emissions. Some have argued that, in contrast, it would point to a larger climate sensitivity. While this is a valid point in principle, it does not apply in practice to the climate sensitivity estimates discussed herein or to the range given by IPCC, since these did not use the reconstruction of Mann, Hughes, and Bradley or any other proxy records of the past millennium. Media claims that "a pillar of the Kyoto Protocol" had been called into question were therefore misinformed. As an aside, the protocol was agreed in 1997, before the reconstruction in question even existed. The overheated public debate on this topic has, at least, helped to attract more researchers and funding to this area of paleoclimatology; its methodology has advanced significantly, and a number of new reconstructions have been presented in recent years. While the science has moved forward, the first seminal reconstruction by Mann, Hughes, and Bradley has held up remarkably well, with its main features reproduced by more recent work. Further progress probably will require substantial amounts of new proxy data, rather than further refinement of the statistical techniques pioneered by Mann, Hughes, and Bradley. Developing these data sets will require time and substantial effort. It is time to address the final statement: most of the observed warming over the past fifty years is anthropogenic. A large number of studies exist that have taken different approaches to analyze this issue, which is generally called the "attribution problem." I do not discuss the exact share of the anthropogenic contribution (although this is an interesting question). By "most" I imply mean "more than 50 percent.” The first and crucial piece of evidence is, of course, that the magnitude of the warming is what is expected from the anthropogenic perturbation of the radiation balance, so anthropogenic forcing is able to explain all of the temperature rise. As discussed here, the rise in greenhouse gases alone corresponds to 2.6 W/tn2 of forcing. This by itself, after subtraction of the observed 0'.6 W/m2 of ocean heat uptake, would Cause 1.6°C of warming since preindustrial times for medium climate sensitivity (3"C). With a current "best guess'; aerosol forcing of 1 W/m2, the expected warming is O.8°c. The point here is not that it is possible to obtain the 'exact observed number-this is fortuitous because the amount of aerosol' forcing is still very' uncertain-but that the expected magnitude is roughly right. There can be little doubt that the anthropogenic forcing is large enough to explain most of the warming. Depending on aerosol forcing and climate sensitivity, it could explain a large fraction of the warming, or all of it, or even more warming than has been observed (leaving room for natural processes to counteract some of the warming). The second important piece of evidence is clear: there is no viable alternative explanation. In the scientific literature, no serious alternative hypothesis has been proposed to explain the observed global warming. Other possible causes, such as solar activity, volcanic activity, cosmic rays, or orbital cycles, are well observed, but they do not show trends capable of explaining the observed warming. Since 1978, solar irradiance has been measured directly from satellites and shows the well-known eleven-year solar cycle, but no trend. There are various estimates of solar variability before this time, based on sunspot numbers, solar cycle length, the geomagnetic AA index, neutron monitor data, and, carbon-14 data. These indicate that solar activity probably increased somewhat up to 1940. While there is disagreement about the variation in previous centuries, different authors agree that solar activity did not significantly increase during the last sixty-five years. Therefore, this cannot explain the warming, and neither can any of the other factors mentioned. Models driven by natural factors only, leaving the anthropogenic forcing aside, show a cooling in the second half of the twentieth century (for an example, See figure 2-2, panel a, in chapter 2 of this volume). The trend in the sum of natural forcings is downward. The only way out would be either some as yet undiscovered unknown forcing or a warming trend that arises by chance from an unforced internal variability in the climate system. The latter cannot be completely ruled out, but has to be considered highly unlikely. No evidence in the observed record, proxy data, or current models suggest that such internal variability could cause a sustained trend of global warming of the observed magnitude. As discussed, twentieth century warming is unprecedented over the past 1,000 years (or even 2,000 years, as the few longer reconstructions available now suggest), which does not 'support the idea of large internal fluctuations. Also, those past variations correlate well with past forcing (solar variability, volcanic activity) and thus appear to be largely forced rather than due to unforced internal variability." And indeed, it would be difficult for a large and sustained unforced variability to satisfy the fundamental physical law of energy conservation. Natural internal variability generally shifts heat around different parts of the climate system-for example, the large El Nino event of 1998, which warmed, the atmosphere by releasing heat stored in the ocean. This mechanism implies that the ocean heat content drops as the atmosphere warms. For past decades, as discussed, we observed the atmosphere warming and the ocean heat content increasing, which rules out heat release from the ocean as a cause of surface warming. The heat content of the whole climate system is increasing, and there is no plausible source of this heat other than the heat trapped by greenhouse gases. ' A completely different approach to attribution is to analyze the spatial patterns of climate change. This is done in so-called fingerprint studies, which associate particular patterns or "fingerprints" with different forcings. It is plausible that the pattern of a solar-forced climate change differs from the pattern of a change caused by greenhouse gases. For example, a characteristic of greenhouse gases is that heat is trapped closer to the Earth's surface and that, unlike solar variability, greenhouse gases tend to warm more in winter, and at night. Such studies have used different data sets and have been performed by different groups of researchers with different statistical methods. They consistently conclude that the observed spatial pattern of warming can only be explained by greenhouse gases.49 Overall, it has to be considered, highly likely' that the observed warming is indeed predominantly due to the human-caused increase in greenhouse gases. ' This paper discussed the evidence for the anthropogenic increase in atmospheric CO2 concentration and the effect of CO2 on climate, finding that this anthropogenic increase is proven beyond reasonable doubt and that a mass of evidence points to a CO2 effect on climate of 3C ± 1.59C global-warming for a doubling of concentration. (This is, the classic IPCC range; my personal assessment is that, in-the light of new studies since the IPCC Third Assessment Report, the uncertainty range can now be narrowed somewhat to 3°C ± 1.0C) This is based on consistent results from theory, models, and data analysis, and, even in the absence-of any computer models, the same result would still hold based on physics and on data from climate history alone. Considering the plethora of consistent evidence, the chance that these conclusions are wrong has to be considered minute. If the preceding is accepted, then it follows logically and incontrovertibly that a further increase in CO2 concentration will lead to further warming. The magnitude of our emissions depends on human behavior, but the climatic response to various emissions scenarios can be computed from the information presented here. The result is the famous range of future global temperature scenarios shown in figure 3\_6.50 Two additional steps are involved in these computations: the consideration of anthropogenic forcings other than CO2 (for example, other greenhouse gases and aerosols) and the computation of concentrations from the emissions. Other gases are not discussed here, although they are important to get quantitatively accurate results. CO2 is the largest and most important forcing. Concerning concentrations, the scenarios shown basically assume that ocean and biosphere take up a similar share of our emitted CO2 as in the past. This could turn out to be an optimistic assumption; some models indicate the possibility of a positive feedback, with the biosphere turning into a carbon source rather than a sink under growing climatic stress. It is clear that even in the more optimistic of the shown (non-mitigation) scenarios, global temperature would rise by 2-3°C above its preindustrial level by the end of this century. Even for a paleoclimatologist like myself, this is an extraordinarily high temperature, which is very likely unprecedented in at least the past 100,000 years. As far as the data show, we would have to go back about 3 million years, to the Pliocene, for comparable temperatures. The rate of this warming (which is important for the ability of ecosystems to cope) is also highly unusual and unprecedented probably for an even longer time. The last major global warming trend occurred when the last great Ice Age ended between 15,000 and 10,000 years ago: this was a warming of about 5°C over 5,000 years, that is, a rate of only 0.1 °C per century. 52 The expected magnitude and rate of planetary warming is highly likely to come with major risk and impacts in terms of sea level rise (Pliocene sea level was 25-35 meters higher than now due to smaller Greenland and Antarctic ice sheets), extreme events (for example, hurricane activity is expected to increase in a warmer climate), and ecosystem loss. The second part of this paper examined the evidence for the current warming of the planet and discussed what is known about its causes. This part showed that global warming is already a measured and-well-established fact, not a theory. Many different lines of evidence consistently show that most of the observed warming of the past fifty years was caused by human activity. Above all, this warming is exactly what would be expected given the anthropogenic rise in greenhouse gases, and no viable alternative explanation for this warming has been proposed in the scientific literature. Taken together., the very strong evidence accumulated from thousands of independent studies, has over the past decades convinced virtually every climatologist around the world (many of whom were initially quite skeptical, including myself) that anthropogenic global warming is a reality with which we need to deal.

#### Case closed—Consensus that warming is real and anthropogenic, new research nullifies previous doubts

Easterbrook 2006—Gregg Easterbrook, visiting fellow in Governance Studies and Economic Studies at the Brookings Institution and esteemed writer for ESPN, June 2006, “Case Closed: The Debate about Global Warming is Over,” Brookings, http://www.brookings.edu/papers/2006/06energy\_easterbrook.aspx

When global-warming concerns became widespread, many argued that more scientific research was needed before any policy decisions. This was hardly just the contention of oil-company executives. "There is no evidence yet" of dangerous climate change, the National Academy of Sciences declared in 1991. A 1992 survey of members of the American Geophysical Union and American Meteorological Society, two professional groups of climatologists, found only 17 percent believed there was a sufficient ground to declare an artificial greenhouse effect in progress. In 1993 Thomas Karl, director of the National Climatic Data Center, said there exists "a great range of uncertainty" regarding whether the world is warming. My own contrarian 1995 book about environmental issues, A Moment on the Earth, spent 39 pages reviewing the nascent state of climate science and concluded that rising temperatures "might be an omen or might mean nothing." Like others, I called for more research. That research is now in, and the scientific uncertainty that once justified skepticism has been replaced by near-unanimity among credentialed researchers that an artificially warming world is a real phenomenon posing real danger. The American Geophysical Union and American Meteorological Society, skeptical in 1992, in 2003 both issued statements calling signs of global warming compelling. In 2004 the American Association for the Advancement of Science declared in its technical journal Science that there is no longer any "substantive disagreement in the scientific community" that artificial global warming is happening and could become dangerous. In 2005, the National Academy of Sciences joined the science academies of the United Kingdom, Japan, Germany, China and other nations in a joint statement saying, "There is now strong evidence that Data Center said research now supports "a substantial human impact on global temperature increases." And this month the Climate Change Science Program, the George W. Bush Administration's coordinating agency for global-warming research, declared it had found "clear evidence of human influences on the climate system." Case closed.

#### Human activities cause increase in carbon dioxide

Schneider 2008—Tapio Schneider, PHD, climate scientist and Professor of Environmental Science and Engineering at the California Institute of Technology, Skeptic Vol 18 Issue 1, p. 31-37

There are several lines of evidence. We know approximately how much carbon dioxide is emitted as a result of human activities. Adding up the human sources of carbon dioxide — primarily from fossil fuel burning, cement production, and land use changes (e.g., deforestation) — one finds that only about half the carbon dioxide emitted as a result of human activities has led to an increase in atmospheric concentrations. The other half of the emitted carbon dioxide has been taken up by oceans and the biosphere — where and how exactly is not completely understood: there is a “missing carbon sink.” Human activities thus can account for the increase in carbon dioxide concentrations. Changes in the isotopic composition of carbon dioxide show that the carbon in the added carbon dioxide derives largely from plant materials, that is, from processes such as burning of biomass or fossil fuels, which are derived from fossil plant materials. Minute changes in the atmospheric concentration of oxygen show that the added carbon dioxide derives from burning of the plant materials. And concentrations of carbon dioxide in the ocean have increased along with the atmospheric concentrations, showing that the increase in atmospheric carbon dioxide concentrations cannot be a result of release from the oceans. All lines of evidence taken together make it unambiguous that the increase in atmospheric carbon dioxide concentrations is human induced and is primarily a result of fossil fuel burning. (Similar reasoning can be evoked for other greenhouse gases, but for some of those, such as methane and nitrous oxide, their sources are not as clear as those of carbon dioxide.)

#### Status quo warming is not a natural oscillation

Baer 2002—Paul Baer, Ph.D. candidate in the Energy and Resources Group at UC Berkeley, and Tom Athanasiou, journalist and businessman, Dead Heat: Global Justice and Global Warming, 2002, p. 37-38

So something is happening. But are humans really causing it? Again, we defer to the IPCC, which in 1996, in their Second Assessment Report, issued the carefully crafted and oft-quoted phrase, “The balance of evidence suggests that there is discernable human influence on global climate.” By the time of their Third Assessment Report, published in 2001, the IPCC’s prose had solidified, and it told us that “there is new and stronger evidence that most of the warming observed over the last 50 years is attributable to human activities.” The “skeptics,” of course, still argue that the observed temperature increase and other signs of climate change haven’t been proven to be a result of humanity’s greenhouse gas emissions. Is this. a reasonable objection? Could the warming so clearly visible in the hockey stick be a result of “natural variability”? No, it could not. For while the climate varies over a wide variety of time scales—from El Nino cycles of a few years, to glacial cycles of tens of thousands of years, to the even longer cycles of the Earth’s deep history—none of these explains the trend so clearly visible in the hockey stick. But basic laboratory physics does. We know that greenhouse gases trap solar energy, and we can measure the rapidly increasing concen¬trations of these gases with grim precision. Given this, we actually expect significant warming, and in much the same patter 1 that it actually appears (for example, the warming peaks are at the poles and in the winters).

# Economic Competitiveness Extensions

### Losing HSR Competitiveness Now

#### Other countries are poised to take over – now is key

Andy Kunz is a president and CEO of the U.S. High Speed Rail Association, a trade group that focuses on advancing a national network. March 10 2011 “U.S. High-Speed Rail: Time to

Hop Aboard or Be Left Behind” http://e360.yale.edu/feature/us\_high-speed\_rail\_time\_to\_hop\_aboard\_or\_be\_left\_behind/2378/

As a high-speed rail network spreads across the U.S. in the coming decades, the costs of operating the national transportation system will decline each year to the point where the savings will eventually exceed the estimated $600 billion cost of building the rail system. Although public funds will be used to cover much of the construction costs, the network will perform best if operated by private companies. MORE FROM YALE e360 What Makes Europe Greener than the U.S.? The average American produces three times the amount of CO2 emissions as a person in France. A U.S. journalist now living in Europe explains how she learned to love her clothesline and sweating in summer. READ MORE The U.S. must build a national high-speed rail network if it hopes to maintain its competitiveness in the world economy. China and Europe are now moving ahead with their high-speed rail networks at breakneck speed, which means that in a decade or two they will have significantly reduced their dependence on imported oil, created tens of millions of new jobs, and saved their countries trillions of dollars by vastly improving the productivity of their economies thanks to a low-carbon transportation sector that moves people and goods at speeds that could one day hit 300 miles per hour, or more. The U.S. can be part of that future. But if more states follow the example of Florida, Wisconsin, and Ohio, the country will remain shackled by 19th- and 20th-century forms of transportation in a 21st-century world. Contemplate this image: China, Europe, Russia, South America, and other parts of the globe are streaking by at 250 miles per hour while the likes of Governor Scott are stuck in a traffic jam on an interstate, watching the trains whiz past.

### Manufacturing Key to the Economy

#### Boosting manufacturing is key to multiplier effects on the economy – affects every sector, bolsters trade and reduces the deficit

Arvind Kaushal, Thomas Mayor, and Patricia Riedl Autumn 2011 “Manufacturing’s

Wake-Up Call” All authors are senior executives at booz&co, a leading global consulting firm.

As trade policy expert Clyde Prestowitz points out, manufacturing is critical to prosperity for several reasons: its economies of scale, impact on innovation, and multiplier effect on the rest of the economy. (See “The Case for Intelligent Industrial Policy,” by Art Kleiner, Arvind Kaushal, and Thomas Mayor, s+b, Autumn 2011.) In the U.S., manufacturing directly accounts for 11 percent of the nation’s GDP: an absolute figure of US$1.47 trillion, larger than Spain’s entire domestic product. When all economic activity expressly linked to manufacturing is accounted for — including equipment maintenance, transportation, scientific and technical services, and construction — the share of GDP attributable to manufacturing grows to 15 percent. That means one in seven U.S. private-sector jobs, or 13.5 percent, is directly linked to manufacturing. The sector’s share of GDP increases to as much as 25 percent when second- order linkages such as retail sales near plants, systems development, and legal services are included. Historically, manufactured goods are more trade- able than other categories. Thus, a strong manufacturing base is essential to reducing the U.S. trade deficit, which hit $497 billion in 2010 and is an unnerving drag on GDP. Unless steps are taken to revitalize manufacturing, up to 50 percent of the “value add” of the U.S. economy — the value of manufactured goods beyond their raw material costs — is at risk of disappearing. If that happened, the U.S. trade deficit would top $1 trillion, a troubling level for any country seeking economic growth. Perhaps the least understood benefit of manufacturing is how closely it is related to innovation in design, product development, quality control, and factory processes. In 2008, 67 percent of all private-sector R&D was conducted by manufacturing companies, according to the National Science Foundation. And from 2006 to 2008, 22 percent of U.S. manufacturing companies reported a new or significantly improved product, service, or process, compared with 8 percent of nonmanufacturing companies. Innovation propels improvements in worker output, capital flow, usage of materials and energy, energy conservation, and other components of productivity. Increased productivity, in turn, leads to faster economic growth and a higher standard of living. Between 1987 and 2008, productivity grew in the U.S. manufacturing sector 65 percent faster than in business as a whole.

#### Key to the economy

Babu et all February 2011 Suresh & 10 others, including reps from NASA, GE, and EWI “strengthening manufacturing competitiveness” Online

8 Why is this important? The manufacturing sector is such a strong influence on the national economy that a weak manufacturing sector will adversely and immediately affect the whole. A decreased standard of living, higher unemployment rate, reduced productivity, higher trade deficit, reduction in investments for R&D and innovation, and an increased threat to national security are some of the effects as a result of a troubled manufacturing economy. It is clear that the U.S. needs a manufacturing policy that focuses on and stimulates those factors that will make U.S.-based production a viable and profitable business choice. This will then naturally stimulate innovation, which will be needed to satisfy production improvement requirements.

### Investments Key

#### Proven in China – heavy investment key

KEITH BRADSHER June 22, 2011 “High-Speed Rail Poised to Alter China” New York Times, http://www.nytimes.com/2011/06/23/business/global/23rail.html?pagewanted=all

But often overlooked, amid all the controversy, are the very real economic benefits that the world’s most advanced fast rail system is bringing to China — and the competitive challenges it poses for the United States and Europe. Just as building the interstate highway system a half-century ago made modern, national commerce more feasible in the United States, China’s ambitious rail rollout is helping integrate the economy of this sprawling, populous nation — though on a much faster construction timetable and at significantly higher travel speeds than anything envisioned by the Eisenhower administration. Work crews of as many as 100,000 people per line have built about half of the 10,000-mile network in just six years, in many cases ahead of schedule — including the Beijing-to-Shanghai line that was not originally expected to open until next year. The entire system is on course to be completed by 2020. For the United States and Europe, the implications go beyond marveling at the pace of Communist-style civil engineering. China’s manufacturing might and global export machine are likely to grow more powerful as 200-mile-an-hour trains link cities and provinces that were previously as much as 24 hours by road or rail from the entrepreneurial seacoast. Zhen Qinan, a founder of the stock exchange in coastal Shenzhen and the recently retired chief executive of ZK Energy, a wind turbine producer in Changsha, said that high-speed trains were making it more convenient to base businesses here in Hunan Province. Populous Hunan has long provided labor to the factories of the east, but its mountains have tended to isolate it from the economic mainstream. Mr. Zhen ticked off Hunan’s attributes: “Land is much cheaper. Electricity is cheaper. Labor is cheaper.” Around China, real estate prices and investment have surged in the more than 200 inland cities that have already been connected by high-speed rail in the last three years. Businesses are flocking to these cities, now just a few hours by bullet train from China’s busiest and most international metropolises. Meanwhile, a shift in passenger traffic to the new high-speed rail routes has freed up congested older rail lines for freight. That has allowed coal mines and shippers to switch to cheaper rail transport from costly trucks for heavy cargos. Because of this shift, plus the construction of additional freight lines, the tonnage hauled by China’s rail system increased in 2010 by an amount equaling the entire freight carried last year by the combined rail systems of Britain, France, Germany and Poland, according to the World Bank. The bullet train bonanza, and the competitive challenge it poses for the West, is only likely to increase with the opening of the 820-mile Beijing-to-Shanghai line, which will create a business corridor between China’s two most dynamic cities. The railway ministry plans 90 bullet trains a day in each direction. The trains will barrel along at initial speeds of 190 miles per hour, with plans to accelerate to 220 miles per hour by the summer of 2012, if the first year of operation goes smoothly. Even at the initial speeds, they will take less than five hours to cover a distance comparable to New York to Atlanta — which requires nearly 18 hours on Amtrak. China’s huge investment in high-speed rail may be instructive to the United States, whether for proponents of federal rail investments or critics who consider bullet trains a boondoggle. President Obama, who has proposed spending $53 billion on high-speed rail over the next six years, faced a setback in his budget deal in April with Congressional Republicans, who eliminated money for that plan this year.

#### Investments key to competitiveness

Babu et all February 2011 Suresh & 10 others, including reps from NASA, GE, and EWI “strengthening manufacturing competitiveness” Online

There is an urgent, growing sense that North American manufacturing is at a crossroads and that its global competitiveness is at risk, in turn endangering our global leadership, our national security, and our very standard of living. Materials joining is an essential aspect of nearly all manufactured products. Increasing the global competitiveness of materials joining methods will help support a vibrant manufacturing sector. Innovation is vital to strengthening manufacturing competitiveness. Unfortunately, we have witnessed a relative decline in the competitiveness of the North American materials joining industry. Global competitors have pushed forward with investments in workforce and technology innovation as our industry has atrophied in comparison. The “Future of Materials Joining in North America” (FMJNA) conference was organized to take a critical look at the current state of materials joining and to identify actions that need to be taken to contribute to a strong North American manufacturing base. Seventy invitees from industry, academia, government, trade associations, and research organizations participated in the event. Presentations by prominent representatives from industry, academia, and government agencies highlighted: 1. The criticality of manufacturing to the North American economy 2. The criticality of materials joining to North American energy and defense security 3. Evolving industry technology development needs and approaches 4. The status of welding research in the national labs 5. Academic research challenges 6. Workforce training and education trends The conference also included a series of breakout sessions to develop a strategy to strengthen manufacturing competitiveness. The sessions targeted identification of key challenges and collaborative approaches to overcome those challenges. Breakout participants contributed hundreds of suggestions that were then consolidated, ranked, and distilled into themes. Two “grand challenges” emerged from the discussion: 1. Increasing the level of technical innovation 2. Increasing workforce competitiveness. Two broad opportunities to address these challenges also emerged: 1. Greater collaboration 2. Influencing government policy and funding priorities.

### Oil Key to the Economy

#### Failure to adjust for peak oil results in resource wars and economic collapse

**Way**, 8/18/**2008** (Ron – U.S. Department of Interior’s division of Fish, wildlife and Parks, and commissioner of the Minnesota Pollution control Agency, Waking Up to the Threat of ‘Peak Oil,’ Minnesota Post, p. http://www.minnpost.com/stories/2008/08/18/2981/waking\_up\_to\_the\_threat\_of\_peak\_oil)

The recent dip in the world oil market has given consumers relief from surging pump prices, and has investors and commentators waxing with hope that the dip will become a trend. But don't bet on it, says energy expert Matthew Simmons. Along with the likes of oilman T. Boone Pickens whose celebrated national campaign calls for a radical shift away from oil dependence, Simmons says that all fundamentals remain in place for energy prices to resume their skyward climb to levels quite beyond records of a month ago. In fact, in 2005 Simmons personally wagered $5,000 that the worldwide price per barrel would top $200 by 2010 (it was at a record $147 on July 11, and closed Friday at $113.77 on the New York Mercantile Exchange). Simmons fully expects to win the bet. He has a growing band of believers, including state Rep. Bill Hilty, DFL-Finlayson, who chairs the House Energy Policy and Finance Division and is openly concerned about the future picture of energy and its implications for Minnesota. "We have a global economy that's based on cheap oil," said Hilty, adding that sharply rising energy costs would be economically damaging and could, if not checked, become dangerous. A key witness at St. Paul hearing Simmons, of Houston, Texas, was a key witness at a St. Paul hearing last spring chaired by Hilty. Listening intently and nodding agreement in the packed hearing room were Eagan energy investor Jim Johnson and a retired IBM scientist, Norm Erickson of Rochester, Minn. Simmons explains that the supply-demand fundamentals that drive oil prices "have actually gotten worse": • Worldwide oil demand continues to grow rapidly in populated China and India, while economic growth in oil-rich Russia, Mexico and even Iran has those nations keeping more of their production to themselves. Economic growth means more oil-gulping industry and many more cars; later this year Tata Motors' will bring its low-cost "Nano" to market, and millions who now ride bikes or small scooters will be driving cars that require lots of oil to make and still more oil to move. • Despite a rash of media reports that Americans are driving less and in smaller cars, oil demand in the world's highest energy-consuming nation has dipped only slightly. The United States still consumes 21 million barrels of oil daily (with 5 percent of world population the U.S. consumes a quarter of world oil, while China, with 21 percent of the population, consumes just 8 percent). • Producing oil is increasingly difficult, time-consuming and costly — Canada, for example, has turned to extracting oil from "tar sands" with a complex heat process that burns so much natural gas that exports are curtailed, helping crimp supply that's driving gas prices in places like Minnesota much higher. World oil production of 85 million barrels a day is seen by some analysts as unsustainable (54 of the 65 major oil fields — including the North Sea and Mexico — already are in decline) economic projections would require daily production to increase to a staggering 130 million barrels by 2030. Warnings of a 'tipping point' It's the last point that most worries Simmons and Hilty, and a growing band of others. Simmons warns that the world is near a "tipping point" where demand could overwhelm supply, sending energy prices soaring and causing economic disruption if not collapse. In a volatile energy market, massive overnight price spikes could be triggered by threatening speeches by a Middle East leader or a catastrophic shipwreck in places like the narrow Strait of Hormuz at the mouth of the Persian Gulf, through which a third of the world's oil supply passes on vulnerable vessels longer that three football fields. Worse, Simmons says, a severe supply and demand imbalance could result in resource wars that a European group has warned may be closer than most would care to believe. More recently, a diverse group of luminaries — including Colin Powell, Henry Kissinger and James Woolsey — sent an open letter to President Bush and presidential candidates Sen. Barak Obama and Sen. John McCain warning that the United States "is facing a long-term energy crisis that could become one of the most significant economic and national security challenges of the 21st Century." Simmons, for 40 years an energy investment banker, is among adherents to the theory of "peak oil" — a point where oil production hits its maximum, after which supply goes into permanent decline. Little dispute that oil is finite There is disagreement on how much oil remains, owing to notoriously inaccurate data on reserves. But among energy experts there is little dispute that oil is a finite resource with all signs favoring the "peak oil" view: Oil supply is of lower quality, which requires more refining; there are more and more dry drill holes (Simmons said there have been 220 nonproducing holes in the Arctic, a place that the U.S. Geological Survey says is oil-rich) and oil will be much more costly to extract from things like oil shale or from much deeper wells, some of which are under lots of water. When Brazil giddily announced it had found an offshore oil field that could make the country the world's largest producer, analysts noted that the oil is 32,000 feet deep and technology to draw it out hasn't even been invented. According to a Bloomberg report, tapping the potential reserve will require equipment that can withstand 18,000 pounds per square inch of pressure (enough to crush a truck), pipes that can carry oil at temperatures above 500 degrees Fahrenheit, and drill bits that can penetrate layers of salt more than a mile thick. Also, the water is so deep that massive drilling platforms cannot be anchored (as in the Gulf of Mexico) but must float on a windy, swelling ocean and rely on complex positioning technology to maintain proximity to the drill hole. Compare that to the derrick that Edwin Drake erected to tap Pennsylvania crude in 1859 that was a mere 70 feet under solid ground. 'Easy stuff' is gone What it comes down to is that the "easy stuff" has already been pumped out, and much of what's left will be very expensive to produce. Vast oil shale deposits in Colorado, Utah and Wyoming, for prime example, would require the removal of millions of tons of rock and an energy-intensive extraction process (nearly 1,000 degrees of heat is needed to free the oil) so expensive that no one has yet figured out how to make it work. Hilty puts it this way: To extract Pennsylvania crude, it took only one unit of energy input for each 100 units of energy extracted, or 100 to 1; most oil fields today have an energy input/output ratio of about 30 to 1, and Canadian tar sands is down around 3 to 1. Once technology is developed to extract oil from the Brazilian reserve or oil shale, the energy ratio would be even less. By way of comparison, most analysts say the energy ratio of corn ethanol is about 1 to 1 (Simmons says it's less, so much so that "it simply doesn't make any sense"). Along with others, Simmons has been warning about peak oil for two decades, but he's not the first. M. King Hubbert, a geophysicist with Shell Oil, accurately predicted in 1956 that U.S. oil would peak by 1970. That's when the United States went from being a producing nation to being one that today imports 70 percent of the oil it consumes. Unlike climate change theorists, who rely on data and modeling, "peak oil" advocates rely on known production data that in every case shows a bell-curve history of discovery to increasing production to decreasing production to exhaustion. Taken together, the data from all oil production sites, along with such other information as the ratio of dry-hole to successful-hole drilling and economic growth rates, have helped geoscientists develop "peak" scenarios that are broadly accepted.

### Heg Sustainable

#### The hegemonic declines that your evidence is talking about are small – these kinds of declines activate American power – aff is key

Carla **Norrlof** (an Associate Professor in the Department of Political Science at the University of Toronto) **2010** “America’s Global Advantage US Hegemony and International Cooperation” 51-3

In today’s debate on American decline redux, scholars continue to assume a substitute relation between economic and political power. Bacevich, for instance, sees the United States as a global enforcer that uses new advanced means to practice old-style gunboat diplomacy, a development he laments and sees as more or less irreversible.48 Ferguson the mores and practices in other countries is seen as especially devastating for its dominance. While Mann too sees the United States as a “military giant,” he does not think military power is of much use, and disparagingly calls it an economic “backseat driver.”50 Mann clearly sees the United States as a power in decline. In two books, Chalmers Johnson describes the proliferation of American bases around the world, the resentment they create, and how it might provoke decline.51 The French analyst Emmanuel Todd indicts the United States for outright banditry, “the mugging of Europeans by Wall Street,” but does not believe the United States has the military wherewithal to ensure that it can continue to reap disproportionate economic benefits, or that it is capable of the kind of political (non-discriminatory) rule that attracts dependable followers.52 Not everyone has been convinced that the United States has declined in any meaningful way. As several authors have pointed out, the relative ascendancy of Europe and Japan was not only to be expected, but an explicit aim of American policy after the war.53 Critics charged that those who believed that the United States had declined in significant ways had failed to grasp important changes in the international economy and the prominent role played by multi-national corporations. 54 To appreciate the full extent of America’s reach one had to take into account the functioning of the world economy, the vitality of the American economy, the diversity of its population, and its military preponderance. Samuel Huntington was particularly prescient in identifying what kept America on top and in spelling out challenges to its lead position. He saw the country’s multi-dimensional power base as difficult for others to replicate and understood that the dynamism of the American economy would take a blow if consumer overstretch got out of hand, even though he believed that the most serious challenge to American power would come from a coalition of European states.55 While Huntington correctly perceived that America’s preeminence is anchored across a wide range of issue-areas, he did not connect these different sources of power. In elaborating an alternative way of thinking about the hegemon’s power arc, I show how various forms of power mutually reinforce one another as the hegemon travels up and down the power ladder. As I have already suggested, the consequences of relative decline are potentially favorable to the hegemon and can in some circumstances activate power

#### Heg sustainable – doomsayers are wrong

Carla Norrlof (an Associate Professor in the Department of Political Science at the University of Toronto) 2010 “ America’s Global Advantage US Hegemony and International Cooperation” p. 1-2

The United States has been the most powerful country in the world for more than sixty years. Throughout this period, it has had the world’s largest economy and the world’s most important currency. For most of this time, it had the world’s most powerful military as well – and its military supremacy today is beyond question. We are truly in an era of US hegemony, a unipolar moment, a Pax Americana, which has enabled Americans to enjoy the highest standard of living in human history. Is this privileged position being undercut by serial trade deficits? The pessimists are growing more numerous by the day. They see the country’s spendthrift ways as a disaster waiting to happen. They warn that the cavernous gap in merchandise trade, well above 6 percent in 2006, is an ominous sign of competitive slippage. In 2008, the liabilities acquired to finance the shortfall in exports reached an amazing 29 percent of GDP. A falling dollar, military overstretch, the rise of the euro, the rise of China, and progressively deeper integration in East Asia are among the factors that many believe herald the imminent decline of American hegemony. In my view, the doomsayers are mistaken. I argue that American hegemony is stable and sustainable. While the United States certainly does face a number of challenges, an analysis of the linkages between trade, money, and security shows that American power is robust. This book is a story about why and how American hegemony works, and what other states would have to do to emulate or, on other grounds, thwart, America’s power base. As I will show, the United States benefits from running persistent trade deficits as a result of its special position in the international system. I will argue that any comparably situated country would choose to pursue the same cyclical deficit policy as the one encouraged by the US government. A series of size advantages cut across trade, money, and security: the size of the American market, the role of the dollar, and American military power interact to make a trade deficit policy rewarding and buffer the United States from the extreme consequences that a sustained deficit policy would otherwise have.

#### Even if they win collapse inevitable – we should retain hegemony as long as possible

Thayer, 07 – Associate Professor in the Department of Defense and Strategic Studies, Missouri State University (Bradley A., American Empire, Routledge, page 105)

Knowing that American hegemony will end someday does not mean that we should welcome or facilitate its demise; rather the reverse. The United States should labor to maintain hegemony as long as possible—just as know-ing that you will die someday does not keep you from planning your future and living today. You strive to live as long as possible although you realize that it is inevitable that you will die. Like good health, Americans and most of the world should welcome American primacy and work to preserve it as long as possible.

#### Hegemony sustainable – no alternative

Colin Gray (Professor of International Politics and Strategic Studies at the University of Reading in England, Worked at the International Institute for Strategic Studies in England, Hudson Institute, Founder of the Defense-Oriented Think Tank: National Institute for Public Policy, Graduate of the Universities of Manchester and Oxford) 2009 "AFTER IRAQ: THE SEARCH FOR A SUSTAINABLE NATIONAL SECURITY STRATEGY" p. 5-6

The long list of U.S. problems in Afghanistan and Iraq should not be misinterpreted. It would be a mistake to conclude that: (1) the United States should cease to act hegemonically; (2) U.S. values (i.e., culture) are flawed, for Americans and some others; (3) the U.S. armed forces have been demonstrably incompetent. A more sensible interpretation of events would be the following: (1) the United States is the only candidate for contemporary hegemon, and world order needs a hegemon willing and able to serve as world policeman, even one that makes some policy errors9; (2) in major respects U.S. culture is highly attractive, which is fortunate since it is not easily alterable, but it does need to be advertised and applied with care and restraint abroad; (3) Americans have become very competent at warfighting, but that prowess has not extended across the whole of the conflict spectrum. In common with all great powers in the past, the United States has to learn to cope with occasional policy failure. Failure through human error or sheer incompetence, friction, and bad luck should not be mistaken for precipitate decline. Too many commentators today are proclaiming the end of American hegemony. It is true that there are visible 6 trends hostile to U.S. hegemony, the well-announced “rise of “ China and India, and one day, just possibly, the EU/Europe, and even a long-delayed Japan and Brazil. But for the time being and for many years to come, the United States will be the hegemon. This is to say that it will be the global leader, certainly the most important player, in any matter of grave significance for international security. This will be what one might call a default reality. It is, and will be, a consequence of conscious American choice and effort. Also, U.S. leadership, notwithstanding the exception of its behavior towards Iraq, will rest upon a base provided by broad global consent, albeit not always of an enthusiastic kind.

### Heg De-Escalates Conflict

#### History is on our side – theres zero chance that war erupts or escalates in a world of the aff – there is only a risk of war if you vote neg

Bradley Thayer (Associate Professor in the Department of Defense and Strategic Studies, Missouri State University) 2007 “American Empire” Routledge, page 42

Peace, like good health, is not often noticed, but certainly is missed when absent. Throughout history, peace and stability have been a major benefit of empires. In fact, pax Romana in Latin means the Roman peace, or the stabil-ity brought about by the Roman Empire. Rome’s power was so overwhelming that no one could challenge it successfully for hundreds of years. The result was stability within the Roman Empire. Where Rome conquered, peace, law, order, education, a common language, and much else followed. That was true of the British Empire (pax Britannica) too. So it is with the United States today. Peace and stability are major benefits of the American Empire. The fact that America is so powerful actually reduces the likelihood of major war. Scholars of international politics have found that the presence of a dominant state in international politics actually reduces the likelihood of war because weaker states, including even great powers, know that it is unlikely that they could challenge the dominant state and win. They may resort to other mechanisms or tactics to challenge the dominant coun-try, but are unlikely to do so directly. This means that there will be no wars between great powers. At least, not until a challenger (certainly China) thinks it can overthrow the dominant state (the United States). But there will be intense security competition—both China and the United States will watch each other closely, with their intelligence communities increasingly focused on each other, their diplomats striving to ensure that countries around the world do not align with the other, and their militaries seeing the other as their principal threat. This is not unusual in international politics but, in fact, is its “normal” condition. Americans may not pay much attention to it until a crisis occurs. But right now states are competing with one another. This is because international politics does not sleep; it never takes a rest.

#### Prefer our internal links – explains the last five centuries of global hegemons

Daniel Drezner (professor of international politics at The Fletcher School of Law and Diplomacy at Tufts University) 2001 “State structure, technological leadership and the maintenance of hegemony” http://www.danieldrezner.com/research/tech.pdf

In this decade, proponents of globalization argue that because information and capital are mobile, the location of innovation has been rendered unimportant.6 While this notion has some popular appeal, the globalization thesis lacks theoretical or empirical support. Theoretically, even in a world of perfect information and perfect capital mobility, economists have shown that the location of technological innovation matters.7 Empirically, the claims of globalization proponents have been far-fetched. Capital is not perfectly mobile, and increased economic exchange does not lead to a seamless transfer of technology from one country to another.8 The location of innovation still matters. Long-cycle theorists have paid the most attention to the link between technological innovation, economic growth, and the rise and fall of hegemons.9 They argue that the past five hundred years of the global political economy can be explained by the waxing and waning of hegemonic powers. Countries acquire hegemonic status because they are the first to develop a cluster of technologies in leading sectors. These innovations generate spillover effects to the rest of the lead economy, and then to the global economy. Over time, these ‘technological hegemons’ fail to maintain the rate of innovations, leading to a period of strife until a new hegemonic power is found.

#### Statistical backing indicates hegemony has decreased wars since WW2

Owen 11 John M. Owen Professor of Politics at University of Virginia PhD from Harvard "DON’T DISCOUNT HEGEMONY" Feb 11 www.cato-unbound.org/2011/02/11/john-owen/dont-discount-hegemony/

Andrew Mack and his colleagues at the Human Security Report Project are to be congratulated. Not only do they present a study with a striking conclusion, driven by data, free of theoretical or ideological bias, but they also do something quite unfashionable: they bear good news. Social scientists really are not supposed to do that. Our job is, if not to be Malthusians, then at least to point out disturbing trends, looming catastrophes, and the imbecility and mendacity of policy makers. And then it is to say why, if people listen to us, things will get better. We do this as if our careers depended upon it, and perhaps they do; for if all is going to be well, what need then for us? Our colleagues at Simon Fraser University are brave indeed. That may sound like a setup, but it is not. I shall challenge neither the data nor the general conclusion that violent conflict around the world has been decreasing in fits and starts since the Second World War. When it comes to violent conflict among and within countries, things have been getting better. (The trends have not been linear—Figure 1.1 actually shows that the frequency of interstate wars peaked in the 1980s—but the 65-year movement is clear.) Instead I shall accept that Mack et al. are correct on the macro-trends, and focus on their explanations they advance for these remarkable trends. With apologies to any readers of this forum who recoil from academic debates, this might get mildly theoretical and even more mildly methodological. Concerning international wars, one version of the “nuclear-peace” theory is not in fact laid to rest by the data. It is certainly true that nuclear-armed states have been involved in many wars. They have even been attacked (think of Israel), which falsifies the simple claim of “assured destruction”—that any nuclear country A will deter any kind of attack by any country B because B fears a retaliatory nuclear strike from A. But the most important “nuclear-peace” claim has been about mutually assured destruction, which obtains between two robustly nuclear-armed states. The claim is that (1) rational states having second-strike capabilities—enough deliverable nuclear weaponry to survive a nuclear first strike by an enemy—will have an overwhelming incentive not to attack one another; and (2) we can safely assume that nuclear-armed states are rational. It follows that states with a second-strike capability will not fight one another. Their colossal atomic arsenals neither kept the United States at peace with North Vietnam during the Cold War nor the Soviet Union at peace with Afghanistan. But the argument remains strong that those arsenals did help keep the United States and Soviet Union at peace with each other. Why non-nuclear states are not deterred from fighting nuclear states is an important and open question. But in a time when calls to ban the Bomb are being heard from more and more quarters, we must be clear about precisely what the broad trends toward peace can and cannot tell us. They may tell us nothing about why we have had no World War III, and little about the wisdom of banning the Bomb now. Regarding the downward trend in international war, Professor Mack is friendlier to more palatable theories such as the “democratic peace” (democracies do not fight one another, and the proportion of democracies has increased, hence less war); the interdependence or “commercial peace” (states with extensive economic ties find it irrational to fight one another, and interdependence has increased, hence less war); and the notion that people around the world are more anti-war than their forebears were. Concerning the downward trend in civil wars, he favors theories of economic growth (where commerce is enriching enough people, violence is less appealing—a logic similar to that of the “commercial peace” thesis that applies among nations) and the end of the Cold War (which end reduced superpower support for rival rebel factions in so many Third-World countries). These are all plausible mechanisms for peace. What is more, none of them excludes any other; all could be working toward the same end. That would be somewhat puzzling, however. Is the world just lucky these days? How is it that an array of peace-inducing factors happens to be working coincidentally in our time, when such a magical array was absent in the past? The answer may be that one or more of these mechanisms reinforces some of the others, or perhaps some of them are mutually reinforcing. Some scholars, for example, have been focusing on whether economic growth might support democracy and vice versa, and whether both might support international cooperation, including to end civil wars. We would still need to explain how this charmed circle of causes got started, however. And here let me raise another factor, perhaps even less appealing than the “nuclear peace” thesis, at least outside of the United States. That factor is what international relations scholars call hegemony—specifically American hegemony. A theory that many regard as discredited, but that refuses to go away, is called hegemonic stability theory. The theory emerged in the 1970s in the realm of international political economy. It asserts that for the global economy to remain open—for countries to keep barriers to trade and investment low—one powerful country must take the lead. Depending on the theorist we consult, “taking the lead” entails paying for global public goods (keeping the sea lanes open, providing liquidity to the international economy), coercion (threatening to raise trade barriers or withdraw military protection from countries that cheat on the rules), or both. The theory is skeptical that international cooperation in economic matters can emerge or endure absent a hegemon. The distastefulness of such claims is self-evident: they imply that it is good for everyone the world over if one country has more wealth and power than others. More precisely, they imply that it has been good for the world that the United States has been so predominant. There is no obvious reason why hegemonic stability theory could not apply to other areas of international cooperation, including in security affairs, human rights, international law, peacekeeping (UN or otherwise), and so on. What I want to suggest here—suggest, not test—is that American hegemony might just be a deep cause of the steady decline of political deaths in the world. How could that be? After all, the report states that United States is the third most war-prone country since 1945. Many of the deaths depicted in Figure 10.4 were in wars that involved the United States (the Vietnam War being the leading one). Notwithstanding politicians’ claims to the contrary, a candid look at U.S. foreign policy reveals that the country is as ruthlessly self-interested as any other great power in history. The answer is that U.S. hegemony might just be a deeper cause of the proximate causes outlined by Professor Mack. Consider economic growth and openness to foreign trade and investment, which (so say some theories) render violence irrational. American power and policies may be responsible for these in two related ways. First, at least since the 1940s Washington has prodded other countries to embrace the market capitalism that entails economic openness and produces sustainable economic growth. The United States promotes capitalism for selfish reasons, of course: its own domestic system depends upon growth, which in turn depends upon the efficiency gains from economic interaction with foreign countries, and the more the better. During the Cold War most of its allies accepted some degree of market-driven growth. Second, the U.S.-led western victory in the Cold War damaged the credibility of alternative paths to development—communism and import-substituting industrialization being the two leading ones—and left market capitalism the best model. The end of the Cold War also involved an end to the billions of rubles in Soviet material support for regimes that tried to make these alternative models work. (It also, as Professor Mack notes, eliminated the superpowers’ incentives to feed civil violence in the Third World.) What we call globalization is caused in part by the emergence of the United States as the global hegemon. The same case can be made, with somewhat more difficulty, concerning the spread of democracy. Washington has supported democracy only under certain conditions—the chief one being the absence of a popular anti-American movement in the target state—but those conditions have become much more widespread following the collapse of communism. Thus in the 1980s the Reagan administration—the most anti-communist government America ever had—began to dump America’s old dictator friends, starting in the Philippines. Today Islamists tend to be anti-American, and so the Obama administration is skittish about democracy in Egypt and other authoritarian Muslim countries. But general U.S. material and moral support for liberal democracy remains strong.

#### Otherwise – status based great power conflict is inevitable – relative lead key to prevent global conflict

William C. Wohlforth (a professor of government at Dartmouth College) 2009 “Unipolarity, Status Competition, and Great Power War” Project Muse

Second, I question the dominant view that status quo evaluations are relatively independent of the distribution of capabilities. If the status of states depends in some measure on their relative capabilities, and if states derive utility from status, then different distributions of capabilities may affect levels of satisfaction, just as different income distributions may affect levels of status competition in domestic settings. 6 Building on research in psychology and sociology, I argue that even capabilities distributions among major powers foster ambiguous status hierarchies, which generate more dissatisfaction and clashes over the status quo. And the more stratified the distribution of capabilities, the less likely such status competition is. Unipolarity thus generates far fewer incentives than either bipolarity or multipolarity for direct great power positional competition over status. Elites in the other major powers continue to prefer higher status, but in a unipolar system they face comparatively weak incentives to translate that preference into costly action. And the absence of such incentives matters because social status is a positional good—something whose value depends on how much one has in relation to others.7 “If everyone has high status,” Randall Schweller notes, “no one does.”8 While one actor might increase its status, all cannot simultaneously do so. High status is thus inherently scarce, and competitions for status tend to be zero sum.9 I begin by describing the puzzles facing predominant theories that status competition might solve. Building on recent research on social identity and status seeking, I then show that under certain conditions the ways decision makers identify with the states they represent may prompt them to frame issues as positional disputes over status in a social hierarchy. I develop hypotheses that tailor this scholarship to the domain of great power politics, showing how the probability of status competition is likely to be linked to polarity. The rest of the article investigates whether there is sufficient evidence for these hypotheses to warrant further refinement and testing. I pursue this in three ways: by showing that the theory advanced here is consistent with what we know about large-scale patterns of great power conflict through history; by [End Page 30] demonstrating that the causal mechanisms it identifies did drive relatively secure major powers to military conflict in the past (and therefore that they might do so again if the world were bipolar or multipolar); and by showing that observable evidence concerning the major powers’ identity politics and grand strategies under unipolarity are consistent with the theory’s expectations. Puzzles of Power and War Recent research on the connection between the distribution of capabilities and war has concentrated on a hypothesis long central to systemic theories of power transition or hegemonic stability: that major war arises out of a power shift in favor of a rising state dissatisfied with a status quo defended by a declining satisfied state.10 Though they have garnered substantial empirical support, these theories have yet to solve two intertwined empirical and theoretical puzzles—each of which might be explained by positional concerns for status. First, if the material costs and benefits of a given status quo are what matters, why would a state be dissatisfied with the very status quo that had abetted its rise? The rise of China today naturally prompts this question, but it is hardly a novel situation. Most of the best known and most consequential power transitions in history featured rising challengers that were prospering mightily under the status quo. In case after case, historians argue that these revisionist powers sought recognition and standing rather than specific alterations to the existing rules and practices that constituted the order of the day. In each paradigmatic case of hegemonic war, the claims of the rising power are hard to reduce to instrumental adjustment of the status quo. In R. Ned Lebow’s reading, for example, Thucydides’ account tells us that the rise of Athens posed unacceptable threats not to the security or welfare of Sparta but rather to its identity as leader of the Greek world, which was an important cause of the Spartan assembly’s vote for war.11 The issues that inspired Louis XIV’s and Napoleon’s dissatisfaction with the status quo were many and varied, but most accounts accord [End Page 31] independent importance to the drive for a position of unparalleled primacy. In these and other hegemonic struggles among leading states in post-Westphalian Europe, the rising challenger’s dissatisfaction is often difficult to connect to the material costs and benefits of the status quo, and much contemporary evidence revolves around issues of recognition and status.12 Wilhemine Germany is a fateful case in point. As Paul Kennedy has argued, underlying material trends as of 1914 were set to propel Germany’s continued rise indefinitely, so long as Europe remained at peace.13 Yet Germany chafed under the very status quo that abetted this rise and its elite focused resentment on its chief trading partner—the great power that presented the least plausible threat to its security: Great Britain. At fantastic cost, it built a battleship fleet with no plausible strategic purpose other than to stake a claim on global power status.14 Recent historical studies present strong evidence that, far from fearing attacks from Russia and France, German leaders sought to provoke them, knowing that this would lead to a long, expensive, and sanguinary war that Britain was certain to join.15 And of all the motivations swirling round these momentous decisions, no serious historical account fails to register German leaders’ oft-expressed yearning for “a place in the sun.” The second puzzle is bargaining failure. Hegemonic theories tend to model war as a conflict over the status quo without specifying precisely what the status quo is and what flows of benefits it provides to states.16 Scholars generally follow Robert Gilpin in positing that the underlying issue concerns a “desire to redraft the rules by which relations among nations work,” “the nature and governance of the system,” and “the distribution of territory among the states in the system.”17 If these are the [End Page 32] issues at stake, then systemic theories of hegemonic war and power transition confront the puzzle brought to the fore in a seminal article by James Fearon: what prevents states from striking a bargain that avoids the costs of war? 18 Why can’t states renegotiate the international order as underlying capabilities distributions shift their relative bargaining power? Fearon proposed that one answer consistent with strict rational choice assumptions is that such bargains are infeasible when the issue at stake is indivisible and cannot readily be portioned out to each side. Most aspects of a given international order are readily divisible, however, and, as Fearon stressed, “both the intrinsic complexity and richness of most matters over which states negotiate and the availability of linkages and side-payments suggest that intermediate bargains typically will exist.”19 Thus, most scholars have assumed that the indivisibility problem is trivial, focusing on two other rational choice explanations for bargaining failure: uncertainty and the commitment problem.20 In the view of many scholars, it is these problems, rather than indivisibility, that likely explain leaders’ inability to avail themselves of such intermediate bargains. Yet recent research inspired by constructivism shows how issues that are physically divisible can become socially indivisible, depending on how they relate to the identities of decision makers.21 Once issues surrounding the status quo are framed in positional terms as bearing on the disputants’ relative standing, then, to the extent that they value their standing itself, they may be unwilling to pursue intermediate bargaining solutions. Once linked to status, easily divisible issues that theoretically provide opportunities for linkages and side payments of various sorts may themselves be seen as indivisible and thus unavailable as avenues for possible intermediate bargains. The historical record surrounding major wars is rich with evidence suggesting that positional concerns over status frustrate bargaining: expensive, protracted conflict over what appear to be minor issues; a propensity on the part of decision makers to frame issues in terms of relative rank even when doing so makes bargaining harder; decision-makers’ [End Page 33] inability to accept feasible divisions of the matter in dispute even when failing to do so imposes high costs; demands on the part of states for observable evidence to confirm their estimate of an improved position in the hierarchy; the inability of private bargains to resolve issues; a frequently observed compulsion for the public attainment of concessions from a higher ranked state; and stubborn resistance on the part of states to which such demands are addressed even when acquiescence entails limited material cost. The literature on bargaining failure in the context of power shifts remains inconclusive, and it is premature to take any empirical pattern as necessarily probative. Indeed, Robert Powell has recently proposed that indivisibility is not a rationalistic explanation for war after all: fully rational leaders with perfect information should prefer to settle a dispute over an indivisible issue by resorting to a lottery rather than a war certain to destroy some of the goods in dispute. What might prevent such bargaining solutions is not indivisibility itself, he argues, but rather the parties’ inability to commit to abide by any agreement in the future if they expect their relative capabilities to continue to shift.22 This is the credible commitment problem to which many theorists are now turning their attention. But how it relates to the information problem that until recently dominated the formal literature remains to be seen.23 The larger point is that positional concerns for status may help account for the puzzle of bargaining failure. In the rational choice bargaining literature, war is puzzling because it destroys some of the benefits or flows of benefits in dispute between the bargainers, who would be better off dividing the spoils without war. Yet what happens to these models if what matters for states is less the flows of material benefits themselves than their implications for relative status? The salience of this question depends on the relative importance of positional concern for status among states. Do Great Powers Care about Status? Mainstream theories generally posit that states come to blows over an international status quo only when it has implications for their security or material well-being. The guiding assumption is that a state’s satisfaction [End Page 34] with its place in the existing order is a function of the material costs and benefits implied by that status.24 By that assumption, once a state’s status in an international order ceases to affect its material wellbeing, its relative standing will have no bearing on decisions for war or peace. But the assumption is undermined by cumulative research in disciplines ranging from neuroscience and evolutionary biology to economics, anthropology, sociology, and psychology that human beings are powerfully motivated by the desire for favorable social status comparisons. This research suggests that the preference for status is a basic disposition rather than merely a strategy for attaining other goals.25 People often seek tangibles not so much because of the welfare or security they bring but because of the social status they confer. Under certain conditions, the search for status will cause people to behave in ways that directly contradict their material interest in security and/or prosperity.

### Transition

#### Decline shreds global cooperation – no smooth transition

Randall L. Schweller (professor of political science at Ohio State University) December 2009 “Ennui Becomes Us” http://nationalinterest.org/article/ennui-becomes-us-3330?page=show

AND AS power devolves throughout the international system, new actors will emerge and develop to compete with states as power centers. Along these lines, Richard Haass claims that we have entered an "age of nonpolarity," in which states "are being challenged from above, by regional and global organizations; from below, by militias; and from the side, by a variety of nongovernmental organizations (NGOs) and corporations." Of course, there is nothing especially new about this observation; cosmopolitan liberals have been pronouncing (prematurely, in my view) the demise of the nation-state-the so-called "hollow state" and a crisis of state power-and the rise of nonstate actors for many decades. What is new is that even state-centric realists like Fareed Zakaria are now predicting a post-American world, in which international order is no longer a matter decided solely by the political and military power held by a single hegemon or even a group of leading states. Instead, the coming world will be governed by messy ad hoc arrangements composed of à la carte multilateralism and networked interactions among state and nonstate actors. One wonders what order and concerted action mean in a world that lacks fixed and predictable structures and relationships. Given the haphazard and incomplete manner by which the vacuum of lost state power is being filled, why expect order at all? THE MACROPICTURE that emerges from these global trends is one of historically unprecedented change in a direction consistent with increasing entropy: unprecedented hegemonic decline; an unprecedented transfer of wealth, knowledge and economic power from West to East; unprecedented information flows; and an unprecedented rise in the number and kinds of important actors. Thus, the onset of this extreme multipolarity or multi-multipolarity will not herald, as some observers believe, a return to the past. To the contrary, it will signal that maximum entropy is setting in, that the ultimate state of inert uniformity and unavailable energy is coming, that time does have a direction in international politics and that there is no going back because the initial conditions of the system have been lost forever. If and when we reach such a point in time, much of international politics as we know it will have ended. Its deep structure of anarchy-the lack of a sovereign arbiter to make and enforce agreements among states-will remain. But increasing entropy will result in a world full of fierce international competition and corporate warfare; continued extremism; low levels of trust; the formation of nonstate identities that frustrate purposeful and concerted national actions; and new nongeographic political spaces that bypass the state, favor low-intensity-warfare strategies and undermine traditional alliance groupings. Most important, entropy will reduce and diffuse usable power in the system, dramatically reshaping the landscape of international politics. The United States will see its relative power diminish, while others will see their power rise. To avoid crises and confrontation, these ongoing tectonic changes must be reflected in the superstructure of international authority. Increasing entropy, however, means that the antiquated global architecture will only grow more and more creaky and resistant to overhaul. No one will know where authority resides because it will not reside anywhere; and without authority, there can be no governance of any kind. The already-overcrowded and chaotic landscape will continue to be filled with more meaningless stuff; and the specter of international cooperation, if it was ever anything more than an apparition, will die a slow but sure death.

### Economic Conflicts Escalate

#### These conflicts escalate

Mathew J. Burrows (counselor in the National Intelligence Council (NIC), PhD in European History from Cambridge University) and Jennifer Harris (a member of the NIC’s Long Range Analysis Unit) April 2009 “Revisiting the Future: Geopolitical Effects of the Financial Crisis” http://www.twq.com/09april/docs/09apr\_Burrows.pdf

Of course, the report encompasses more than economics and indeed believes the future is likely to be the result of a number of intersecting and interlocking forces. With so many possible permutations of outcomes, each with ample opportunity for unintended consequences, there is a growing sense of insecurity. Even so, history may be more instructive than ever. While we continue to believe that the Great Depression is not likely to be repeated, the lessons to be drawn from that period include the harmful effects on fledgling democracies and multiethnic societies (think Central Europe in 1920s and 1930s) and on the sustainability of multilateral institutions (think League of Nations in the same period). There is no reason to think that this would not be true in the twenty-first as much as in the twentieth century. For that reason, the ways in which the potential for greater conflict could grow would seem to be even more apt in a constantly volatile economic environment as they would be if change would be steadier. In surveying those risks, the report stressed the likelihood that terrorism and nonproliferation will remain priorities even as resource issues move up on the international agenda. Terrorism’s appeal will decline if economic growth continues in the Middle East and youth unemployment is reduced. For those terrorist groups that remain active in 2025, however, the diffusion of technologies and scientific knowledge will place some of the world’s most dangerous capabilities within their reach. Terrorist groups in 2025 will likely be a combination of descendants of long established groupsinheriting organizational structures, command and control processes, and training procedures necessary to conduct sophisticated attacksand newly emergent collections of the angry and disenfranchised that become self-radicalized, particularly in the absence of economic outlets that would become narrower in an economic downturn. The most dangerous casualty of any economically-induced drawdown of U.S. military presence would almost certainly be the Middle East. Although Iran’s acquisition of nuclear weapons is not inevitable, worries about a nuclear-armed Iran could lead states in the region to develop new security arrangements with external powers, acquire additional weapons, and consider pursuing their own nuclear ambitions. It is not clear that the type of stable deterrent relationship that existed between the great powers for most of the Cold War would emerge naturally in the Middle East with a nuclear Iran. Episodes of low intensity conflict and terrorism taking place under a nuclear umbrella could lead to an unintended escalation and broader conflict if clear red lines between those states involved are not well established. The close proximity of potential nuclear rivals combined with underdeveloped surveillance capabilities and mobile dual-capable Iranian missile systems also will produce inherent difficulties in achieving reliable indications and warning of an impending nuclear attack. The lack of strategic depth in neighboring states like Israel, short warning and missile flight times, and uncertainty of Iranian intentions may place more focus on preemption rather than defense, potentially leading to escalating crises Types of conflict that the world continues to experience, such as over resources, could reemerge, particularly if protectionism grows and there is a resort to neo-mercantilist practices. Perceptions of renewed energy scarcity will drive countries to take actions to assure their future access to energy supplies. In the worst case, this could result in interstate conflicts if government leaders deem assured access to energy resources, for example, to be essential for maintaining domestic stability and the survival of their regime. Even actions short of war, however, will have important geopolitical implications. Maritime security concerns are providing a rationale for naval buildups and modernization efforts, such as China’s and India’s development of blue water naval capabilities. If the fiscal stimulus focus for these countries indeed turns inward, one of the most obvious funding targets may be military. Buildup of regional naval capabilities could lead to increased tensions, rivalries, and counterbalancing moves, but it also will create opportunities for multinational cooperation in protecting critical sea lanes. With water also becoming scarcer in Asia and the Middle East, cooperation to manage changing water resources is likely to be increasingly difficult both within and between states in a more dog-eat-dog world.

#### Nuclear war

Friedberg and Schoenfeld, 2008[Aaron, Prof. Politics. And IR @ Princeton’s Woodrow Wilson School and Visiting Scholar @ Witherspoon Institute, and Gabriel, Senior Editor of Commentary and Wall Street Journal, “The Dangers of a Diminished America” <http://online.wsj.com/article/SB122455074012352571.html>]

Then there are the dolorous consequences of a potential collapse of the world's financial architecture. For decades now, Americans have enjoyed the advantages of being at the center of that system. The worldwide use of the dollar, and the stability of our economy, among other things, made it easier for us to run huge budget deficits, as we counted on foreigners to pick up the tab by buying dollar-denominated assets as a safe haven. Will this be possible in the future? Meanwhile, traditional foreign-policy challenges are multiplying. The threat from al Qaeda and Islamic terrorist affiliates has not been extinguished. Iran and North Korea are continuing on their bellicose paths, while Pakistan and Afghanistan are progressing smartly down the road to chaos. Russia's new militancy and China's seemingly relentless rise also give cause for concern. If America now tries to pull back from the world stage, it will leave a dangerous power vacuum. The stabilizing effects of our presence in Asia, our continuing commitment to Europe, and our position as defender of last resort for Middle East energy sources and supply lines could all be placed at risk. In such a scenario there are shades of the 1930s, when global trade and finance ground nearly to a halt, the peaceful democracies failed to cooperate, and aggressive powers led by the remorseless fanatics who rose up on the crest of economic disaster exploited their divisions. Today we run the risk that rogue states may choose to become ever more reckless with their nuclear toys, just at our moment of maximum vulnerability. The aftershocks of the financial crisis will almost certainly rock our principal strategic competitors even harder than they will rock us. The dramatic free fall of the Russian stock market has demonstrated the fragility of a state whose economic performance hinges on high oil prices, now driven down by the global slowdown. China is perhaps even more fragile, its economic growth depending heavily on foreign investment and access to foreign markets. Both will now be constricted, inflicting economic pain and perhaps even sparking unrest in a country where political legitimacy rests on progress in the long march to prosperity. None of this is good news if the authoritarian leaders of these countries seek to divert attention from internal travails with external adventures.

### A2 Resilience

#### No resiliency – its try or die now

Nouriel Roubini (professor of economics at New York University's Stern School of Business, is co-founder and chairman of Roubini Global Economics (RGE)) and Michael Moran (RGE's vice president, executive editor, and chief geostrategy analyst) October 11, 2010 “Avoid the Double Dip” http://www.foreignpolicy.com/articles/2010/10/11/avoid\_the\_double\_dip?page=0,0

Roughly three years since the onset of the financial crisis, the U.S. economy increasingly looks vulnerable to falling back into recession. The United States is flirting with "stall speed," an anemic rate of growth that, if it persists, can lead to collapses in spending, consumer confidence, credit, and other crucial engines of growth. Call it a "double dip" or the Great Recession, Round II: Whatever the term, we're talking about a negative feedback loop that would be devilishly hard to break. If Barack Obama wants a realistic shot at a second term, he'll need to act quickly and decisively to prevent this scenario. Near double-digit unemployment is the root of the problem. Without job creation there's a lack of consumer spending, which represents 40 percent of domestic GDP. To date, the U.S. government has responded creatively and massively to the near collapse of the financial system, using a litany of measures, from the bank bailout to stimulus spending to low interest rates. Together, these policies prevented a reprise of the Great Depression. But they also created fiscal and political dilemmas that limit the usefulness of traditional monetary and fiscal tools that policymakers can turn to in a pinch. With interest rates near zero percent already, the Federal Reserve has few bullets left in its holster to boost growth or fend off another slump. This lack of available good options was patently on display in August when Fed Chairman Ben Bernanke spoke with a tinge of resignation about new "quantitative easing" interventions in the mortgage and bond markets -- a highly technical suggestion that, until the recent crisis, amounted to heresy among Fed policymakers. It certainly hasn't helped that the U.S. federal deficit has reached heights that make additional stimulus spending, of the kind that helped kindle the mini-recovery of early 2010, politically impossible.

### US Key to Global

#### US key to the global economy

David Caploe (the CEO of the Singapore-incorporated American Centre for Applied Liberal Arts and Humanities in Asia) April 2009 “Focus Still on America to Lead Global Recovery” Online

While superficially sensible, this view is deeply problematic. To begin with, it ignores the fact that the global economy has in fact been 'America-centred' for more than 60 years. Countries - China, Japan, Canada, Brazil, Korea, Mexico and so on - either sell to the US or they sell to countries that sell to the US. To put it simply, Mr Obama doesn't seem to understand that there is no other engine for the world economy - and hasn't been for the last six decades. If the US does not drive global economic growth, growth is not going to happen. Thus, US policies to deal with the current crisis are critical not just domestically, but also to the entire world. This system has generally been advantageous for all concerned. America gained certain historically unprecedented benefits, but the system also enabled participating countries - first in Western Europe and Japan, and later, many in the Third World - to achieve undreamt-of prosperity. At the same time, this deep inter-connection between the US and the rest of the world also explains how the collapse of a relatively small sector of the US economy - 'sub-prime' housing, logarithmically exponentialised by Wall Street's ingenious chicanery - has cascaded into the worst global economic crisis since the Great Depression. To put it simply, Mr Obama doesn't seem to understand that there is no other engine for the world economy - and hasn't been for the last six decades. If the US does not drive global economic growth, growth is not going to happen. Thus, US policies to deal with the current crisis are critical not just domestically, but also to the entire world. Consequently, it is a matter of global concern that the Obama administration seems to be following Japan's 'model' from the 1990s: allowing major banks to avoid declaring massive losses openly and transparently, and so perpetuating 'zombie' banks - technically alive but in reality dead. As analysts like Nobel laureates Joseph Stiglitz and Paul Krugman have pointed out, the administration's unwillingness to confront US banks is the main reason why they are continuing their increasingly inexplicable credit freeze, thus ravaging the American and global economies. Team Obama seems reluctant to acknowledge the extent to which its policies at home are failing not just there but around the world as well. Which raises the question: If the US can't or won't or doesn't want to be the global economic engine, which country will? The obvious answer is China. But that is unrealistic for three reasons. First, China's economic health is more tied to America's than practically any other country in the world. Indeed, the reason China has so many dollars to invest everywhere - whether in US Treasury bonds or in Africa - is precisely that it has structured its own economy to complement America's. The only way China can serve as the engine of the global economy is if the US starts pulling it first. Second, the US-centred system began at a time when its domestic demand far outstripped that of the rest of the world. The fundamental source of its economic power is its ability to act as the global consumer of last resort. China, however, is a poor country, with low per capita income, even though it will soon pass Japan as the world's second largest economy. There are real possibilities for growth in China's domestic demand. But given its structure as an export-oriented economy, it is doubtful if even a successful Chinese stimulus plan can pull the rest of the world along unless and until China can start selling again to the US on a massive scale. Finally, the key 'system' issue for China - or for the European Union - in thinking about becoming the engine of the world economy - is monetary: What are the implications of having your domestic currency become the global reserve currency? This is an extremely complex issue that the US has struggled with, not always successfully, from 1959 to the present. Without going into detail, it can safely be said that though having the US dollar as the world's medium of exchange has given the US some tremendous advantages, it has also created huge problems, both for America and the global economic system. The Chinese leadership is certainly familiar with this history. It will try to avoid the yuan becoming an international medium of exchange until it feels much more confident in its ability to handle the manifold currency problems that the US has grappled with for decades. Given all this, the US will remain the engine of global economic recovery for the foreseeable future, even though other countries must certainly help. This crisis began in the US - and it is going to have to be solved there too.

# Solvency Extensions

### HSR Solves Warming

#### HSR key to solve warming

**Christensen 2012** (Angela Christensen, January 30, 2012, “The Need for Speed: How High Speed Rail Challenges the ‘Green’ Car,” Be Green, http://begreen.botw.org/2012/01/high-speed-rail-challenges-green-car/)

In today’s busy world, people are always on the move. Whether it is by car, plane, bus, subway or train, we cannot hold still; however, the continuous movement of people has taken its toll on the planet. Transport is one of the main contributors to CO2 emissions and global warming. Given the demand for travel, airports are overcrowded and roadways are congested. To make matters worse, transport energy emissions are expected to increase 1.7% per year from 2004-2030. In response to the tremendous amounts of carbon that cars emit into the air every second and the increased concern over environmental degradation, car manufacturers integrated ‘green’ technology into their production lines and unveiled alternative energy vehicles to the world in the way of the hybrid and electric vehicles. However, these ‘green’ cars are not affordable to most Americans, especially given the current state of the national economy. The initial cost to own a hybrid car is between $2,000 and $10,000 more than their traditional car competitors. Additionally, the complex technology onboard hybrid vehicles makes repairs more cumbersome and often leaves the buyer with a large out-of-pocket expense if something goes awry. Nevertheless, hybrid cars cut carbon emissions by 25-30% over the most fuel-efficient vehicles, making them seem more environmentally attractive. Hybrids perform best during low speed city driving or in traffic jams when the battery kicks in to power the car rather than the engine running on fuel. If highway driving is your normal route, then the hybrid’s motor continuously runs on gasoline making the trip to the gas station inevitable. Unfortunately, less fuel consumption and fewer carbon emissions are met with environmental toxins that are produced during the car’s manufacture. Hybrid cars are manufactured using metals for both their batteries and their electric drive motors and wiring. Although the nickel-hydride battery is less dangerous than its contemporary counterpart, the lead battery, the nickel must still be mined and is usually done so in open cast mines that can lead to great environmental devastation. Furthermore, the copper used for the car’s wiring and motor must also be excavated from the earth–not exactly a green situation. So what about an electric car? You may think that by purchasing an electric car instead of a hybrid car you are circumnavigating all of these apparent hybrid negativities–but don’t rush out and buy one too fast. Plugging in your car will certainly eliminate the trip to the gas pump but it may be putting further stresses on the environment depending on where you live. If the electricity used to recharge the electric car’s battery comes from a renewable source like wind or solar, then the environmental impact that the car’s battery has on the environment is low. In contrast, if the electricity is generated from a coal-fired power station, then the battery’s affect on the environment is much worse. Although ‘green’ car technology seems to be better for the environment in most cases when compared against the traditional car, we must not overlook the sustainability of public transportation–something extremely underutilized in the United States. The transport sector faces many challenges in the future such as urbanization, the scarcity of natural resources and increases in oil and fuel prices. High Speed Rail (HSR) is a viable option to combating these negative externalities while creating a sustainable means of mobility. In other parts of the world, HSR is not a new concept. It has been utilized in Japan since the 1960s, and today, much of Europe is connected by HSR. HSR not only provides a quick way to move around but also emits far less carbon into the atmosphere than any other form of public transport. HSR can reach speeds of up to 223 mph, truly revolutionizing how humans move. The reduced carbon emissions from HSR are also worth taking note of. Covering a distance of 704 km (439 miles), CO2 emissions in grams per passenger per kilometre are 2.7 g/pkm using HSR, compared with 153 g/pkm for air travel and 115.7 g/pkm by car. Not only does HSR have fewer carbon emissions, carry more passengers and move a heck of a lot faster than a car, it is comfortable to travel in and allows commuters to work or relax. They provide a great deal of personal space and are equipped with modern technologies such as Internet and power outlets, and the use of mobile devices is allowed. There are restaurant cars serving food and beverages and passengers can walk around freely…or sleep. Accommodating the movement of people from here to there around the globe puts strains on ecosystems and natural resources. Although ‘green’ car technology has helped to alleviate some of the pressures put on the natural environment by manufacturing cars that emit less CO2 and use less fuel, we must look to more efficient forms of public transport to transform how we travel. HSR can carry more people more quickly while emitting far less CO2 into the atmosphere than cars or planes. Investing our dollars into a sustainable mode of transportation like HSR minimizes environmental impacts, limits emissions and waste, offers a choice for a mode of transport, is affordable and efficient, and promotes equity within and between successive generations. We can look to the future with great hope that HSR will be integrated into this country sooner rather than later.

#### Massively reduces US emissions

**American Progress 2010** (“It's Easy Being Green: Rail Transport Picks Up Speed,” March 24, 2010, http://goo.gl/vY4yz)

The United States uses 25 percent of the entire world’s oil supply despite having only 5 percent of the world’s population, and sprawling communities force people to drive even short distances. We need alternate modes of transportation to kick this oil dependence, and one alternative is high-speed rail, which offers tantalizing environmental and economic benefits. President Barack Obama, Vice President Joseph Biden, and Transportation Secretary Ray LaHood announced a strategic plan for high-speed rail last year that includes $8 billion in the American Recovery and Reinvestment Act and $1 billion a year for five years in the federal budget. Their goal is to jumpstart a potential world-class rail system in the United States. These economic incentives for a mass U.S. network of high-speed rail trains, or HSR, along existing transportation corridors could create much-needed jobs, decrease our dependence on foreign oil and fossil fuels, and significantly reduce greenhouse gas emissions. The national implementation of HSR would create jobs in the planning, design, and construction of track and station infrastructure as well as the management, design, and manufacturing of high-speed trains. A study by the California High-Speed Rail Authority found that building their proposed HSR system—which would run from Los Angeles to San Francisco and voters OK’d in 2008—will create 150,000 construction jobs and 450,000 permanent jobs. Critics worry that HSR will encourage sprawl and have a significant impact on parks and wildlife refuges. Yet there have been no links established between existing HSR stations in France and Spain, for example, and an epidemic of suburban growth. In fact, sprawl could be a thing of the past if we take preventative measures to encourage urban density, enact antisprawl regulations, and make it convenient to travel to outlying HSR stations with plenty of garage parking. HSR systems would take advantage of existing transportation corridors to minimize intrusion onto protected nature reserves, decrease air pollution generated by internal combustion engines in cars, and reduce greenhouse gas emissions. The California HSR, for example, will remove 12 billion pounds of carbon dioxide per year by 2030 because it uses electricity generated from wind, solar, and other renewable resources. In addition, California’s HSR will save 12.7 million barrels of oil by 2030. Further, the Center for Clean Air Policy and the Center for Neighborhood Technology concluded in 2006 that a national HSR system could reduce the number of annual car trips by 29 million and annual plane flights by 500,000, saving 6 billion pounds of carbon dioxide emissions equal to removing 1 million cars from the road each year.

#### Solve CO2 and air pollution

**Dutzik Kaplan and Baxandall 2010** (Tony Dutzik and Siena Kaplan, Frontier Group, and Phineas Baxandall, Ph.D., “The Right Track Building a 21 st Century High-Speed Rail System for America,” http://goo.gl/K0rnL)

Passenger rail is a cleaner form of transportation than car or air travel, emitting less global warming pollution and less healththreatening air pollution. Building a highspeed 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 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.

#### Solves Urban Sprawl and global warming

**ELPC, 11**

<http://elpc.org/benefits-of-high-speed-rail>, Environmental Law and Policy Center

High speed trains in the Midwest would be three times as energy efficient as cars and six times as energy efficient as planes. Choosing rail travel over driving or flying will decrease our dependence on foreign oil and reduce air pollution that causes global warming and harms public health. Currently, major portions of the Midwest suffer from “severe” smog problems, according to federal regulators. The construction of high-speed rail will decrease the region’s reliance on automotive transportation and therefore help reduce ozone emissions. Downtown train stations will pull jobs, people and business back into the country’s central cities thus reversing sprawl. High speed rail reduces the need for new outlying highways and airports which exacerbate sprawl.

#### Solves congestion and the environment

**UPI Energy, 12**

UPI Energy May 22, 2012 Tuesday 6:30 AM EST High-speed rail still a dream in U.S. BYLINE: MARA GRBENICK, MEDILL NEWS SERVICE LENGTH: 1231 words DATELINE: WASHINGTON, May 22

High-speed systems are often idealized as the optimal form of passenger rail. Both supporters and non-supporters of so-called bullet trains say that high-speed rail may be the best but it's the pinnacle -- something worth working toward. That's because, done right, high-speed trains are fast, economical, and efficient and relieve congestion on roads and in airports, supporting a cleaner natural environment.

### HSR Key to the Economy

#### HSR will boost economic growth immediately and provide sustainability

Rogers, Spring 2011 (Joshua – J.D. University of Illinois College of Law, The Great Train Robbery: How Statutory Construction May Have Derailed an American High Speed Rail System, University of Illinois Journal of Law, Technology & Policy, p. Lexis)

High speed rail will also boost the economy immediately and help stabilize the economy in the future. The construction of high speed rail is estimated to create 1.6 million U.S. jobs. n68 Still, that number could grow significantly if, as has been proposed by some, the U.S. contracts with American companies to build the high speed rail trainsets. n69 Beyond the immediate creation of jobs, passenger rail is predicted to reduce America's dependence on foreign oil imports. n70 That reduction could also be augmented if the high speed rail system employs electric propulsion in lieu of the traditional diesel propulsion of passenger rail. n71 Thus, the U.S. would benefit from a viable high speed rail system through increased efficiency, reduced environmental impact, and economic growth and stabilization.

#### High speed rail is key to economic growth – urban markets, employment, wages, productivity, and local economies

TODOROVICH et al, 11

PETRA TODOROVICH, DANIEL SCHNED, AND ROBERT LANE “High-Speed Rail International Lessons for U.S. Policy Makers” 2011 Lincoln Institute of Land Policy Policy Focus Report, https://www.lincolninst.edu/pubs/dl/1948\_1268\_High-Speed%20Rail%20PFR\_Webster.pdf

High-speed rail’s ability to promote economic growth is grounded in its capacity to increase access to markets and exert positive effects on the spatial distribution of economic activity (Redding and Sturm 2008). Transportation networks increase market access, and economic development is more likely to occur in places with more and bet- ter transportation infrastructure. In theory, by improving access to urban markets, high- speed rail increases employment, wages, and productivity; encourages agglomeration; and boosts regional and local economies. Empirical evidence of high-speed rail’s impact around the world tends to support the following theoretical arguments for high-speed rail’s economic beneﬁts. Higher wages and productivity: The time savings and increased mobility offered by high-speed rail enables workers in the service sector and in information- exchange industries to move about the megaregion more freely and reduces the costs of face-to-face communication. This enhanced connectivity boosts worker pro- ductivity and business competitiveness, leading to higher wages (Greengauge 21 2010). Deeper labor and employment markets: By connecting more communities to other population and job centers, high- speed rail expands the overall commuter shed of the megaregion. The deepened labor markets give employers access to larger pools of skilled workers, employees access to more employment options, and workers access to more and cheaper hous- ing options outside of expensive city centers (Stolarick, Swain, and Adleraim 2010). Expanded tourism and visitor spending: Just as airports bring visitors and their spending power into the local economy, high-speed rail stations attract new tourists and business travelers who might not have made the trip otherwise. A study by the U.S. Conference of Mayors (2010) concluded that building high-speed rail would increase visitor spending annually by roughly $225 million in the Orlando region, $360 million in metropolitan Los Angeles, $50 million in the Chicago area, and $100 million in Greater Albany, New York. Direct job creation: High-speed rail creates thousands of construction-related jobs in design, engineering, planning, and construction, as well as jobs in ongoing maintenance and operations. In Spain, the expansion of the high-speed AVE system from Malaga to Seville is predicted to create 30,000 construction jobs (Euro Weekly 2010). In China, over 100,000 construction work- ers were involved in building the high-speed rail line that connects Beijing and Shanghai (Bradsher 2010). Sustained investment could foster the development of new manu- facturing industries for rail cars and other equipment, and generate large amounts of related employment. Urban regeneration and station area development: High-speed rail can generate growth in real estate markets and anchor investment in commercial and resi- dential developments around train stations, especially when they are built in coordination with a broader set of public interventions and urban design strategies (see chapter 3). These interventions ensure that high-speed rail is integrated into the urban and regional fabric, which in turn ensures the highest level of ridership and economic activity. For example, the city of Lille, France, experi- enced greater than average growth and sub- stantial ofﬁce and hotel development after its high-speed rail station was built at the crossroads of lines linking London, Paris, and Brussels (Nuworsoo and Deakin 2009). Spatial agglomeration: High-speed rail enhances agglomeration economies by creating greater proximity between business locations through shrinking time distances, especially when the locations are within the rail-friendly 100 to 600 mile range. Agglom- eration economies occur when ﬁrms beneﬁt from locating close to other complementary ﬁrms and make use of the accessibility to varied activities and pools of skilled labor. High-speed rail has also been described as altering the economic geography of megaregions. By effectively bringing eco- nomic agents closer together, high-speed rail can create new linkages among ﬁrms, sup- pliers, employees, and consumers that, over time, foster spatial concentration within re- gions (Ahlfeldt and Feddersen 2010). This interactive process creates net economic gains in addition to the other economic beneﬁts described here.

#### Investing in high speed rail key to bolster manufacturing – jobs and R&D

Demas, 9

Susan J. Demas June 5 2009 Syndicated columnist, political analyst “Commerce Secretary Locke: Rail Can Revive Auto Industry” http://www.mirsnews.com/capsule.php?gid=3092#20542

During last year's Michigan presidential primary, John McCain made the mistake of saying that the hundreds of thousands of lost auto jobs weren't coming back. Mitt Romney then blathered something about the triumph of the American spirit and promptly pulled off a 9-point win. A little more than a year later, with Chrysler and GM in bankruptcy, no one could credibly claim that jobs will be flooding back to the industry. So what now for the Rust Belt? On Wednesday, U.S. Commerce Gary Locke was at a town hall in Holt, Michigan. That day, Transportation Secretary Ray LaHood and Vice President Joe Biden were busy meeting with Michigan Gov. Jennifer Granholm in Washington about a Detroit-Pontiac-Chicago high-speed rail line. So I asked Locke if rail was an area for the auto industry to expand into. He gave his enthusiastic endorsement. "Oh, yeah," he told me. "As you see more construction of rail cars, high-speed cars, it's going to require new engineering, new products and services and that's the natural fit and extension for automotive dealers and suppliers and manufacturers." Six hundred miles away in Washington, Granholm was on the same page. "We have lots of capacity in Michigan and workers who know how to make things," she said. It's a bit of an ironic partnership, sure, since GM killed Detroit's street cars in the 1950s and is a key reason why it is the only one in the top 20 cities lacking a decent transit system. But the days of Charles Erwin Wilson musing that "for years I thought what was good for the country was good for General Motors and vice versa" are long gone. Linking up with rail makes perfect sense for a contracting industry, at a time when environmental and economic factors make expanding public transit a necessity. Former U.S. Rep. Joe Schwarz (R-Battle Creek), who has been in the running for a White House job, is perhaps Michigan's foremost authority on railroads. He could be the logical person to help spearhead the autos' transition to rail. He notes the United States is behind the curve on high-speed rail, with countries like France, Italy, Germany, Spain and Japan establishing lines decades ago. But he said even with a White House push, it's still an uphill battle. "It will take a real will on the part of the states and the Congress to get it done. Members of Congress from non-high-speed rail states will fight it," Schwarz predicted. Light-rail would particularly benefit New York, Connecticut, Massachusetts, New Jersey, Pennsylvania, Delaware, Maryland, Washington, D.C., Ohio, Indiana, Michigan, Illinois, Wisconsin, Texas, California, Washington, Oregon and Missouri, he said. If the feds do subsidize the Detroit-Chicago line, Schwarz said, it will be a massive undertaking, but an opportunity to create a lot of jobs in construction and manufacturing. The project will require ballast, tie, track repair and replacement, regrading some curves to accommodate higher speed trains, modern signaling equipment, emergency stop capability for trains that miss signals, dedicated high-speed right of way, new passenger car with special wheels and brakes and new locomotives capable of 135 mph and above. New stations will be required in some cities, as well. "This is a multi-multi billion dollar two decade project that should have been done long ago," Schwarz said.

### Investment Solves

#### Federal investment solves

**Todorovich, Schned and Lane 2011** (Petra Todorovich, director of America 2050, Daniel Schned, associate planner for America 2050, and Robert Lane, High-Speed Rail: International Lessons for U.S. Policy Makers, Policy Focus Report, Lincoln Institute of Land Policy, p. 46-47)

Like other modes of transportation and public goods, high-speed rail generally does not pay for itself through ticket fares and other operating revenues. Reliable federal funding is needed for some portion of the upfront capital costs of constructing rail infrastructure, but operating revenues frequently cover operating and maintenance costs. Two well-known examples of highly successful high-speed rail lines—the Tokyo– Osaka Shinkansen and Paris–Lyon TGV—generate an operating proﬁt (JR Central 2010; Gow 2008). German high-speed trains also have been proﬁtable on an operating basis, with revenues covering 100 percent of maintenance costs and 30 percent of new track construction (University of Pennsylvania 2011). Moreover, as long as the HSIPR Program combines funding for both high-speed and conventional rail, federal grants, not loans, will be required to support its initiatives. Since conventional rail services are likely to need continued operating subsidies, it is even more important to secure a federal funding source for capital infrastructure costs. A small but reliable transportation tax for high-speed and conventional passenger rail would demonstrate the federal government’s commitment to a comprehensive rail program, giving states the assurance they need to plan high-speed rail projects and equipment manufacturers the conﬁdence they require to invest in the industry. The challenge of securing revenue for rail investments is closely linked to the chal-lenge of funding the nation’s entire surface transportation program. While in the past revenues from the federal motor fuel taxes were sufﬁcient to cover the nation’s highway and transit priorities, the 18.4 cents per gallon gasoline tax has been ﬁxed since 1993, while the dollar has lost one-third of its purchasing power in that time (RAND Corporation 2011). New sources of sustainable revenue are needed to support not only high-speed and conventional passenger rail but also all of the nation’s surface transportation obligations, including highways and transit. In recent years, Congress has addressed the funding shortfall with short-term ﬁxes by transferring general fund revenues to the highway trust fund. However, the need to ﬁnd a long-term solution presents the opportunity to address existing surface transportation needs and high-speed and passenger rail all at once. At some point in the near future, Congress must address the shortfall in national transportation funding. At that time legislators could also dedicate revenues for high-speed and passenger rail as part of the surface transportation program, generated by a variety of small increases or reallocations of current transportation-related fees to provide at least $5 billion in annual funds. Several proposals are currently being considered. • Raise the gas tax by 15 cents a gallon (The National Commission on Fiscal Responsibility and Reform, 2010) or more. Each additional cent of gas tax generates approximately $1.4 billion annually (AASHTO 2011). Several cents could be devoted to passenger rail. • Add a $1 surcharge on current passenger rail tickets to produce approximately $29 million annually (Amtrak 2011d). Though this is a relatively small amount of revenue, it could become an important source of funds for expanding and main-taining the system as passenger rail ridership grows. • Or, shift from a national gas tax to a percentage tax on crude oil and imported reﬁned petroleum products consumed in the United States to fund all the nation’s transportation needs (RAND Corporation 2011). RAND estimated that an oil tax of 17 percent would generate approximately $83 billion a year (at midsummer 2010 prices of $72 per barrel). Five billion dollars of this amount could be dedicated to passenger rail.

#### Sustained and predictable funding key

**Cote 2011** (Angela Cote, associate editor of Progressive Railroading, California HSR Officials Contend with Criticism, Progressive Railroading, [http://www.progressiverailroading.com/high\_speed\_rail/article/California-HSR-officials-contend-with-criticism--26838#](http://www.progressiverailroading.com/high_speed_rail/article/California-HSR-officials-contend-with-criticism--26838))

But for CHSRA to achieve its larger vision, the authority will need tens of billions of dollars in additional funding — federal dollars included. The uncertainty surrounding the near- and long-term prospects for federal funding don’t affect CHSRA’s “day to day,” but it could impact the private sector’s willingness to pony up funds to help California build its sprawling system, says Barker. “It’s a little bit ironic because there are a lot of people, especially in Congress, saying they want private-sector participation, but private firms right now are seeing volatility and political strife, and that’s not an environment in which the private sector will want to participate,” he says. That’s why it’ll be critical for Congress to create a program to fund high-speed rail on an ongoing basis. And as long as the private sector is confident the federal government will pony up more funds for HSR development, there are plenty of firms interested in securing a stake in California’s project.

#### Investment in High speed rail preserves American competitiveness and insulates the economy from oil shocks

Kunz, 3/10/2011 (Andy – president and CEO of the U.S. High Speed Rail Association, U.S. High-Speed Rail: Time to Hop Aboard or Be Left Behind, Environment 360, p. http://e360.yale.edu/feature/us\_high-speed\_rail\_time\_to\_hop\_aboard\_or\_be\_left\_behind/2378/)

China has committed to investing $360 billion to vastly expand its showcase network of high-speed trains, which already carry passengers at more than 200 miles per hour between some of the country’s largest cities. Spain, despite its economic woes, is investing $170 billion to extend its acclaimed high-speed rail system, which now makes the 386-mile Madrid-Barcelona run in just 2 hours, 38 minutes — compared to six hours by car. A similar boom in high-speed rail construction is taking place throughout Europe, from the boot of Italy to the Baltic Sea. Worldwide, nations not normally associated with the bullet train revolution — India, Brazil, Argentina, and Morocco, among others — are making plans to build high-speed rail networks. They understand that rapid, inter-city rail systems will be essential to developing competitive 21st-century economies as oil supplies dwindle, highways and airports face increasing congestion, and pressure to reduce carbon emissions rises. And the United States? For the past several months the news on the high-speed rail front has been dominated by several governors, swept into power by the Tea Party movement, proudly proclaiming that they will have nothing to do with high-speed rail projects, which they contend are boondoggles. Indeed, the governors of Florida, Wisconsin, and Ohio have collectively rejected $3.6 billion in federal funds that would have covered nearly all of the cost of building rail lines on such routes as Orlando to Tampa, Milwaukee to Madison, and Cleveland to Columbus. Fortunately, the foresight of the Obama administration and various states will ensure that the foundation of a national high-speed rail network will be laid in the coming years, with $8 billion in federal stimulus funds going to construct the first links in a high-speed rail network that is envisioned to stretch 17,000 miles by 2030. Bullet trains would eventually whisk people between all major U.S. cities — Los Angeles to Seattle, Dallas to Albuquerque, and Boston to Washington, at 220 miles per hour. The cost of such a network would be significant — $600 billion — but a combination of public and private funds would build the system, which would eventually yield benefits that far exceed the original investment. For now, the U.S. funds rejected by governors Rick Scott of Florida, Scott Walker of Wisconsin, and John Kasich of Ohio, will be distributed to other states such as California and Illinois, which will benefit for years to come from the job creation and economic stimulus that will accompany the establishment of high-speed rail networks. In the future, the actions by these three governors will be viewed as folly, decisions that were made on ideological rather than rational grounds and that undermine the job creation that the three governors tout as central to their administrations. The decisions of the three Republican governors were not isolated acts, but rather a coordinated effort by the Tea Party and its allies to attempt to kill high-speed rail across America. Fortunately, 35 other governors — Republicans and Democrats alike — whose states were eligible for federal high-speed rail funding did accept U.S. grants for rail projects. Last month’s decision by Governor Scott of Florida to reject federal funding for high-speed rail reflects the combination of bad information and partisan thinking that motivated all three governors to turn their backs on the future. In making his decision, Scott says he relied heavily on a January report by the libertarian Reason Foundation, which is funded by major conservative organizations, oil companies, and companies involved in highway construction. The Reason Foundation report was riddled with inaccuracies, exaggerations, and distortions, such as a claim that the construction of the Orlando-Tampa line could cost Florida taxpayers $3 billion in capital cost overruns. That figure was arrived at by comparing the project in Florida to California, which faces far tougher right-of-way and land-use issues. The Tampa-Orlando line already has a long-established right of way on the Interstate 4 median, making it much cheaper to build. In addition, the eight international rail consortia seeking to construct the Florida line have guaranteed that they will cover operation, maintenance, and subsidy costs for 30 years. After rejecting the federal funds, Scott’s office issued a statement that he “is now focused on moving forward with infrastructure projects that create long-term jobs and turn Florida’s economy around.” Those new projects will require far more Florida tax dollars than would ever have been spent on the Tampa to Orlando line, prompting former Republican Governor Jeb Bush to express surprise at Scott’s decision. Fifteen Republican and 11 Democratic state senators in Florida also signed a letter to U.S.Transportation Secretary Ray LaHood asking him to ignore Scott and allow the legislature to work with the consortia to revive the Tampa to Orlando project. In addition, a group of Florida mayors is speaking with LaHood about bypassing the governor and allowing an organization formed by the mayors to receive the federal funds and oversee the building of the Tampa-Orlando line. This effort underscores the broad, bipartisan backing for the project, as evidenced by the fact that eight business associations from 11 counties in central Florida are staunch supporters of the proposed rail line. One key reason: The line would connect Tampa and Orlando with Walt Disney World, one of the world’s top tourist attractions. The reasons that so many disparate interests support the creation of a national high-speed rail network are glaringly obvious, and are becoming more so by the day. The United States has become far too dependent on foreign oil, with Americans consuming six times more oil per capita than Europeans, who enjoy better, faster, and cheaper mobility. The U.S now spends up to $700 billion a year to import foreign oil, 70 percent of which is consumed by cars, trucks, and airplanes. Now, for the second time in less than three years, the price of oil has shot up past $100 a barrel, threatening the fragile economic recovery. And most experts agree that the world has passed the point of peak oil, which means that as demand soars and supplies dwindle, oil prices could hit $300 per barrel this decade. Enhancing U.S. energy security is just one reason the country needs a state-of-the-art high-speed rail system, which by 2030 could transport millions of people each day between America’s cities. A national high-speed rail system would generate millions of jobs; help revive the country’s manufacturing sector by creating a new industry producing the trains, steel, and related components; alleviate pressure on a crumbling transportation infrastructure; and lessen the ever-worsening congestion on America’s highways and at its airports, where delays cause an estimated $156 billion in losses to the U.S. economy annually. And then there is climate change and the large-scale reduction of CO2 emissions that would result from the creation of an interstate high-speed rail system and the expansion of regional commuter rail systems. As a high-speed rail network spreads across the U.S. in the coming decades, the costs of operating the national transportation system will decline each year to the point where the savings will eventually exceed the estimated $600 billion cost of building the rail system. Although public funds will be used to cover much of the construction costs, the network will perform best if operated by private companies. The U.S. must build a national high-speed rail network if it hopes to maintain its competitiveness in the world economy. China and Europe are now moving ahead with their high-speed rail networks at breakneck speed, which means that in a decade or two they will have significantly reduced their dependence on imported oil, created tens of millions of new jobs, and saved their countries trillions of dollars by vastly improving the productivity of their economies thanks to a low-carbon transportation sector that moves people and goods at speeds that could one day hit 300 miles per hour, or more. The U.S. can be part of that future. But if more states follow the example of Florida, Wisconsin, and Ohio, the country will remain shackled by 19th- and 20th-century forms of transportation in a 21st-century world. Contemplate this image: China, Europe, Russia, South America, and other parts of the globe are streaking by at 250 miles per hour while the likes of Governor Scott are stuck in a traffic jam on an interstate, watching the trains whiz past.

#### HSR solves the employment crisis

**Professor Field, 11**

Alexander J. Field is a professor of economics at Santa Clara University and the author of “A Great Leap Forward: 1930s Depression and U.S. Economic Growth.”, <http://www.ajc.com/opinion/pro-con-could-high-950502.html>, May 18, 2011

Would high-speed rail spending add jobs in the United States? Of course. Even if some of the rolling stock for the trains were imported, structures and other permanent way would still have to be built in the United States. Under current conditions, any government spending — for rails, for bridges, for highways, for the military — would contribute to job creation. Fears that government spending might displace or crowd out private-sector capital formation would be justified were we at or close to capacity. But we are not. The unemployment rate remains near 9 percent, and this doesn’t account for those who, discouraged, have simply left the workforce. Even more telling is the ratio of employment to population, which has fallen from its all-time high of over 64 percent in 1999 to 58 percent today. In spite of large “supply side” tax cuts tilted toward the wealthy, the record of the George W. Bush presidency on job creation was in fact quite poor. For a variety of reasons, including the recent financial crisis, the U.S. economy remains in a serious slump. High-speed rail spending could stimulate job growth and help jump start the economy.

### Federal Government Key

#### Federal action key to certainty and implementation

**Todorovich, Schned and Lane 2011** (Petra Todorovich, director of America 2050, Daniel Schned, associate planner for America 2050, and Robert Lane, High-Speed Rail: International Lessons for U.S. Policy Makers, Policy Focus Report, Lincoln Institute of Land Policy, p. 46-47)

Even though PRIIA is authorized through 2013, stakeholders in the rail industry, including one of the drafters of PRIIA, have remarked on the need to adjust federal rail policy to respond to current circumstances, including greater political instability in the Middle East and its implications for America’s dependence on foreign oil; growing international and private sector interest in helping to ﬁnance high-speed rail in the United States; and the president’s own ambitious proposals for a national high-speed rail network to give 80 percent of Americans access to high-speed rail over the next 25 years (Gardner 2011). Such a vision requires a stronger and more active federal commitment that must start with secure funding. The most recent setback of zero funding for high-speed rail in the FY 2011 budget underscores the need for a sustainable revenue source as reliable as funding for highway and transit programs in the past. President Obama’s proposal to include a $53 billion, six-year high-speed rail program as part of the surface transportation bill would help to achieve this kind of equity among transportation modes. In conjunction with a funding strategy, the role of high-speed rail in America’s larger transportation network needs to be better deﬁned (U.S. GAO 2009). A sharper, more narrowly focused program directed at corridors that meet clearly articulated objectives for high-speed rail service would address criticisms that the program is diffuse, ineffective, and dependent on ongoing subsidies. Nationally available data could help to evaluate the most promising regions for attracting ridership and enhancing economic and other beneﬁts. A phasing plan and funding allocation strategy could help develop the full build-out of a national network by helping states secure rights-of-way for high-speed rail corridors. Another challenge is to clarify the differences between conventional and high-speed rail corridors. PRIIA provides federal grants for both conventional passenger rail and new high-speed corridors, although the media has tended to focus on the high-speed program. Neither PRIIA nor ARRA speciﬁed the share of federal funding to be used for high-speed Core Express corridors versus conventional passenger rail. In fact, the dearth of high-speed rail projects in the planning pipeline means that grants will be shared among various types of rail projects. A more active role by the federal government could help clarify the respective roles of high-speed Core Express corridors and conventional Regional and Emerging/Feeder routes, including funding them through separate programs and clearly deﬁning the objectives for each type of rail service. Funding for maintaining and upgrading existing rail corridors could be provided through formula funds based on passenger train movements, track miles, or ridership. President Obama’s FY 2012 budget proposal for the Department of Transportation moved in this direction by establishing different competitive grant programs, including network development for constructing new corridors and system preservation for maintaining safety and reliability on existing corridors (White House 2011).

#### Government action key to inspire businesses – they need to see a firm commitment

Josh Cable June 22, 2011 “High-Speed Rail: Mixed Signals” Industry Week http://www.industryweek.com/articles/high-speed\_rail\_mixed\_signals\_24853.aspx?ShowAll=1

In February 2010, Siemens announced that it bought 20 acres of land in Sacramento, Calif., to meet future demand for high-speed trains in the United States. The land, which sits adjacent to the company's 34-acre light-rail manufacturing site in Sacramento, has yet to be developed. But if Congress ever reaches consensus in support of high-speed rail, the company says it will build a factory on the new site, producing Siemens' 220-mile-per-hour Velaro trains. "We're ready to bring high-speed rail to the United States," declares Oliver Hauck, president, Mobility Division, Siemens Industry Inc. It's not just the trains that Siemens want to bring here. It's the electrification, safety and communication systems. It's the rail automation, the signaling and the interlocking. It's the technology. "What would happen is we would transfer all the knowledge in a first set of trains, where we would literally exchange teams of people between our core factory in Krefeld [Germany] and here in Sacramento," Hauck explains. Siemens isn't sure how many people a new U.S. factory would employ, but Hauck notes that the company once estimated that the plant would require approximately 1,000 people to meet the needs of California's proposed high-speed-rail system alone, based on original plans that called for 100 train sets. However, before the plant's first beam goes up, Siemens needs to see evidence that the United States is committed to high-speed rail. Ideally, Hauck says, that would take the form of a federal transportation bill that includes "clearly defined" funding for the next six years to support construction of a high-speed rail system. "If a system like this gets kicked off and [receives] a continuous funding stream," says Hauck, "then we -- and I think many others on the supply side -- would be willing, ready and committed to put those jobs in this country."

#### US federal government investment is key – geographic reach, the economy, and international competitiveness

Metro October 21, 2010 “Study: Greater investment could revive U.S.' leadership in world rail industry” Based on study by Worldwatch Institute and Apollo Alliance http://www.metro-magazine.com/News/Story/2010/10/Study-Greater-investment-could-revive-U-S-leadership-in-world-rail-industry.aspx

Sustained, long-term national investment in rail and transit far and above the one-time injection of $8.3 billion provided by the 2009 American Recovery and Reinvestment Act. In terms of investment in rail infrastructure, the U.S. currently lags far behind countries like Austria, the Netherlands and Russia, and just ahead of Turkey. China alone is investing as much as $149 billion every year for the next five years. Commitment to protecting and nurturing young industries until they have achieved the economies of scale necessary to compete globally. All of the countries in the report were served for decades by strong and competent national rail monopolies, which helped ensure robust demand for rail products and technologies. A national vision that ensures that rail development will be linked with other forms of urban transit; use an integrated, uniform system of operations; provide extensive geographic coverage; and be well run. The report shows that systems that do this help produce a strong domestic market for rail transit, thus ensuring continued growth. “Growing a strong rail transit industry demands large and sustained capital investment combined with national vision. Rail ridership in the U.S. is going up, but that demand alone won’t generate the private investment necessary to compete globally,” Renner said. “The federal government needs to be committed to building a strong, national system with competitive prices, solid geographic reach, and reliable trains. If it does that, not only will people ride it, but the United States will create hundreds of thousands of new jobs as well as internationally competitive companies.”