# Transit Bus Fuel Cell Affirmative

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#### Plan: The United States federal government should substantially increase its investment in bus transit infrastructure through an expanded fuel cell electric bus program.

### Advantage: Fuel Cell Leadership

#### The Great Battery Race

Billmaier 10

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http://joltthebook.org/

The internal combustion engine is dying. Its death throes may take 20 years, but make no mistake: the end is coming. And that’s an excellent thing, since as you’ll read in JOLT!, EVs represent a better, faster, and cheaper mode of transportation. Ending our nation’s reliance on foreign oil and helping the planet along is great. But the real reason EVs will come to dominate the personal transportation market—cars, SUVs, vans, and pick-up trucks—over the next couple of decades is that they make financial sense to the consumer. Bottom line: they are cheaper to operate and maintain than gas-powered vehicles. (And as you’ll learn, they’re an absolute blast to drive.) Just as consumers ultimately powered the computer and Internet revolutions, consumers will propel the EV revolution as well. Americans will adopt EVs in overwhelming numbers—in the process driving yet another paradigm shift of massive proportions.¶ Electric vehicles also offer a phenomenal business opportunity. While the Internet represents an annual $1 trillion market worldwide, legendary Silicon Valley venture capitalist John Doerr has projected that EVs and the associated energy market will be six times bigger, accounting for $6 trillion a year worldwide. Speaking before a Senate committee in 2009, Doerr told members that energy technology “is the mother of all markets, perhaps the biggest economic opportunity of the twenty-first century.”¶ The great unknown, however, is whether or not the U.S. will be prepared to profit from the EV revolution. The coming “electriconomy”— an economy based on an electrified personal transportation system—will result in both massive upheaval and massive opportunity. China, in particular, has acknowledged the inevitability and the potential of the EV revolution and is in fast-forward mode to implement the new technology. But the electriconomy is as essential to America’s national security as is energy independence, and Chinese ownership of the EV realm would leave the U.S. in a dangerous position. Possessing the technologies that power our economy is crucial to America’s strength and well-being.¶ There is no longer any question of whether or not we will adopt an electric-based transportation system. We will. And the transition will come much more quickly than most “experts” predict. All major auto-makers have some type of plug-in vehicle coming out in the very near future, with the first cars due out at the end of 2010. The U.S. can’t afford to be left behind. But we’re going to need to move fast to become the undisputed market leader.

#### The U.S. is about to be left behind in fuel cell technology because of a lack of federal investment in bus transit

FCHEA 11

Fuel Cell and Hydrogen Energy Association Building a Commercially Viable National Fuel Cell Electric Bus Program http://cafcp.org/sites/files/Building%20a%20Commercially%20Viable%20National%20Fuel%20Cell%20Transit%20Bus%20Program.FINAL\_.v10.03-25-11.pdf

International Competition – International programs vying to take the lead in clean mass transit are rapidly¶ expanding, illustrating the worldwide progress being made toward commercialization of fuel cell¶ technology. In Whistler, B.C., Canada, 20 FCEBs began operating at the winter Olympics in early 2010 and¶ continue to provide local community service. After a two‐year FCEB demonstration program with 30 buses¶ in ten European cities, a second phase program sponsored by the European Union – featuring more¶ advanced vehicle and station designs – is about to launch in London (eight buses), Hamburg (ten buses),¶ Oslo (five to six buses), Italy (five buses), Belgium (five buses), and Sweden (five buses). Japan, China, and¶ Korea have all developed advanced FCEB [Fuel Cell Electric Bus] programs, with the intent of introducing commercially viable fuel¶ cell technology within their respective public transport sectors. Without strong federal support, the United¶ States could be left behind in providing clean, efficient mass transit.¶ Program Objectives – Building a Business Case¶ An expanded national FCEB deployment program will lead to technology enhancements for vehicles and¶ fueling infrastructure, better well‐to‐wheel performance, and significant reductions in purchase price¶ and life cycle costs. A complete transformation of the transit industry is at hand, and this program¶ promises to propel the commercialization of fuel cell technology at an accelerated rate, which is a¶ critical and necessary complement to other alternative fuel technologies.¶ Industry leaders representing bus OEMs, fuel cell manufacturers, hybrid‐drive companies,¶ battery/energy storage firms, and hydrogen fuel providers have developed a set of realistic performance¶ and cost targets to justify an infusion of deployment capital by the federal government to help drive¶ costs down by ramping up demand. Return on investment will be reflected in enhanced product reliability and durability and in price reductions based on targeted production quantities for vehicles and¶ fuel station suppliers. The technology is at a critical stage, requiring a relatively modest investment to¶ jump‐start large‐scale production that will make fuel cells commercially affordable. The integrated¶ technology inherent in fuel cell designs lends itself to significant economies of scale through highly¶ efficient manufacturing processes. Mass, size, and cost of fuel cells continue to decrease as power,¶ reliability, and durability improve – a critically important inverse relationship that is difficult to realize¶ with other heavy‐duty propulsion technologies.

#### If the U.S. loses the fuel cell commercialization race it risks becoming dependent and getting shut out of global markets

Jerram 11

Lisa Jerram is a senior research analyst contributing to Pike Research's Smart Transportation practice Could the United States Lose its Share of the Global Fuel Cell Market? January 28, 2011

http://www.pikeresearch.com/blog/articles/could-the-united-states-lose-its-share-of-the-global-fuel-cell-market

In my last post, I opined that the United States was at risk of losing its share of the global fuel cell market to Germany, South Korea, Japan, and perhaps China. Unfortunately, this is a story that the United States knows all too well. For example, in solar and wind, the United States had an early advantage, only to see its leadership position fade away to Europe and China. Some of this is due to forces beyond government control, such as China’s significantly lower manufacturing labor costs, but it was also the result of a lack of sustained government commitment in the United States. By contrast, the Chinese government developed a long term strategy to create a successful domestic solar industry and provided sustained support for adoption and for solar companies. For example, through innovative financing mechanisms.¶ Could we see this story repeated with the fuel cell industry? There are differences. For one thing, the United States already shares the front stage with several other countries such as Germany, Japan, and South Korea. Still, the U.S. Department of Energy’s fuel cell vehicle development program was the standard for this industry, but has now been all but abandoned under the Obama administration. Even more worryingly, the administration seems to view cars as the sole measure of fuel cell technologies, even though, as my colleague Kerry-Ann Adamson pointed out, fuel cell cars are going to be one of the last to go fully commercial while applications such as powering base stations are seeing real traction.¶ If the U.S. government is stepping back on fuel cells, governments in Germany, Japan, South Korea, China, and Scandinavia are stepping forward with long term subsidies and other support. This could mean not only that the United States will fall behind in developing a domestic fuel cell market, but also that U.S. companies will have trouble exporting into these foreign markets. For example, take Japan’s Large Scale Residential Stationary Demonstration program. This program, developed jointly by government and industry in the early 2000s, has subsidized thousands of mCHP units deployed by Japanese PEM companies. Now, these subsidies are shifting to adopters in order to spur demand. While US products can qualify for the subsidies, the Japanese companies have already formed local distributor partnerships, possibly squeezing out U.S. companies from the distribution supply chain. These partnerships also have an early foothold in the market so may gain a permanent “first mover” advantage.

#### This race for fuel cell batteries will determine geopolitical power for the future

Levine 10

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The Chinese government saw in the technology that Wan had mastered a potential future pillar of its economy. Starting virtually from scratch, Beijing announced last year it would become the world's largest producer of the vehicles within the next few years. "China is committed to developing clean and electric vehicles," Wan told me when I met him in Chicago this summer. "Batteries and clean vehicles are a national strategic priority." Indeed, the battery, among the most humble and unsexy of inventions, might just be the most important technological battleground of the next two decades. The discovery of the next key breakthroughs in the field could mean not just a fortune for a handful of companies, but the remaking of whole economies -- and the rebalancing of geopolitical power that typically accompanies such shifts. A Chinese triumph could speed the country's global advance; an American one could give U.S. dominance a new lease on life.¶ Two developments have brought us to this pass. Developed countries and rising powers alike are looking to curb their oil-guzzling habits, for any number of reasons: climate change, unsavory petrostate politics, the looming fear there simply isn't enough petroleum on the planet to satisfy everyone. The result is a new global interest in alternatives to petroleum and the internal combustion engine -- most prominently advanced battery technology, the necessary precondition for the development of an affordable, powerful electric car.¶ But the world doesn't just need a better car -- it also needs a better means of building and sustaining economies. Over the last 20 years, Asia's growth has been mostly driven by manufacturing exports, while the United States' was fueled first by Silicon Valley's tech boom and later by elaborate (and ultimately ruinous) financial instruments. But those platforms have reached or are nearing their limits, and in the scramble to avoid another recession, the world's great economies are looking for the next big thing, an engine of economic growth for the future.¶ These two aspirations -- for a less oil-dependent world and for a more prosperous one -- are rapidly converging in a global race for a better battery. By 2030, experts say, advanced batteries will swell into a $100 billion-a-year business. They will also enable an electric-car industry on the order of half a trillion dollars, on a par with the global pharmaceutical industry and capable of spawning companies on the scale of ExxonMobil, General Electric, and Toyota. "It is a matter of national wealth and national economic advantage in a way that few new things in society can be," Peter Harrop, who heads the Britain-based technology consulting firm IDTechEx, told me. "But it is a high-stakes game. It is going to be beneficial [only] to certain companies in certain countries."¶ Two of the likeliest beneficiaries are Japan and South Korea, the top producers of today's cutting-edge batteries and the favorites to develop tomorrow's. But the more interesting -- and potentially world-changing -- rivalry is between the United States and China, both of which are scrambling to get into the game. Each country has a great deal to win by establishing itself as an early leader in advanced batteries, in competition or in partnership with East Asia's technological heavyweights. The contest has taken on ultraserious geopolitical heft for the United States, at its lowest economic ebb in recent memory, and for China, eager to cement its position as a globally influential superpower. Both countries' governments have adopted an unapologetically hands-on approach, attempting to drive innovation from the top down and viewing the project through the lens of national strength. The analogies tend more toward the Manhattan Project than Microsoft.¶ On a July visit to the Smith Electric Vehicles plant in Kansas City, Missouri, U.S. President Barack Obama vowed that within five years, the United States would be making 40 percent of the world's advanced batteries. (It made just 2 percent in 2009.) "That's how we ensure that America doesn't just limp along," he declared, "but instead that we're prospering -- that this nation leads the industries of the future." Obama's point man for this ambitious project defines his goals in equally sweeping terms. "The ability of a country to manufacture batteries and vehicles will help to create wealth, will help to provide resilience against oil-supply disruptions, and help to create jobs," David Sandalow, U.S. assistant energy secretary for policy and international affairs, told me. "And those, in turn, will create national power."¶ But while U.S. officials have been sweeping in their rhetoric, China has been breathtaking in the scale and specificity with which it is ordering up an electric-car industry. Beijing in recent years has issued government directives that, if realized, will result in the production of some 30 electric-vehicle models by 2012; expanding lithium-ion battery manufacturing into a $25 billion-a-year industry by that same year; and the construction of about 100 charging stations this year alone across the country.¶ It's not just the United States and China. Google the phrase "electric car" and the name of any reasonably sized country, and you will turn up yet another aspirant. More than a dozen would-be contenders from South America to Scandinavia are talking about the technology in positively existential terms, even those with little plausible hope of coming up winners. German Chancellor Angela Merkel hopes that "in the 21st century we are again the nation that is able to build the most intelligent and environmentally friendly cars." French Ecology Minister Jean-Louis Borloo has announced a government-industry plan to win "the battle of the electric car." Those who develop and manufacture the next-generation technology for electric cars, these leaders believe, will be the haves. And those who don't will be at the mercy of those who do.

#### The shift in geostrategic power will unleash a wave of global conflict scenarios

Khalilzad 11 — Zalmay Khalilzad, Counselor at the Center for Strategic and International Studies, served as the United States ambassador to Afghanistan, Iraq, and the United Nations during the presidency of George W. Bush, served as the director of policy planning at the Defense Department during the Presidency of George H.W. Bush, holds a Ph.D. from the University of Chicago, 2011 (“The Economy and National Security,” *National Review*, February 8th, Available Online at http://www.nationalreview.com/articles/print/259024, Accessed 02-08-2011)

Today, economic and fiscal trends pose the most severe long-term threat to the United States’ position as global leader. While the United States suffers from fiscal imbalances and low economic growth, the economies of rival powers are developing rapidly. The continuation of these two trends could lead to a shift from American primacy toward a multi-polar global system, leading in turn to increased geopolitical rivalry and even war among the great powers.¶ The current recession is the result of a deep financial crisis, not a mere fluctuation in the business cycle. Recovery is likely to be protracted. The crisis was preceded by the buildup over two decades of enormous amounts of debt throughout the U.S. economy — ultimately totaling almost 350 percent of GDP — and the development of credit-fueled asset bubbles, particularly in the housing sector. When the bubbles burst, huge amounts of wealth were destroyed, and unemployment rose to over 10 percent. The decline of tax revenues and massive countercyclical spending put the U.S. government on an unsustainable fiscal path. Publicly held national debt rose from 38 to over 60 percent of GDP in three years.¶ Without faster economic growth and actions to reduce deficits, publicly held national debt is projected to reach dangerous proportions. If interest rates were to rise significantly, annual interest payments — which already are larger than the defense budget — would crowd out other spending or require substantial tax increases that would undercut economic growth. Even worse, if unanticipated events trigger what economists call a “sudden stop” in credit markets for U.S. debt, the United States would be unable to roll over its outstanding obligations, precipitating a sovereign-debt crisis that would almost certainly compel a radical retrenchment of the United States internationally.¶ Such scenarios would reshape the international order. It was the economic devastation of Britain and France during World War II, as well as the rise of other powers, that led both countries to relinquish their empires. In the late 1960s, British leaders concluded that they lacked the economic capacity to maintain a presence “east of Suez.” Soviet economic weakness, which crystallized under Gorbachev, contributed to their decisions to withdraw from Afghanistan, abandon Communist regimes in Eastern Europe, and allow the Soviet Union to fragment. If the U.S. debt problem goes critical, the United States would be compelled to retrench, reducing its military spending and shedding international commitments.¶ We face this domestic challenge while other major powers are experiencing rapid economic growth. Even though countries such as China, India, and Brazil have profound political, social, demographic, and economic problems, their economies are growing faster than ours, and this could alter the global distribution of power. These trends could in the long term produce a multi-polar world. If U.S. policymakers fail to act and other powers continue to grow, it is not a question of whether but when a new international order will emerge. The closing of the gap between the United States and its rivals could intensify geopolitical competition among major powers, increase incentives for local powers to play major powers against one another, and undercut our will to preclude or respond to international crises because of the higher risk of escalation.¶ The stakes are high. In modern history, the longest period of peace among the great powers has been the era of U.S. leadership. By contrast, multi-polar systems have been unstable, with their competitive dynamics resulting in frequent crises and major wars among the great powers. Failures of multi-polar international systems produced both world wars.¶ American retrenchment could have devastating consequences. Without an American security blanket, regional powers could rearm in an attempt to balance against emerging threats. Under this scenario, there would be a heightened possibility of arms races, miscalculation, or other crises spiraling into all-out conflict. Alternatively, in seeking to accommodate the stronger powers, weaker powers may shift their geopolitical posture away from the United States. Either way, hostile states would be emboldened to make aggressive moves in their regions.¶ As rival powers rise, Asia in particular is likely to emerge as a zone of great-power competition. Beijing’s economic rise has enabled a dramatic military buildup focused on acquisitions of naval, cruise, and ballistic missiles, long-range stealth aircraft, and anti-satellite capabilities. China’s strategic modernization is aimed, ultimately, at denying the United States access to the seas around China. Even as cooperative economic ties in the region have grown, China’s expansive territorial claims — and provocative statements and actions following crises in Korea and incidents at sea — have roiled its relations with South Korea, Japan, India, and Southeast Asian states. Still, the United States is the most significant barrier facing Chinese hegemony and aggression.¶ Given the risks, the United States must focus on restoring its economic and fiscal condition while checking and managing the rise of potential adversarial regional powers such as China. While we face significant challenges, the U.S. economy still accounts for over 20 percent of the world’s GDP. American institutions — particularly those providing enforceable rule of law — set it apart from all the rising powers. Social cohesion underwrites political stability. U.S. demographic trends are healthier than those of any other developed country. A culture of innovation, excellent institutions of higher education, and a vital sector of small and medium-sized enterprises propel the U.S. economy in ways difficult to quantify. Historically, Americans have responded pragmatically, and sometimes through trial and error, to work our way through the kind of crisis that we face today.¶ The policy question is how to enhance economic growth and employment while cutting discretionary spending in the near term and curbing the growth of entitlement spending in the out years. Republican members of Congress have outlined a plan. Several think tanks and commissions, including President Obama’s debt commission, have done so as well. Some consensus exists on measures to pare back the recent increases in domestic spending, restrain future growth in defense spending, and reform the tax code (by reducing tax expenditures while lowering individual and corporate rates). These are promising options. ¶ The key remaining question is whether the president and leaders of both parties on Capitol Hill have the will to act and the skill to fashion bipartisan solutions. Whether we take the needed actions is a choice, however difficult it might be. It is clearly within our capacity to put our economy on a better trajectory. In garnering political support for cutbacks, the president and members of Congress should point not only to the domestic consequences of inaction — but also to the geopolitical implications.¶ As the United States gets its economic and fiscal house in order, it should take steps to prevent a flare-up in Asia. The United States can do so by signaling that its domestic challenges will not impede its intentions to check Chinese expansionism. This can be done in cost-efficient ways.¶ While China’s economic rise enables its military modernization and international assertiveness, it also frightens rival powers. The Obama administration has wisely moved to strengthen relations with allies and potential partners in the region but more can be done.¶ Some Chinese policies encourage other parties to join with the United States, and the U.S. should not let these opportunities pass. China’s military assertiveness should enable security cooperation with countries on China’s periphery — particularly Japan, India, and Vietnam — in ways that complicate Beijing’s strategic calculus. China’s mercantilist policies and currency manipulation — which harm developing states both in East Asia and elsewhere — should be used to fashion a coalition in favor of a more balanced trade system. Since Beijing’s over-the-top reaction to the awarding of the Nobel Peace Prize to a Chinese democracy activist alienated European leaders, highlighting human-rights questions would not only draw supporters from nearby countries but also embolden reformers within China. ¶ Since the end of the Cold War, a stable economic and financial condition at home has enabled America to have an expansive role in the world. Today we can no longer take this for granted. Unless we get our economic house in order, there is a risk that domestic stagnation in combination with the rise of rival powers will undermine our ability to deal with growing international problems. Regional hegemons in Asia could seize the moment, leading the world toward a new, dangerous era of multi-polarity.

#### This is not hypothetical, empirically major wars are triggered by shifts in geopolitical power

Fogg 09

Erik Fogg¶ Master of Science in Political Science¶ at the Massachusetts Institute of Technology, Generalizing Power Transitions as a Cause of War June 2009 http://web.mit.edu/efogg/Public/ErikFoggThesis.pdf

A strong base of academic empirical support shows that power transition theory explains a¶ significant proportion of great power interstate war over centuries in the entire international system.¶ Examples include both World Wars, the Napoleonic wars, Franco-Prussian wars, the 100-years war, and¶ more.6 Various large-N and case studies have shown statistically significant effects of power transition on¶ interstate war with many measurements of state power and many operationalizations of transition. Kim¶ uses GNP as a measure of power to show that power transitions have led to war among great powers as¶ far back as the 1600s.7 DeSoysa, O’Neal, and Park show that power transition theory explains war using¶ multiple alternative measures of power.8 Tammen, et al. use GDP as a measurement of power over¶ multiple case studies to show how power transitions caused the Franco-Prussian War, World Wars I and II, the Iran-Iraq War, and the Cold War (in particular, its lack of eruption).9 But does the theory in its¶ current state correctly identify all or most cases of power transition war? I contend that power transition¶ theory has much more explanatory power than has yet been shown, and that more wars in history were¶ caused by power transitions than are currently understood.

#### War is at its lowest level in history because of US primacy---studies prove that U.S. hegemony is the proximate cause but nuclear weapons themselves do not prevent war

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.

Maintaining U.S. leadership is key to prevent conflicts and terrorism

Tellis 9 — Ashley J. Tellis, Senior Associate at the Carnegie Endowment for International Peace specializing in international security, defense and Asian strategic issues, Research Director of the Strategic Asia program at NBR—the National Bureau of Asian Research, holds a Ph.D. from the University of Chicago, 2009 (“Preserving Hegemony: The Strategic Tasks Facing the United States,” *Global Asia*, Volume 4, Number 1, Available Online at http://globalasia.org/pdf/issue9/Ashley\_J.\_Tellis.pdf, Accessed 09-13-2011, p. 55-56)

Second, and equally importantly, who wins in the ensuing struggle — whether that struggle is short or long, peaceful or violent — is as important as by how much. This is particularly relevant because the past record unerringly confirms that the strongest surviving state in the winning coalition usually turns out to be the new primate after the conclusion of every systemic struggle. Both Great Britain and the United States secured their respective ascendancies in this way. Great Britain rose through the wreckage of the wars with Louis XIV and with Napoleon. The United States did so through the carnage of the hot wars with Hitler and Hirohito, finally achieving true hegemony through the detritus of the Cold War with Stalin and his successors. If the United States is to sustain this hard-earned hegemony over the long term, while countering as necessary a future Chinese challenge should it emerge, Washington will need to amass the largest differential in power relative not only to its rivals but also to its friends and allies. Particularly in [end page 55] an era of globalization, this objective cannot be achieved without a conscious determination to follow sensible policies that sustain economic growth, minimize unproductive expenditures, strengthen the national innovation system, maintain military capabilities second to none and enjoin political behaviors that evoke the approbation of allies and neutral states alike.

The successful pursuit of such policies will enable the United States to cope more effectively with near-term challenges as well, including the war on terrorism and managing threatening regional powers, and will ineluctably require — to return full circle — engaging the central tasks identified earlier as facing the new US administration. These tasks involve the need to satisfactorily define the character of desirable US hegemony, the need for sound policies that will renew the foundations of US strength, and the need to recover the legitimacy of US purposes and actions. What is clearly implied is that the principal burdens facing the next US president transcend Asia writ large. The success of these pursuits, however, will inevitably impact Asia in desirable ways, even as the resolution of several specifically Asian problems would invariably contribute to the conclusive attainment of these larger encompassing goals.

#### A decline in America’s leadership would unleash a multitude of scenarios for global conflict

Brzezinsky 12

Zbigniew Brzezinski, national security advisor under U.S. President Jimmy Carter,

After America

How does the world look in an age of U.S. decline? Dangerously unstable.

http://www.foreignpolicy.com/articles/2012/01/03/after\_america

Not so long ago, a high-ranking Chinese official, who obviously had concluded that America's decline and China's rise were both inevitable, noted in a burst of candor to a senior U.S. official: "But, please, let America not decline too quickly." Although the inevitability of the Chinese leader's expectation is still far from certain, he was right to be cautious when looking forward to America's demise. ¶ For if America falters, the world is unlikely to be dominated by a single preeminent successor -- not even China. International uncertainty, increased tension among global competitors, and even outright chaos would be far more likely outcomes. The leaders of the world's second-rank powers, among them India, Japan, Russia, and some European countries, are already assessing the potential impact of U.S. decline on their respective national interests. The Japanese, fearful of an assertive China dominating the Asian mainland, may be thinking of closer links with Europe. Leaders in India and Japan may be considering closer political and even military cooperation in case America falters and China rises. Russia, while perhaps engaging in wishful thinking (even schadenfreude) about America's uncertain prospects, will almost certainly have its eye on the independent states of the former Soviet Union. Europe, not yet cohesive, would likely be pulled in several directions: Germany and Italy toward Russia because of commercial interests, France and insecure Central Europe in favor of a politically tighter European Union, and Britain toward manipulating a balance within the EU while preserving its special relationship with a declining United States. Others may move more rapidly to carve out their own regional spheres: Turkey in the area of the old Ottoman Empire, Brazil in the Southern Hemisphere, and so forth. None of these countries, however, will have the requisite combination of economic, financial, technological, and military power even to consider inheriting America's leading role.¶ China, invariably mentioned as America's prospective successor, has an impressive imperial lineage and a strategic tradition of carefully calibrated patience, both of which have been critical to its overwhelmingly successful, several-thousand-year-long history. China thus prudently accepts the existing international system, even if it does not view the prevailing hierarchy as permanent. It recognizes that success depends not on the system's dramatic collapse but on its evolution toward a gradual redistribution of power. Moreover, the basic reality is that China is not yet ready to assume in full America's role in the world. Beijing's leaders themselves have repeatedly emphasized that on every important measure of development, wealth, and power, China will still be a modernizing and developing state several decades from now, significantly behind not only the United States but also Europe and Japan in the major per capita indices of modernity and national power. Accordingly, Chinese leaders have been restrained in laying any overt claims to global leadership.¶ At some stage, however, a more assertive Chinese nationalism could arise and damage China's international interests. A swaggering, nationalistic Beijing would unintentionally mobilize a powerful regional coalition against itself. None of China's key neighbors -- India, Japan, and Russia -- is ready to acknowledge China's entitlement to America's place on the global totem pole. They might even seek support from a waning America to offset an overly assertive China. The resulting regional scramble could become intense, especially given the similar nationalistic tendencies among China's neighbors. A phase of acute international tension in Asia could ensue. Asia of the 21st century could then begin to resemble Europe of the 20th century -- violent and bloodthirsty. ¶ While a sudden, massive crisis of the American system -- for instance, another financial crisis -- would produce a fast-moving chain reaction leading to global political and economic disorder, a steady drift by America into increasingly pervasive decay or endlessly widening warfare with Islam would be unlikely to produce, even by 2025, an effective global successor. No single power will be ready by then to exercise the role that the world, upon the fall of the Soviet Union in 1991, expected the United States to play: the leader of a new, globally cooperative world order. More probable would be a protracted phase of rather inconclusive realignments of both global and regional power, with no grand winners and many more losers, in a setting of international uncertainty and even of potentially fatal risks to global well-being. Rather than a world where dreams of democracy flourish, a Hobbesian world of enhanced national security based on varying fusions of authoritarianism, nationalism, and religion could ensue. ¶ At the same time, the security of a number of weaker states located geographically next to major regional powers also depends on the international status quo reinforced by America's global preeminence -- and would be made significantly more vulnerable in proportion to America's decline. The states in that exposed position -- including Georgia, Taiwan, South Korea, Belarus, Ukraine, Afghanistan, Pakistan, Israel, and the greater Middle East -- are today's geopolitical equivalents of nature's most endangered species. Their fates are closely tied to the nature of the international environment left behind by a waning America, be it ordered and restrained or, much more likely, self-serving and expansionist.¶ A faltering United States could also find its strategic partnership with Mexico in jeopardy. America's economic resilience and political stability have so far mitigated many of the challenges posed by such sensitive neighborhood issues as economic dependence, immigration, and the narcotics trade. A decline in American power, however, would likely undermine the health and good judgment of the U.S. economic and political systems. A waning United States would likely be more nationalistic, more defensive about its national identity, more paranoid about its homeland security, and less willing to sacrifice resources for the sake of others' development. The worsening of relations between a declining America and an internally troubled Mexico could even give rise to a particularly ominous phenomenon: the emergence, as a major issue in nationalistically aroused Mexican politics, of territorial claims justified by history and ignited by cross-border incidents.¶ Another consequence of American decline could be a corrosion of the generally cooperative management of the global commons -- shared interests such as sea lanes, space, cyberspace, and the environment, whose protection is imperative to the long-term growth of the global economy and the continuation of basic geopolitical stability. In almost every case, the potential absence of a constructive and influential U.S. role would fatally undermine the essential communality of the global commons because the superiority and ubiquity of American power creates order where there would normally be conflict.¶ None of this will necessarily come to pass. Nor is the concern that America's decline would generate global insecurity, endanger some vulnerable states, and produce a more troubled North American neighborhood an argument for U.S. global supremacy. In fact, the strategic complexities of the world in the 21st century make such supremacy unattainable. But those dreaming today of America's collapse would probably come to regret it. And as the world after America would be increasingly complicated and chaotic, it is imperative that the United States pursue a new, timely strategic vision for its foreign policy -- or start bracing itself for a dangerous slide into global turmoil.

#### These conflicts go nuclear --- leadership diffuses them

Robert Kagan 7, senior associate at the Carnegie Endowment for International Peace and senior transatlantic fellow at the German Marshall Fund, August/September 2007, The Hoover Policy Review, online: http://www.hoover.org/publications/policyreview/8552512.html,

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.

#### Perceptions of U.S. decline triggers China war over Taiwan through miscalculation

#### Kagan 12

Robert Kagan is senior fellow at the Brookings Institution The Rise or Fall of the American Empire

http://www.foreignpolicy.com/articles/2012/02/14/the\_rise\_or\_fall\_of\_the\_american\_empire?page=0,4

 The main point of my book, in fact, is to examine what might happen in the world should the United States prove incapable of continuing as the predominant power and slip into a rough equality with other powers, like China. I'm afraid it is optimistic to believe that China will pose only an economic challenge to the United States under those circumstances. The effects of a new multipolar world will be far-reaching. I sometimes think we have forgotten how countries behave as their power increases. We have been living so long in a world where one power has been so much more powerful than all the others. The existence of the American hegemon has forced all other powers to exercise unusual restraint, curb normal ambitions, and avoid actions that might lead to the formation of a U.S.-led coalition of the kind that defeated Germany twice, Japan once, and the Soviet Union, more peacefully, in the Cold War.¶ The Chinese, as good historians, are acutely aware of the fate that befell these others and have worked hard to avoid a similar fate, following as best they can Deng Xiaoping's advice to "keep a low profile and never take the lead." As relative power shifts, however, that advice becomes harder and harder to follow. We saw some early signs of what the future might hold in China's increasing assertiveness in the South China Sea. The response of the United States, which swung in behind the nervous powers in the region, has possibly convinced the Chinese that their moves were premature. They may have themselves bought in too much to the widespread talk of America in decline. Were that decline to become real in the coming years, however, it is a certainty that Chinese pressures and probes will return. Greater relative power on China's part might also lead Beijing to become less patient with Taiwan's lack of movement toward acquiescing to the mainland's sovereignty. A situation in which U.S. power were declining, China's power were rising, and the Taiwan issue became fractious is practically a textbook instance of how wars start -- even if neither side wants war. That is why some have referred to Taiwan as East Asia's Sarajevo.

#### Even Chinese analysts argue that a shift in the global balance makes miscalculation more likely

Swaine 10

Michael D. Swaine is Senior Associate and Co-Director of the China Program at the Carnegie Endowment for International Peace Perceptions of an Assertive China http://media.hoover.org/sites/default/files/documents/CLM32MS.pdf

What does all this mean? First, both American and Chinese commentators appear to¶ believe that China will almost certainly become more assertive as its interests and¶ capabilities grow, perhaps partly in response to a growing Chinese perception of a larger¶ shift in the global balance. Second, there is a potential basis for serious misperceptions¶ emerging in the future between China and the West concerning the nature of, causes of,¶ and likely dangers presented by greater Chinese assertiveness. In particular, both sides¶ tend to accuse the other of engaging in provocative behavior. This could make it more¶ difficult to defuse incidents created by a more assertive China. Third, and closely related¶ to the previous point, the Chinese leadership’s official endorsement of greater PRC¶ influence in global affairs has apparently created doubts for some Chinese observers¶ about the continued relevance of the TGYH concept. Although most reaffirm its¶ continued applicability, the line between activism and leadership, and distinctions among¶ different types of activism, are now arguably blurred as a result of the leadership’s¶ expressed desire for greater influence in foreign policy. In the absence of clearer¶ guidance from above, such ambiguities might be clarified through policy trial and error.

#### Such a war risks extinction

Straits Times 2K

Ching Cheong, “No One Gains in War Over Taiwan”, June 25, Lexis Nexis.

THE high-intensity scenario postulates a cross-strait war escalating into a full-scale war between the US and China. If Washington were to conclude that splitting China would better serve its national interests, then a full-scale war becomes unavoidable. Conflict on such a scale would embroil other countries far and near and -horror of horrors -raise the possibility of a nuclear war. Beijing has already told the US and Japan privately that it considers any country providing bases and logistics support to any US forces attacking China as belligerent parties open to its retaliation. In the region, this means South Korea, Japan, the Philippines and, to a lesser extent, Singapore. If China were to retaliate, east Asia will be set on fire. And the conflagration may not end there as opportunistic powers elsewhere may try to overturn the existing world order. With the US distracted, Russia may seek to redefine Europe's political landscape. The balance of power in the Middle East may be similarly upset by the likes of Iraq. In south Asia, hostilities between India and Pakistan, each armed with its own nuclear arsenal, could enter a new and dangerous phase. Will a full-scale Sino-US war lead to a nuclear war? According to General Matthew Ridgeway, commander of the US Eighth Army which fought against the Chinese in the Korean War, the US had at the time thought of using nuclear weapons against China to save the US from military defeat. In his book The Korean War, a personal account of the military and political aspects of the conflict and its implications on future US foreign policy, Gen Ridgeway said that US was confronted with two choices in Korea -truce or a broadened war, which could have led to the use of nuclear weapons. If the US had to resort to nuclear weaponry to defeat China long before the latter acquired a similar capability, there is little hope of winning a war against China 50 years later, short of using nuclear weapons. The US estimates that China possesses about 20 nuclear warheads that can destroy major American cities. Beijing also seems prepared to go for the nuclear option. A Chinese military officer disclosed recently that Beijing was considering a review of its "non first use" principle regarding nuclear weapons. Major-General Pan Zhangqiang, president of the military-funded Institute for Strategic Studies, told a gathering at the Woodrow Wilson International Centre for Scholars in Washington that although the government still abided by that principle, there were strong pressures from the military to drop it. He said military leaders considered the use of nuclear weapons mandatory if the country risked dismemberment as a result of foreign intervention. Gen Ridgeway said that should that come to pass, we would see the destruction of civilisation. There would be no victors in such a war. While the prospect of a nuclear Armaggedon over Taiwan might seem inconceivable, it cannot be ruled out entirely, for China puts sovereignty above everything else.

#### Solvency

#### The federal government currently has a smaller scale transit bus demonstration program which has developed the experience and expertise for success. Expanding this program is key to solvency

Silver 11

Vice President of CalSTART <http://www.hydrogennet.dk/fileadmin/user_upload/PDF-filer/Brint_og_braendselsceller_internationalt/Dansk-amerikansk_samarbejde/Fuel_Cell_Collaboration_in_the_U_S__aug_2011_vers..pdf>

"Zero Emission Bus Program"

Recognizing the important role of transit in validating and deploying new transportation technologies, the Safe, Accountable, Flexible, Efficient, Transportation Equity Act: A Legacy for Users (SAFETEA-LU) created the NFCBP [National Fuel Cell Bus Program] with a six year allocation of $49 million. Originally, the coalition backing this program had sought $150 million over the six-year life of the legislation. The program has been successful, with prototypes and early demonstration projects moving the technology forward, reducing costs, and improving durability and reliability. Fuel cell bus costs have come down from $3.2 million are now below $2 million and are likely to approach $1 to $1.5 million as the industry moves towards pre-commercial offerings. Durability of fuel cells is also improving, with buses operating as long as 16 hours per day and fuel cell lifetimes increasing from 4000 hours or less to as high as 10,000 hours while retaining performance. Next generation offerings currently funded under the program may approach 20,000 hours.The National Renewable Energy Laboratory (NREL) has collected data from the demonstration projects showing a nearly threefold improvement in fuel efficiency compared to commercial transit buses, far exceeding the program target.¶ Building upon the success of the NFCBP, an expanded program is needed to support the commercialization of zero emission and advanced low carbon bus technologies. Future efforts should continue to build upon the success of the NFCBP on the hydrogen front, and should also target electric drive and other supporting efficient, near-zero emission, low carbon technologies. This expanded focus will ensure the transit industry and the broader heavy duty vehicle industry are not limited to a single technological pathway. The goal of the program will be to develop bus technologies with zero- or near-zero criteria emissions, 50 percent or fewer greenhouse gas emissions, and use no oil. With these goals in mind, the ZEB will support advances in a number of different transit bus drive technologies, and the market will ultimately determine which technologies are successful and most appropriate for a transit properties. Ultimately, these technologies will also provide high quality green jobs in addition to technology advancement and innovation benefits that can be expected to “spill over” to other heavy duty transportation applications.

#### An expanded federal investment that builds on the experience of the existing program in transit bus infrastructure would create a transition to commercialization of fuel cell technology and assure U.S. industrial leadership

FCHEA 11

Fuel Cell and Hydrogen Energy Association Building a Commercially Viable National Fuel Cell Electric Bus Program http://cafcp.org/sites/files/Building%20a%20Commercially%20Viable%20National%20Fuel%20Cell%20Transit%20Bus%20Program.FINAL\_.v10.03-25-11.pdf

Unit Price At or Under $1 million – An expanded FCEB program would put the industry firmly on the¶ road to further per‐unit price reductions. Following the production of 200 buses under this proposed¶ deployment program, an industry projection shows that FCEBs priced at or under $1 million is¶ achievable with annual production quantities of at least 400 FCEBs beginning in 2017 or 2018. This could¶ constitute a second phase deployment program that would result in an entirely zero‐emission bus that is¶ competitive with electric trolley buses and other all‐electric‐drive, heavy‐duty transit buses. Centers of Excellence – An investment of $395 million would establish five regional Centers of¶ Excellence on the east and west coasts, the mid‐west, and the south or southeast, building upon existing¶ experience and core competencies. Each center would operate 40 buses targeted at $1.35 million each¶ (a 40% to 50% reduction in price since 2010), at least one fueling station at $4 million each (includes up¶ to $1 million for site improvements and local jurisdiction use requirements), and a maintenance/storage¶ service facility for hydrogen‐fueled buses at $1 million each. With the latest technology advancements in¶ infrastructure supply, hydrogen can be delivered at a fuel consumption price competitive with¶ petroleum fuels. Grants would also provide funds to upgrade fuel cell, battery, and hybrid‐drive components on FCEBs as¶ may be required in years five through twelve. This program would put a fleet of 200 FCEBs in passenger¶ service for 12 years and prove the commercial viability of hydrogen fuel and FCEBs for widespread¶ adoption of the technology by transit operators. Centers of Excellence will accomplish four principal objectives in pursuit of commercialization:¶ 1. Apply limited grant funds to larger scale demonstration programs that can adequately test and¶ develop technologies commensurate with large fleet operations¶ 2. Utilize resources more efficiently and effectively under the stewardship of a selected group of¶ well‐managed program teams¶ 3. Expand operational experience across major regions of the United States to expose each region¶ to the real‐world operating characteristics and benefits of the technology¶ 4. Develop a bigger technology program with more units to realize production and supply chain¶ economies of scale that will drive down production costs and purchase price.¶ DOT/FTA would prepare a competitive, performance‐based solicitation for a four‐year deployment¶ program. Competitive team proposals would be made up of bus OEM FCHEA 11

s, fuel cell suppliers, and hybriddrive¶ and battery suppliers, and each team proposal would include a consortium of five‐transit agencies.¶ Infrastructure would be competitively bid through a separate solicitation tied to facilities at each transit¶ agency designated to receive buses resulting from the first solicitation. Conclusion¶ FCEBs have been proven to reduce emissions, increase energy security, and achieve significantly greater¶ fuel economy than diesel. With centralized fueling facilities, public transit fleets present an obvious¶ opportunity to expand implementation. Expanding the nation's fleet of FCEBs will promote domestic¶ industrial leadership while reducing the per‐vehicle price to the point where this technology is costcompetitive¶ with other zero‐emission modes of transit. The energy security and environmental benefits of DOT’s initiative would be substantial, as reflected in the table below that shows the¶ extent of petroleum and emissions reductions achievable.

#### The plan will spur U.S. economic competitiveness and leadership

FCHEA 11

Fuel Cell and Hydrogen Energy Association Building a Commercially Viable National Fuel Cell Electric Bus Program http://cafcp.org/sites/files/Building%20a%20Commercially%20Viable%20National%20Fuel%20Cell%20Transit%20Bus%20Program.FINAL\_.v10.03-25-11.pdf

Commercialization of FCEBs is at hand, achievable within the next five years. A relatively modest¶ investment in heavy‐duty fuel cell transit fleets will lead to significant cost reductions. This clean, affordable, and sustainable transportation technology will serve as the standard for transit fleets¶ nationally and internationally. Additionally, a sizeable addition of green technology jobs will bolster the¶ American economy.¶ American Industrial Leadership – Given the advances in fuel cell and hydrogen technology within the¶ United States, America has an opportunity to establish itself as a global leader among nations providing¶ sustainable, energy‐efficient solutions for the transportation sector. Fuel cell and battery manufacturers,¶ hydrogen fuel providers, hybrid electric‐drive suppliers, and transit bus OEMs are prepared to expand¶ production capacity and employment opportunities with the growth of this quickly emerging industry.¶ Energy Security – Petroleum fuel prices are back on the rise, and at a rapid rate, now exceeding $4 per¶ gallon. Competition worldwide for petroleum, and our over‐reliance on imported oil, has created an¶ unstable and unsustainable state of affairs for the United States. Hydrogen and fuel cells are critically¶ important in establishing a long‐term diversified and domestically available energy portfolio, and¶ hydrogen for transportation can be produced completely from domestic and renewable sources,¶ insulating us from world events. This is an essential element to the economic security of America. We¶ need to develop and commercialize these technologies now rather than wait until energy inflation¶ creates even bigger financial and foreign affairs crises for America.

The key to successful commercialization before 2015 is a federal commitment to larger and longer term investments in transit bus infrastructure

Center for Transportation and the Environment 09

A Report on Worldwide Hydrogen Bus Demonstrations, 2002-2007¶ http://www.fuelcells.org/wp-content/uploads/2012/02/busreport.pdf

Role of government in accelerating commercialization¶ Demonstration participants envisioned two main roles for government in future demonstrations: the development of a long-term strategic plan for fuel cell buses and an accompanying funding commitment until commercialization is viable, which is expected by 2013-2015. Generally, transit operators indicated that they could not commit to purchasing additional buses without government funding.¶ Moreover, participants believe that government should provide long-term support, rather than merely funding short-term projects. Without long-term support linked to a policy framework, it was generally believed that further substantial progress will be difficult.¶ Most suggested that government should focus funding on covering incremental costs of purchasing and operating fleet cell buses. Some also suggested funding for basic research and development to resolve some of the technical challenges revealed by these demonstrations.¶ Participants also believed that the next generation of demonstrations should be large-scale deployments of 50 or more buses. Many felt that demonstrating fewer than ten buses would simply be repeating what has already been done, rather than moving the technology forward.

#### Fuel cell powered bus technology is here now but we need an increase in federal investment in the public transit bus fleet to create economies of scale

FCHEA 11

Fuel Cell and Hydrogen Energy Association Building a Commercially Viable National Fuel Cell Electric Bus Program http://cafcp.org/sites/files/Building%20a%20Commercially%20Viable%20National%20Fuel%20Cell%20Transit%20Bus%20Program.FINAL\_.v10.03-25-11.pdf

In just the last few years, zero‐emission, hydrogen‐powered, fuel cell electric bus transit has advanced to¶ the point where fuel cell electric buses (FCEBs) are now providing service to hundreds of thousands of¶ passengers. Since 2006, FCEBs have logged over 550,000 miles in the United States alone. At the same¶ time, costs have dropped significantly – and within the next five years, it is projected that the per vehicle¶ price for an FCEB will be less than that of an electric trolley bus. The technology has and is being proven¶ by transit agencies around the world. What remains is to bring down the per‐unit cost, which can be¶ achieved with a modest investment in the economies of scale – increasing the number of FCEBs already¶ being operated in revenue service. A broad coalition of industry leaders and public transit providers¶ requests that a $395 million program to establish five regional Centers of Excellence and expand the¶ implementation of this rapidly advancing technology, be included in the Administration's plan for the¶ reauthorization of the transportation bill.¶ Fuel cell electric bus technology brings with it unique benefits that are unmatched by any other transit¶ bus mode:¶ 1. Completely zero‐emission buses with no toxic particulates or other criteria pollutants in city¶ neighborhoods¶ 2. Extremely quiet, smooth, vibration‐free, all‐electric operation¶ 3. Sufficient electric power to operate a vehicle in excess of 40,000 lbs of gross vehicle weight¶ 4. Better handling and overall driving performance compared to internal combustion engine¶ vehicles¶ 5. Clean and easy maintenance, with no toxic oils or fuels to handle¶ 6. Superb fuel economy in comparison with conventional internal combustion engines, including¶ hybrid‐drive engines¶ 7. Complete freedom from petroleum fuels, with the ease of using entirely domestic sources of¶ fuel to help establish true energy independence and price stabilization¶ 8. Significant well‐to‐wheel reductions in greenhouse gas (GHG) emissions with the potential of¶ eliminating all GHG emissions using carbon‐free, renewable sources to produce hydrogen.

#### Transit bus industry is key to key to transitioning to energy efficient cars

Schor 09

Elana Schor Congressional reporter, Environment & Energy Daily and Greenwire How Bus Transit Can Help the Auto Industry http://la.streetsblog.org/2009/10/26/how-bus-transit-can-help-the-auto-industry/

But the recession hasn't dampened the economic potential of hybrid bus production, as the Environmental Defense Fund (EDF) laid out today in a new report [PDF] on the industry. In fact, EDF found, transit bus companies share enough skills and regional foothold with the auto industry -- the map of bus makers pictured above could be mistaken for a map of automakers -- to pave the way for fuel-efficiency advances that would ultimately benefit all vehicles. ¶ After noting that 32 percent of American transit buses do not rely on gas or diesel to run, today's report continues:¶ The bus industry serves as an important entry point for advanced vehicle technologies, especially in new vehicles that require refueling infrastructure and other major changes. For instance, since transit agencies have a well-defined base of centrally managed fleets, they are ideal for testing and proving plug-in hybrid and all-electric buses — thus leading the way for the passenger car industry.¶

#### Long term Federal investment in transportation demonstrations of new fuel cell technology is key to global leadership and global solutions

Boesel 09

John Boesel, President and CEO of CALSTART¶ Before the Select Committee on¶ Energy Independence and Global Warming¶ On¶ Constructing a Green Transportation Policy:¶ Transit Modes and Infrastructure¶ March 19, 2009http://www.calstart.org/Libraries/Policy\_Documents/CALSTART\_Select\_Committee\_on\_Energy\_and\_Global\_Warming\_Testimony.sflb.ashx

Cutting Greenhouse Gas Emissions and Setting a Positive Global Example: Lower carbon¶ fuels and reduced oil consumption will result in fewer greenhouse gas emissions. The¶ U.S. would be demonstrating global leadership by showing how advanced technology can¶ cost-effectively reduce greenhouse gas emissions from the goods movement sector and¶ spurring exports. Commercializing more efficient truck technology would be even more¶ significant in other countries where the percentage of commercial vehicles is much greater¶ than in the U.S. Commercial vehicles represent about 25 percent of the total U.S. vehicle¶ population. In China, Brazil, and Mexico, commercial vehicles represent more than 50¶ percent of their vehicle populations.¶ We believe the time for action is now. We can build single year investments, driven by¶ economic necessity, into a targeted, multi-year effort that sends strong and unambiguous¶ signals to American industry, investors and vehicle users that improved efficiency and¶ lower carbon are critical, provide assistance to that industry to build the new technologies¶ needed on a faster pace than they can manage alone helping them stay or become world¶ leaders, and grow the next generation of high quality “green technology” jobs the nation¶ needs in the coming low carbon world.

#### Only federal investment can spur commercialization and preserve U.S. leadership

Fuel Cell Dispatch 10

http://www.fuelcelldispatch.com/PortablePower/tabid/2705/articleType/ArticleView/articleId/779/Fuel-Cell-and-Hydrogen-Energy-Association-launche-campaign-to-transform-the-energy-network.aspx

"Fuel cells and hydrogen technologies are transforming the energy network through distributed generation of clean, efficient and reliable power using a broad range of domestic fuels," said Ruth Cox, president and executive director of the FCHEA. "Today, the U.S. is the leader in fuel cell and hydrogen technologies, but we are at grave risk of losing our lead to competition in Europe and Asia.¶ "Congress must act to speed the commercial deployment of these technologies here in the U.S., but also to continue R&D in solid oxide fuel cells, renewable/waste hydrogen generation, advanced hydrogen storage technologies and programs to reduce costs through advanced manufacturing processes in order to sustain our leadership."¶ To support this campaign, the FCHEA launched its new website today, which can be found at http://www.fchea.org. Through the site, FCHEA will engage an army of grass roots proponents of fuel cells and hydrogen energy, enabling their voices to be heard by lawmakers in an effort to continue funding for these critical programs.¶ The FCHEA is calling on the Government to acknowledge, in their rhetoric, in their policies and in their government purchases, what energy experts and leaders across the globe have already acknowledged: all clean energy options, including fuel cells and hydrogen, are necessary to reach our economic growth, environmental and energy security goals.¶ Fuel cells and hydrogen energy are proven to play a unique and vital role in enhancing the performance of renewable and nuclear power, boosting the efficiency and lowering the emissions of fossil fuels, and generating power closer to the point of consumption, relieving grid congestion and reducing the need for high voltage transmission lines.¶ Leading corporations like Coca-Cola, Google, FedEx and Walmart are using fuel cells and hydrogen to meet mission critical power needs for 7/24 materials handling, grocery store refrigeration and data center operations. The U.S. military is relying on fuel cells and hydrogen energy for light, long duration soldier power and to power unmanned vehicles, increasing their efficiency and effectiveness on the battlefield, as well as for materials handling and stationary applications in non-tactical base operations.¶ Federal and state governments have partnered with private industry and invested billions of dollars to position America as the leading supplier and consumer of fuel cell and hydrogen energy technologies. R&D funding, tax credits and other progressive policies have already created thousands of jobs.¶ "Our Industry needs continued Government support to cross the chasm and achieve broad-scale commercial deployment, or we will suffer the fate of other clean energy technologies that are now being manufactured abroad and imported for use in our energy network," continued Cox. "We can't afford to risk throwing away the considerable efforts that have brought us to this tipping point and lose another homegrown industry to foreign competition."¶ Government leadership key – the market won’t invest in hydrogen on its own¶ NRC 04 (National Research Council, Committee on Alternatives and Strategies for Future Hydrogen Production and Use, National Academy of Engineering ,"The Hydrogen Economy: Opportunities, Costs, Barriers, and R&D Needs, National Academy of Engineering (NAE) Board on Energy and Environmental Systems (BEES), 2004 (119)¶ In the area of infrastructure and delivery there seem to be significant opportunities for making major improvements. The DOE does not yet have a strong program on hydrogen infrastructures. DOE leadership is critical, because the current incentives for companies to make early investments in hydrogen infrastructure are relatively weak.

# Bus Extensions

## Leadership Collapse Coming extensions

#### Fuel cell technology is the key to U.S. global economic leadership

Minardi 11

Dean Minardi is the chief financial officer for Bing Energy Inc., a manufacturer of state-of-the-art components for polymer electrolyte membrane fuel cells Don’t Give Away Our Leadership in Fuel Cell and Hydrogen Technologies <http://www.7ms.com/fct/online/2011/05/~dont-give-away-our-leadership-in-fuel-cell.html>

The Obama Administration’s recent decision to slash funding for fuel cell and hydrogen energy programs is confusing, illogical and ill-advised.¶ U.S. investment in fuel cells and hydrogen has been one of the most successful research, development and deployment programs in history. Fuel cells are at least twice as efficient, twice as durable and 10 times less expensive than they were 10 years ago.¶ Fuel cell technology is not a “future” technology, but rather one that is already being used by forward-thinking companies. Production of hydrogen-fueled vehicles is increasing annually with major automakers having hundreds of fuel cell electric vehicles on the road today.¶ My own company, Bing Energy Inc., has exclusive use of breakthrough technology pioneered at Florida State University that will create a new generation of hydrogen-powered fuel cells that are even less expensive, smaller, lighter and more durable than those on the market today. Because of this, fuel cells will be viable for mass-market use for the first time.¶ President Obama should not pick winners and losers in America’s clean energy economy, but that is exactly what the Administration is doing by eliminating funding for fuel cell and hydrogen programs.¶ In its Fiscal Year 2012 budget, the Administration proposed to reduce the Fuel Cell Technologies budget within the DOE’s Office of Energy Efficiency and Renewable Energy from $170.29 million to $100.45 million a reduction of more than 40%.¶ Within the Office of Fossil Energy, the budget for the Solid-State Energy Conversion Alliance, one of the most successful public-private partnerships in DOE’s history, was zeroed out. And all this while the overall budget for the DOE was increased by more than 12%.¶ Recent events show why America cannot continue relying on foreign countries to provide our energy. The recurring oil price spikes are going to continue in rate and severity as long as the U.S. is mainlining foreign crude oil.¶ To move away from our addiction to foreign energy sources, we must acknowledge the commercial successes of American engineered, American manufactured and domestically fueled power generation capabilities.¶ Through the American Recovery and Reinvestment Act of 2009, more than $2.5 billion was allocated to the “smart grid.” That entire investment will yield no additional generating capacity, just a better, more efficient way to ration what we already have.¶ In contrast, by using a new generation of lower cost fuel cells as distributed energy generators, it is possible to level the load, add power to the grid, increase system efficiency, limit power outages and clean the air, all at the same time. The same fuel cell also can power a new fleet of American vehicles. A straightforward engineering and financial comparison will reveal the obvious: The fuel cell solution will be key to the distributed power solutions of the coming decades.¶ We cannot give away our leadership in fuel cell and hydrogen technologies to our strategic competitors China, Japan, Korea and Germany like we did with wind, solar and batteries. If the U.S. turns away now, we will be handing over billions of dollars of American hard work and innovation and tens of thousands of jobs to our competitors.¶ Just as America led the world in the Information Age, given the right support, we can lead in the Energy Age. The country that can harness the power of hydrogen will be the country with the most robust economy, the healthiest environment and the strongest national and energy security. The Administration’s decision to cut fuel cell and hydrogen energy programs doesn’t make sense, given its exemplary performance. I urge the Obama Administration to work with Congress to restore funding to fuel cell and hydrogen energy programs and ensure our place of leadership in this important arena.

#### The plan solves leadership, warming, air pollution and protects the grid

Department of Energy 12

http://www1.eere.energy.gov/hydrogenandfuelcells/about.html

The Fuel Cell Technologies Program conducts comprehensive efforts to overcome the technological, economic, and institutional barriers to the widespread commercialization of hydrogen and fuel cells. The program is aligned with the strategic vision and goals of the U.S. Department of Energy (DOE). The program's efforts will help secure U.S. leadership in clean energy technologies and advance U.S. economic competitiveness and scientific innovation.¶ Hydrogen and fuel cells offer a broad range of benefits for the environment, for our nation's energy security, and for our domestic economy, including reduced greenhouse gas emissions, reduced oil consumption, expanded use of renewable power (through use of hydrogen for energy storage and transmission), highly efficient energy conversion, fuel flexibility (use of diverse, domestic fuels, including clean and renewable fuels), reduced air pollution, and highly reliable grid support. Fuel cells also have numerous advantages that make them appealing for end-users, including quiet operation, low maintenance needs, and high reliability. In addition to using hydrogen, fuel cells can provide power from a variety of other fuels, including natural gas and renewable fuels such as methanol or biogas.¶ Hydrogen and fuel cells can provide these benefits and address critical challenges in all energy sectors—commercial, residential, industrial, and transportation—through their use in diverse applications, including distributed energy and combined-heat-and-power systems; backup power systems; systems for storing and transmitting renewable energy; portable power; auxiliary power for trucks, aircraft, rail, and ships; specialty vehicles such as forklifts; and passenger and freight vehicles, including cars, light trucks, buses, and short-haul trucks.

#### America is on the brink of a collapse of economic leadership

Porter & Rivkin 12

Michael E. Porter is the Bishop William Lawrence University Professor,¶ based at Harvard Business School. Jan W. Rivkin is the Bruce V. Rauner¶ Professor at Harvard Business School http://www.hbs.edu/competitiveness/pdf/hbscompsurvey.pdf

On any given day, virtually every major media outlet, the¶ debate in Congress, and the promises made on the¶ Presidential campaign trail focus on speeding the¶ recovery from the Great Recession that began in late¶ 2007. If the economy can get back to where it was¶ before the recession by recreating the jobs that were¶ lost, the pundits argue, America’s economy will be back¶ on track. But much of the discussion misses a fundamental issue.¶ Ample evidence now points to a series of structural¶ changes that began well before the Great Recession and¶ threaten to undermine the long-term competitiveness of¶ the United States. For the first time in decades, the¶ business environment in the United States is in danger¶ of falling behind the rest of the world. With this,¶ pressures on jobs, wages, and living standards will only¶ grow.¶ That’s bad news for everyone. A fundamentally weakened¶ U.S. economy is not only an American problem but also¶ a global risk. If the U.S. struggles, global growth will¶ falter, the pace of innovation will slow, and the U.S. will ¶ find it hard to lead efforts to open the global trading and¶ investment system.¶ The last time America faced such a moment was in the¶ 1980s, when competition from Japan revealed quality¶ problems and inefficiency in U.S. firms that had¶ accumulated during a generation of post-war dominance.¶ Then, American leaders from policy, business, labor, and¶ academia engaged in a vigorous debate, came to a¶ shared understanding of the challenges, and pursued a¶ set of public policies and private practices that boosted¶ U.S. productivity and laid the groundwork for two¶ decades of prosperity.¶ But that’s not what is happening now.¶ Today, public discourse about the problem and potential¶ solutions often ignores the root causes. Many see jobs as¶ the goal, when in fact it is only through restoring¶ American competitiveness that good jobs can be created¶ and sustained. Many see income inequality as the¶ central problem, when in fact inequality is the outcome¶ of underlying problems in skills, opportunities, and other¶ fundamentals that must be addressed if inequality is to¶ fall. Many call on the government alone to solve¶ America’s competitiveness problem, but business also¶ has a central role to play. The gap between the public¶ discourse and the real issues stands in the way of¶ progress.¶ The threat to U.S. competitiveness we face today is far¶ more complex than the one America confronted in the¶ 1980s. Now the challenge is not just from Japan, but¶ from many nations with growing strengths and diverse¶ capabilities. The U.S. government is more fiscally¶ constrained and politically gridlocked than it was three¶ decades ago. Leaders of global enterprises are less¶ invested in the United States, or in any single location,¶ than they were in the 1980s. The problems taking root¶ in the American economy are potentially much more¶ serious. Responsibility for the problems cuts across party¶ lines and involves both the private and the public¶ sectors.

#### Perceptions of U.S. economic leadership are collapsing

Suominen 7-6-12

Kati Suominen is resident fellow at the German Marshall Fund of the United States in Washington America The Absent

http://www.foreignpolicy.com/articles/2012/07/06/america\_the\_absent?page=full

Right at the moment when we most need to shore up the troubled global economic order, America -- the architect of this very order -- is failing to lead. Even as the United States remains pivotal to global growth, U.S. corporations -- the engines of the American economy -- are stifled by taxes, regulations, and policy uncertainty. Gaping fiscal deficits in the United States are undermining the dollar, exacerbating trade deficits, and undercutting U.S. economic dynamism and credibility in world affairs, but political posturing has obstructed the country's path to solvency. Earlier this week, the IMF warned that if political deadlock takes America to the so-called fiscal cliff of automatic tax hikes and spending cuts in January 2013, it could have a devastating impact on the U.S. and world economies. No wonder America's image as the global economic superpower is receding around the world. Europe's travails, meanwhile, are reducing U.S. companies' exports and overseas profits, threatening America's recovery. And yet Congress has balked at boosting the IMF's resources to fight the eurozone crisis while the Obama administration has deflected responsibility, framing the crisis as Europe's to manage. It has fallen to countries such as Brazil, China, India, Mexico, and Russia to instead build the firewall that will shield the rest of the world from Europe.¶ The welcome momentum in negotiations between the United States and Pacific Rim countries on the Trans-Pacific Partnership free trade agreement does not undo over three years of drift in U.S. trade policy that has jeopardized the very global trading system that the United States built and powered in the postwar era. The only trade deals that the Obama administration has passed -- with Colombia, Panama, and South Korea -- were launched and negotiated by the Bush administration.¶ The world is now facing a triple threat of global economic instability, divisions among top powers, and a global leadership vacuum. This perfect storm could produce a world disorder of mercurial financial markets, widening global imbalances, spreading state capitalism, and beggar-thy-neighbor protectionism -- a scenario with a sorry past and few safe exits.¶ In the late 1940s, a new world order arose because of American strength, vision, and leadership, not because global governance was in vogue. Leadership was never easy: Resistance from allies, protectionist pressures at home, and resource-draining wars all stood in the way. But capitalism spread, trade and financial markets were liberalized, and emerging-market crises were defeated. Global economic integration forged ahead.¶ Today, American leadership is again essential. China prioritizes mercantilism over multilateralism, and emerging nations have yet to fully step up to the plate when it comes to global governance, while Europe and Japan are neither able nor willing to lead. In placing their faith in multilateralism, liberal institutionalists often fail to realize that the world economic order is built on American primacy and power, and Washington's willingness to project it.¶ To lead abroad, the United States must reform at home by imposing ironclad fiscal discipline, cutting taxes and red tape for businesses, and locking in long-term policies -- summoning the private sector to reform schools and rebuild infrastructure, for instance -- that harness the productivity of America's future generations.

#### The economy is key to U.S. political leadership

Thorpe 11

Maisha K. Thorpe, B.B.A.¶ Georgetown University¶ Washington, D.C.¶ April 1, 2011 A NATION BACK TO WORK: THE ROLE OF PUBLIC POLICY IN RESTORING THE AMERICAN DREAM AFTER THE FINANCIAL CRISIS OF 2008 https://repository.library.georgetown.edu/bitstream/handle/10822/553404/thorpeMaisha.pdf?sequence=1

All of these domestic societal conditions: structural unemployment, growing skills shortage, reduced standard of living, and falling education rankings and achievement, equate to America’s declining competitive advantage in a global economy. If America loses its competitive advantage, what is ultimately at stake is its global political leadership and economic prosperity, which has been in place since its founding.

#### Getting fuel cells commercialized first is vital to future market control

Terreri 10

Jill Terreri is a reporter for the Buffalo News http://www.fuelcelldispatch.com/AutomotivePower/tabid/2704/articleType/ArticleView/articleId/2307/GM-site-tries-to-keep-US-in-fuel-cell-race.aspx

As other countries help their car manufacturers bring fuel-cell cars to market by building hydrogen stations, the United States has cut back its investment.¶ The first company to bring its car to market will likely have an advantage over the competition, because it will be able to mass produce the cars more quickly, working out problems or reducing the cost of the vehicles, say experts, who compare the process to the cellphone market.¶ "To be competitive you really need to get out there first," said Nasr, director of RIT's Center for Integrated Manufacturing Studies and the Golisano Institute for Sustainability. "It's very important for the U.S. to see this as a competitiveness issue."

## AT: China Transition not happening

#### No impact—Their evidence just says China has slowed down, not that they aren’t going to continue—This buys the aff time to solve

Chinese progress has slowed but is still inevitable—They are about to launch their own pilot program

Motavelli 7-18-12

Jim Motavalli writes on environmental topics for The New York Times, CBS MoneyWatch, NPR’s Car Talk, AOL, Mother Nature Network and TheDailyGreen.com http://www.plugincars.com/reading-chinese-tea-leaves-20000-ev-sales-or-maybe-not-123252.html

Chinese electric vehicle sales will either rapidly overtake the U.S. because of government will, infrastructure development and lucrative subsidies, or—frankly—they won’t. And reading the Chinese tea leaves isn’t that easy. But the news from China can be exciting!¶ The Big Order!¶ Case in point, a report that little-known Chinese EV maker Kandi Technologies is preparing to lease 20,000 electric vehicles to the city of Hangzhou. An article in Forbes describes it as “the largest EV sale ever announced” and “effectively the largest scale trial of the use of EV batteries for vehicle to grid (V2G).” Wow.¶ But is it actually going to happen? I heard about all this from Art Porcari, who is a shareholder in Kandi. The value of investment in the company is hotly debated, especially in Seeking Alpha. Porcari seems to think it’s a small-dunk. “With a Hangzhou population of 11 million,” he told me, “does anyone really think there is any risk that 20,000 prospective lessors at $126 a month, free battery exchanges included, will not be found?” He said the company’s market cap has increased $23 million since the news first leaked out. He pointed out that Tesla Motors recently increased its market cap by almost $200 million “on no news.” So are the checkbooks coming out?¶ In Kandi’s July 16 announcement, the company said the locally based State Grid would work with Kandi and China Aviation Lithium Battery Company to “produce automobile-use lithium batteries and purchase 20,000 electric vehicles for personal leasing.” The State Grid is responsible for building a charging network, the release said, and the Hangzhou municipal government will provide financial subsidies for consumers to make low-cost leases possible.¶ Raising Doubts¶ That all seems plausible enough, but other Seeking Alpha posts cast Kandi as a risky prospect for investors. The 20,000-car order, Andrew Cherna writes, “is not happening anytime soon. Instead, there will be a 100-vehicle pilot program.”¶ Indeed, a Chinese article from the First Financial Daily, translated none too clearly by Google, makes that point. “The source said the plan Hangzhou electric car rental project will start in August, the most important 100 test run of electric cars.” According to the same source, the 20,000-car order will happen “within two years,” and “mainly for the working-class customers.”

## Solvency Extensions

### Leadership Solvency

#### Developing a new generation of fuel cell vehicles is key to the economy and competitiveness

EDTA 11

Electric Drive Transportation Association http://www.electricdrive.org/index.php?ht=a/GetDocumentAction/id/29416

Electric drive vehicles – hybrid, pure battery electric, plug-in hybrid and fuel cell vehicles - are essential in leading the U.S.¶ to greater energy, environmental and economic security. Electric Drive Transportation Association (EDTA) members include¶ leading and emerging vehicle, battery and component manufacturers, as well as electricity providers, smart grid and infrastructure¶ developers, and others advancing diverse technologies that will displace oil with electricity in transportation.¶ Together, we are building the advanced vehicles, jobs, sustainable transportation options and energy security that comprise¶ the electric drive future.¶ The U.S. is spending $200 billion on imported foreign oil annually, which represents 40 percent of the U.S. trade deficit.¶ According to the International Energy Agency, oil demand from developing countries will cause prices to average $100 a¶ barrel between now and 2015 and double by 2030.¶ As an alternative to oil, we can fuel our vehicles with electricity, which is is domestically produced and reliable. In fact, a¶ recent federal study projected that, with grid management, 73 percent of the light duty fleet could be fueled by electricity¶ without having to add any new generating capacity. The change would displace an estimated 6.2 million barrels of oil a¶ day, about 52 percent of current oil imports.¶ Building the electric drive fleet in the U.S. paves the way for economic growth and for the country to build a competitive¶ edge in the global race for advanced energy technologies. New and expanded development efforts and manufacturing for¶ batteries, microturbines, recharging infrastructure and other electric drive technologies are providing jobs today and greater¶ economic security for the future. According to a July 2010 Department of Energy report, U.S. factories are on track to¶ produce batteries and components to support up to 500,000 electric drive vehicles annually by 2015 and overall¶ investment in electric vehicles, technologies and infrastructure will create tens of thousands of American jobs.

#### U.S. fuel cell development is key to U.S. competitiveness

Department of Energy 08

Report based on Advisory panel consisting of Dr. John Johnston, former Planning Executive, Corporate Strategic Research Lab, Exxon-Mobil Research and Engineering; Dr. Alan Lloyd, President of the International Council on Clean Transportation; Dr. Walter McManus, Director Automotive Analysis Division, University of Michigan Transportation Research Institute; Mr. Gregory Morris, Senior Vice President, HydroGen, LLC and Executive Director, Cullen Engineering Research Foundation; and Dr. Robert Rose, Executive Director, U.S. Fuel Cell Council.¶ Effects of a Transition to a Hydrogen Economy on Employment in the United States¶ Report to Congress http://www.hydrogen.energy.gov/pdfs/epact1820\_employment\_study.pdf

The transformation to a Hydrogen Economy will serve at least two major objectives in the international area. First, reduction in oil imports, with the attendant increase in energy independence, is a clear U.S. goal to which hydrogen will contribute. Second, if U.S. companies are able to forge a lead in hydrogen technologies, U.S. global competitiveness will be fostered. The movement to hydrogen in particular could well be an opportunity for U.S. automotive firms to recapture market share lost to foreign multinationals in recent years. Due to overseas operations of U.S. and multinational corporations, with or without a hydrogen transformation, most vehicle production and employment will continue to be tied to countries with large automobile demands. Some effects on the international location of supplies of particular individual materials could be brought about by a transformation to hydrogen. If the production shares held by U.S. and multinational corporations are affected because some companies get ahead of others in introducing hydrogen vehicles, the location of automobile production within the U.S. could be affected in turn due to the fact that companies differ in their regional concentrations of production capacity. Hydrogen, however, will be produced domestically in either case and will be essentially a non-internationally traded commodity. Inasmuch as natural gas is not projected to be a significant long-term feedstock for hydrogen production, little effect on gas imports is projected.

#### Fuel Cell leadership is key to U.S. competitiveness

Department of Energy 08

Report based on Advisory panel consisting of Dr. John Johnston, former Planning Executive, Corporate Strategic Research Lab, Exxon-Mobil Research and Engineering; Dr. Alan Lloyd, President of the International Council on Clean Transportation; Dr. Walter McManus, Director Automotive Analysis Division, University of Michigan Transportation Research Institute; Mr. Gregory Morris, Senior Vice President, HydroGen, LLC and Executive Director, Cullen Engineering Research Foundation; and Dr. Robert Rose, Executive Director, U.S. Fuel Cell Council.¶ Effects of a Transition to a Hydrogen Economy on Employment in the United States¶ Report to Congress http://www.hydrogen.energy.gov/pdfs/epact1820\_employment\_study.pdf

However, a hydrogen transformation may significantly affect U.S. competitiveness in specific auto parts. The hydrogen fuel cell system will completely replace the engine, transmission, and powertrain parts and will modify storage batteries. Foreign producers have dominated these conventional, gasoline-vehicle components in recent years. Substitution of hydrogen fuel cell technology for gasoline systems could give U.S. manufacturers of the hydrogen systems an opportunity to re-capture recently lost market shares in vehicle components. With the exception of platinum, most of the materials used to manufacture fuel cell systems can be sourced domestically.

#### U.S. leadership in hydrogen fuel cells is key to U.S. competitiveness

Department of Energy 08

Report based on Advisory panel consisting of Dr. John Johnston, former Planning Executive, Corporate Strategic Research Lab, Exxon-Mobil Research and Engineering; Dr. Alan Lloyd, President of the International Council on Clean Transportation; Dr. Walter McManus, Director Automotive Analysis Division, University of Michigan Transportation Research Institute; Mr. Gregory Morris, Senior Vice President, HydroGen, LLC and Executive Director, Cullen Engineering Research Foundation; and Dr. Robert Rose, Executive Director, U.S. Fuel Cell Council.¶ Effects of a Transition to a Hydrogen Economy on Employment in the United States¶ Report to Congress http://www.hydrogen.energy.gov/pdfs/epact1820\_employment\_study.pdf

Continued U.S. federal investment in hydrogen R&D will foster global competitiveness of U.S. firms as the economy is transformed to hydrogen. The movement to hydrogen could well be an opportunity for U.S. automotive firms to recapture market share lost to foreign multinationals in recent years. The backdrop is the on-going growth in production of U.S. corporations in other countries and of foreign multinationals in the U.S., which is a part of economic globalization. These changes affect where assets are owned, but they do not necessarily have a great effect on the location of production and employment, which is determined largely by underlying cost and demand considerations. U.S. firms have successfully established vehicle assembly plants in India and China, which will be the world’s major purchasers of light-duty vehicles by 2030, while Japanese, Korean, and German firms have located plants in the U.S. Competition among U.S. companies and multinational producers in other countries can be expected to continue with hydrogen vehicles. R&D in hydrogen vehicle technologies is occurring worldwide, and it can be expected that most major vehicle and components manufacturers will find the new technologies available to them. As research becomes more applied, companies may follow different development paths, though any predictions about the relative success of companies of different national origins would have a weak basis. Two areas where effects could be noticeable, however, stem from the choices of multinationals as to where to carry out R&D—which could in turn affect the location of parts production—and differences between the choices made by of U.S. corporations and multinationals regarding the location of their automobile production facilities.

#### Perceptions of U.S. economic leadership are key to international leadership

Gelb 10

 [Leslie H. Gelb, a former New York Times columnist and senior official in the state

and defense departments, is currently president emeritus of the Council on Foreign Relations, Fashioning a Realistic Strategy for the Twenty-First Century,? Fletcher Forum of World Affairs vol.34:2 summer 2010

http://ui04e.moit.tufts.edu/forum/archives/pdfs/34-2pdfs/Gelb.pdf

Power is what it always has been. It is the ability to get someone to do something they do not want to do by means of your resources and your position. It was always that. There is no such thing in my mind as “soft” power or “hard” power or “smart” power or “dumb” power. It is people who are hard or soft or smart or dumb. Power is power. And people use it wisely or poorly. Now, what has changed is the composition of power in international affairs. For almost all of history, international power was achieved in the form of military power and military force. Now, particularly in the last fifty years or so, it has become more and more economic. So power consists of economic power, military power, and diplomatic power, but the emphasis has shifted from military power (for almost all of history) to now, more economic power. And, as President Obama said in his West Point speech several months ago, our economy is the basis of our international power in general and our military power in particular. That is where it all comes from. Whether other states listen to us and act on what we say depends a good deal on their perception of the strength of the American economy. A big problem for us in the last few years has been the perception that our economy is in decline.

### Tecnology Solvency

Transit buses are the key to spreading new transportation fuel cell technologies

Eudy et al 07

Fuel Cell Buses in U.S. Transit Fleets: Summary of Experiences and Current Status¶ L. Eudy¶ ¶ K. Chandler¶ Battelle¶ C. Gikakis, Research specialists for National Energy Research Laboratory

Federal Transit Administration http://www.nrel.gov/hydrogen/pdfs/41967.pdf

Over the past several years, many nations around the world have increasingly focused on developing new ways to provide clean energy. In the United States, government and industry partners are exploring a variety of technologies to meet the growing energy needs of the population in more efficient and renewable ways. Technologies being pursued in this country include using hydrogen and fuel cells in transportation applications.¶ Although transit vehicles make up less than 2% of the total number of vehicles in the nation, this application is one of the first ones demonstrating fuel cell propulsion systems. Transit buses have several characteristics that make them particularly well suited for demonstrating fuel cell usage in transportation. They are ideal applications for advanced technologies such as fuel cell propulsion because they¶ •¶ Are centrally located and fueled.¶ •¶ Are government subsidized.¶ •¶ Are professionally operated and maintained.¶ •¶ Operate on a fixed route and fixed schedule.¶ •¶ Have greater tolerance for the added weight and volume requirements of advanced systems.¶ •¶ Have less rigorous start-up and pull-out requirements.¶ •¶ Provide greater exposure to the positive benefits of advanced technologies, which leads to broader public knowledge and acceptance.¶

#### Investment in transit buses will spill over into all vehicles

Preli 03

Dr. Francis R. Preli Jr.¶ Vice President Engineering¶ UTC Fuel Cells The Hydrogen Energy Economy¶ Subcommittee on Energy and Air Quality¶ May 20, 2003 http://republicans.energycommerce.house.gov/108/Hearings/05202003hearing926/Preli1464print.htm

The vision of an economy fueled by hydrogen generated from renewable energy sources is a revolutionary concept that will require evolutionary, incremental progress. We believe fuel cells will be deployed first in stationary devices and fleet vehicles such as transit buses and only later in the personal auto market. Transit buses are a strategic enabler on the pathway to autos powered by fuel cells. Hydrogen-fueling stations can be made available more readily given the relatively small number of inner city bus stations and the power plant size and weight requirements are less demanding than those associated with autos.¶ We need to walk before we run and gain experience in real world operating conditions. Fleet vehicles represent a perfect candidate for this type of practical experience since they offer an opportunity to enhance the range of operation for the vehicle, gain experience with heavy-duty cycles and train a core group of technicians.¶ As the industry gains experience in deploying fuel cells for stationary, inner city buses and fleet applications, these successes can pave the way for zero emission fuel cell cars and serve as benchmarks to measure progress towards the goals of the Administration's FreedomCAR and Fuel initiative. Similarly, we believe it is wise to continue the investments being made in electric drive train technology for hybrid cars and buses since fuel cell vehicles will incorporate this same technology and benefit from the technical advances and experience gained from these earlier vehicles.

#### Buses key to making all other vehicles more energy efficient

Lowe et. al. 09

Marcy Lowe, Bengu Aytekin and Gary Gereffi of the Center on Globalization, Governance & Competitiveness, an affiliate of the Social Science Research Institute at Duke University¶ Public Transit Buses: A Green Choice¶ Gets Greener¶ http://www.cggc.duke.edu/environment/climatesolutions/greeneconomy\_Ch12\_TransitBus.pdf

The diesel engine is by far the most prevalent technology for transit buses due to its availability,

durability, familiar maintenance, and good performance including fuel economy and torque

power (Ealey & Gross, 2008). However, as governments seek to enhance their energy

independence and reduce fuel use and the emission of greenhouse gases and other air pollutants,

the market is growing for greener alternatives. Today, an estimated 32% of U.S. transit buses

have an alternative power source, i.e., other than diesel or gasoline (APTA, 2008). The transit

bus industry has played a crucial role in proving and adopting advanced vehicle technologies.

Transit fleets have the advantages of large-scale refueling and centralized management of

vehicles, which facilitates the testing and refining of new technologies. The examples of CNG,

plug-in hybrid, and all-electric buses show how transit buses are well-suited to preparing the way

for other motor vehicles in new technology applications (Silver, 2009).

#### Transit bus industry is key to key to transitioning to energy efficient vehicles

Schor 09

Elana Schor Congressional reporter, Environment & Energy Daily and Greenwire How Bus Transit Can Help the Auto Industry http://la.streetsblog.org/2009/10/26/how-bus-transit-can-help-the-auto-industry/

But the recession hasn't dampened the economic potential of hybrid bus production, as the Environmental Defense Fund (EDF) laid out today in a new report [PDF] on the industry. In fact, EDF found, transit bus companies share enough skills and regional foothold with the auto industry -- the map of bus makers pictured above could be mistaken for a map of automakers -- to pave the way for fuel-efficiency advances that would ultimately benefit all vehicles. ¶ After noting that 32 percent of American transit buses do not rely on gas or diesel to run, today's report continues:¶ The bus industry serves as an important entry point for advanced vehicle technologies, especially in new vehicles that require refueling infrastructure and other major changes. For instance, since transit agencies have a well-defined base of centrally managed fleets, they are ideal for testing and proving plug-in hybrid and all-electric buses — thus leading the way for the passenger car industry.¶

#### An expanded federal government commitment to clean bus infrastructure is key solvency

Pollin 10

Robert Pollin- Political Economy Research Institute Univ of Mass

Industrial Policy and the Revival of U.S. Manufacturing

January 2010 http://www.peri.umass.edu/543/

An obvious priority here would be to build manufacturing capacity around clean energy technologies, including green buses and rail cars, as well as automobiles. Investments in these areas could be the basis for a revival of a transformed U.S. auto industry.¶ A program to dramatically improve public bus services throughout the country well illustrates the broader possibilities and approach. Let’s say, for example, the federal government commits to doubling the number of buses now operating throughout the country, and requires that all the new buses operate at high energy efficiency levels. Such a program could produce major environmental and social benefits: even at current fuel-efficiency standards, transporting people via public transportation, as opposed to private cars, produces a net reduction in carbon emissions of about 45 percent per passenger mile, while the average costs for passengers of public transportation are about half those of people traveling by car. Meanwhile, the government orders for clean-energy buses would establish a guaranteed market for manufacturers. Some of these orders could be filled by the current suppliers, all of whom now operate in the U.S. The rest could be supplied by U.S. auto firms, including GM and Chrysler, assuming these companies see the opportunities open to them through converting part of their unprofitable auto manufacturing operations into a newly-expanding market for clean-energy buses.

#### Buses are key to integration and expansion of fuel cell technology

Eudy 12

L. Eudy is Research specialist for National Energy Research Laboratory http://www.nrel.gov/hydrogen/proj\_fc\_bus\_eval.html

Transit buses are one of the best early transportation applications for fuel cell technology. Buses operate in congested areas where pollution is already a problem. These buses are centrally located and fueled, highly visible, and subsidized by government. By evaluating the experiences of these early adopters, NREL can determine the status of bus fuel cell systems and establish lessons learned to aid other fleets in implementing the next generation of these systems.

#### Federal investment in application of new fuel cell technologies spur their acceptance

Boesel 09

John Boesel, President and CEO of CALSTART¶ Before the Select Committee on¶ Energy Independence and Global Warming¶ On¶ Constructing a Green Transportation Policy:¶ Transit Modes and Infrastructure¶ March 19, 2009http://www.calstart.org/Libraries/Policy\_Documents/CALSTART\_Select\_Committee\_on\_Energy\_and\_Global\_Warming\_Testimony.sflb.ashx

There is a clear need to increase public investment in the¶ development of clean and efficient vehicle and fuel technologies. The public sector has¶ traditionally played a significant role in early stage technology development, and the need¶ for this public investment is increasing as the financial crisis deepens and private¶ companies cut back on risky long term investments. Specific needs for the medium- and¶ heavy-duty sectors include:¶ • Improved system integration and manufacturability¶ • Reduced energy storage costs specific to commercial vehicle designs¶ • Electrified and advanced components (to enable even greater fuel economy gains¶ in all trucks by reducing engine load and enabling start-stop operation)¶ • Improved thermal efficiency and thermal recovery¶ • Advanced aerodynamics¶ • Fuel-optimized and downsized engines, advanced combustion schemes, power¶ generation, light-weight materials, and advanced control systems.¶ Demonstration and validation – pre-production stage: successful and transparent¶ demonstrations can help to “unlock” the environmental and economic benefits of new¶ vehicle and fuel technologies by proving their viability in real world situations and speed¶ user feedback to more quickly design production systems. Public investment and¶ partnerships can help to overcome this barrier and bring these technologies from lab to¶ market. It is important that the demonstrations are public and that analysis of technology¶ performance is shared. Pilot programs can be used for the demonstration and validation¶ of vehicles and infrastructure. For example, CALSTART is working with a number of¶ California transit properties to secure funding for the Zero emission Transit User Group (ZTUG),¶ which would provide valuable real world testing and analysis of zero-emission¶ transit bus technologies. Other potential pilot programs include:¶ • Local designation where there is a high level of truck activity (near a port or¶ transfer location):¶ • Farming region, with potential link to fuel source¶ • A designated “Clean Transportation Corridor” program¶ • Construction Equipment¶ Purchase incentives – early market stage: new technologies in the early stages of market¶ deployment tend to cost more than the business case of fleet owners allow them to pay.¶ Smart and targeted purchase incentives, aligned with policy goals, can help technologies¶ get through this transition period by accelerating deployment and increasing demand. As¶ demand and production volumes increase over time, and as the innovation cycle¶ continues with process improvements and movement up the learning curve, purchase¶ costs can be expected to come down and the need for incentives should disappear.

Increasing federal investment from project specific to a longer term commitment is the key to spurring commercialization of new fuel cell technologies

Center for Transportation and the Environment 09

A Report on Worldwide Hydrogen Bus Demonstrations, 2002-2007¶ http://www.fuelcells.org/wp-content/uploads/2012/02/busreport.pdf

Demonstration participants envisioned two primary roles for government in future demonstrations: the development of a long-term, rather than project-specific, strategic plan for fuel cell buses and an accompanying funding commitment until commercialization is viable. Transit operators indicated that government funding will be needed to cover incremental costs of purchasing and operating fuel cell buses through 2015, based on current commercialization timeframes. Many participants believe that government support for larger deployments (50-100 vehicles), and bigger hydrogen bus purchases, will help to bring down bus costs. Several also believe that monetizing carbon emissions could significantly improve the life-cycle cost implications of hydrogen buses.

An expanded bus program is the key to hydrogen commercialization

Center for Transportation and the Environment 09

A Report on Worldwide Hydrogen Bus Demonstrations, 2002-2007¶ http://www.fuelcells.org/wp-content/uploads/2012/02/busreport.pdf

Hydrogen bus purchases require government assistance to help offset incremental costs greater than those for standard buses. Most participants believe that the cost issue will be resolved as the technologies move toward commercialization. A major factor will be bigger demonstrations and deployments by transit agencies (50-100 vehicles) and larger hydrogen bus purchases. For example, in a March 2006 presentation to the California Air Resources Board. UTC indicated that aggregate orders of at least 100 buses will drive capital cost to competitive levels of around $1 million per bus.¶ One transit agency noted that a premium of several hundred thousand dollars per bus might make fuel cell buses attractive for limited purchases, while another felt that a premium of $100,000 or less would make it possible for every bus in the fleet to be a fuel cell-powered. Participants noted that the impact of the premium for fuel cell buses will vary significantly, depending upon the extent to which air quality regulations will increasingly require zero-emission buses.¶ Similarly, participants recognized that additional volume will help reduce the cost to build hydrogen fueling stations, which currently runs about $2 million to $5 million per station. Many participants also suggested that the infrastructure industry needs a pathway, such as an industry roadmap. for installing and expanding new hydrogen infrastructure and for optimizing the stations for larger demand. Companies will be unwilling to invest in hydrogen fueling infrastructure unless a clear market is seen.¶ Finally, many participants felt that the cost of hydrogen fuel would drop once larger volumes are attained. To further improve the economics, better planning is needed to minimize venting of stored liquid hydrogen, which could be attained by better matching supply with anticipated demand, with more consistent and increased use of the station, and through the development of new storage technologies.

#### Public Transit buses are the best place for demonstrating new energy technology

DOE 08

Department of Energy Report Fuel Cell School Buses¶ Report to Congress http://hydrogen.energy.gov/pdfs/epact\_743\_fuel\_cell\_school\_bus.pdf

The transit industry, however, is well suited to early technology demonstration, in part because of the significant (up to 80%) capital cost subsidy provided by FTA—funding that is applicable to the initial purchase of advanced technology vehicles as well as conventional vehicles. Additionally, unlike school districts, many transit agencies have bus fleets of sufficient size to meet daily ridership needs with a portion of the fleet, so having a demonstration fuel cell bus that is available only for special events or limited service is less of an issue.

#### Transit bus services are the ideal location to develop and demonstrate new energy technologies

DOE 08

Department of Energy Report Fuel Cell School Buses¶ Report to Congress http://hydrogen.energy.gov/pdfs/epact\_743\_fuel\_cell\_school\_bus.pdf

Although transit vehicles comprise less than two percent of the national total vehicle population, they are well suited to demonstrate advanced technologies and fuels because they are centrally located and fueled, government subsidized, professionally operated and maintained, operate on a fixed route and schedule, and highly visible among the public.

#### Federal support is the swing factor in commercialization of fuel cells

Breakthrough Technologies Institute 12

FUEL CELLS AT THE CROSSROADS¶ ATTITUDES REGARDING THE INVESTMENT CLIMATE¶ FOR THE US FUEL CELL INDUSTRY AND A¶ PROJECTION OF INDUSTRY JOB CREATION¶ POTENTIAL http://www.fuelcells.org/wp-content/uploads/2012/02/economicstudy.pdf

Government investment can influence the outcome. The financial respondents¶ generally agreed that government can be the “swing factor” in bringing fuel cell¶ products to market. Here they were referring not only to the creation of¶ supportive, clear policy, but also to the use of tax incentives, subsidies, and¶ purchasing power.

#### Signals of federal commitment are key to solvency

Breakthrough Technologies Institute 12

FUEL CELLS AT THE CROSSROADS¶ ATTITUDES REGARDING THE INVESTMENT CLIMATE¶ FOR THE US FUEL CELL INDUSTRY AND A¶ PROJECTION OF INDUSTRY JOB CREATION¶ POTENTIAL http://www.fuelcells.org/wp-content/uploads/2012/02/economicstudy.pdf

Strong, supportive government¶ policies and actions are the key to¶ success for the US fuel cell¶ industry.¶ There are significant opportunities¶ for government, including¶ becoming a purchaser of fuel cell¶ products.

#### Buses are key to developing hydrogen

Addison 06

John Addison. Publisher of the Clean Fleet Report FTA Accelerates Hydrogen Bus Development

http://www.cleanfleetreport.com/fta-accelerates-hydrogen-bus-development/

Over four million people have been riders on hydrogen buses. Public transit reduces road congestion, saves fuel and emissions by transporting hundreds of millions daily. Public transit brings wide exposure to clean transportation. Public transit is an excellent early adopter of hydrogen because it does not depend on a widespread fuel infrastructure and the fuel storage cylinders can be placed on the roof of buses. Hydrogen buses accelerate the development of fueling stations. Larger capacity production and fueling takes place because these buses use 30 to 50 kg/day of hydrogen. Public transit is accelerating our transition to clean transportation.

## AT: Transition Time Frame Long Term

#### Their time frame argument is about how long it takes to create a whole new auto economy—Our advantage is about the time frame for demonstrating the commercial viability of fuel cells and that time frame is by 2015. The CTE ev in the 1AC says the plan can get that transition by 2013-15 for the U.S.

Terreri 10

Jill Terreri is a reporter for the Buffalo News http://www.fuelcelldispatch.com/AutomotivePower/tabid/2704/articleType/ArticleView/articleId/2307/GM-site-tries-to-keep-US-in-fuel-cell-race.aspx

The Obama administration's lack of support for fuel cell development has discouraged the industry: Funding was cut by more than half in the administration's first budget and then restored after outrage from lawmakers and other advocates.¶ Another 40 percent cut is proposed in the administration's 2012 budget.¶ Meanwhile, other countries are investing heavily, building a network of hydrogen stations to meet demand for the vehicles.¶ Japan and Germany are rolling out stations with an eye on completion in 2015 to provide the infrastructure needed for fuel-cell cars being developed by Honda, Toyota, Hyundai and Daimler.¶ Germany is proposing a $2 billion investment in developing hydrogen stations over the next 10 years, and Japan has plans for about 60 stations by 2015.¶ "It's not a question of 'if' the commercial market will grow,' but 'where,'" said Pete Barkey, director of communications for the Fuel Cell and Hydrogen Energy Association in Washington, D.C.

The link to leadership happens immediately based on the perception of falling behind in the fuel cell race

#### Our link is based on perceptions of falling behind which happens in the short term

Univ of Maryland Energy Research Center 12-2-11

http://www.energy.umd.edu/html/news/news\_story.php?id=6160

Wachsman (joint, Department of Chemical & Biomolecular Engineering and Materials Science & Engineering) explains that because fuel cells, hydrogen and vehicles have been linked in both policy and in the public perception of what fuel cell technology is and can do, the U.S. is at risk of falling behind on fuel cell development and implementation as it fails to consider other options.

## Hegemony Extensions

#### Loss of U.S. leadership increases instability and war

Robert Knowles 9, Assistant Professor ? New York University School of Law, AMERICAN HEGEMONY AND THE FOREIGN AFFAIRS CONSTITUTION, Arizona State Law Journal, Vol. 41, 2009

First, the “hybrid” hegemonic model assumes that the goal of U.S.¶ foreign affairs should be the preservation of American hegemony, which is¶ more stable, more peaceful, and better for America’s security and¶ prosperity, than the alternatives. If the United States were to withdraw from¶ its global leadership role, no other nation would be capable of taking its¶ place.376 The result would be radical instability and a greater risk of major¶ war.377 In addition, the United States would no longer benefit from the public goods it had formerly produced; as the largest consumer, it would¶ suffer the most.

#### American decline will produce a world of instability

Kagan 12

Robert Kagan is senior Fellow at Brookings Institute Not Fade Away: Against the Myth of American Decline

<http://www.brookings.edu/research/opinions/2012/01/17-us-power-kagan>

Is the United States in decline, as so many seem to believe these days? Or are Americans in danger of committing pre-emptive superpower suicide out of a misplaced fear of their own declining power? A great deal depends on the answer to these questions. The present world order—characterized by an unprecedented number of democratic nations; a greater global prosperity, even with the current crisis, than the world has ever known; and a long peace among great powers—reflects American principles and preferences, and was built and preserved by American power in all its political, economic, and military dimensions. If American power declines, this world order will decline with it. It will be replaced by some other kind of order, reflecting the desires and the qualities of other world powers. Or perhaps it will simply collapse, as the European world order collapsed in the first half of the twentieth century. The belief, held by many, that even with diminished American power “the underlying foundations of the liberal international order will survive and thrive,” as the political scientist G. John Ikenberry has argued, is a pleasant illusion. American decline, if it is real, will mean a different world for everyone.

## AT: State C-plan

#### The absence of federal action guts solvency—Federal action is key to sending signals of leadership

DOE 11

Early Adoption of Fuel Cell Technologies http://www1.eere.energy.gov/hydrogenandfuelcells/adoption.html

Federal Deployment and Demonstration¶ Government adoption of early market fuel cell applications is critical. Federal agencies not only demonstrate leadership by using clean technology to improve efficiency and reduce operations costs but also help the economy grow.¶ Government acquisition can:¶ Create the economies of scale needed to further reduce fuel cell costs¶ Build a domestic manufacturing and supplier base¶ Create jobs associated with manufacturing fuel cells and related hydrogen technologies, fuel cell maintenance and support systems, and hydrogen production.

#### Only federal action can send the key perception based signals

Warm 11

David Warm is Executive Director of the Mid-America Regional Council

Federal Leadership in Sustainable Development — It Is Important!

<http://citiwire.net/columns/federal-leadership-in-sustainable-development-it-is-important/>

To achieve this, federal leadership is both necessary and effective. Federal leadership helps drive policy innovation, promulgate best practices, create networks across regions that broaden awareness and consensus, and align federal, state and local policies, plans and programs. Competitive federal planning grant programs consistently demonstrate that even small levels of funding are powerful incentives for complex regions to develop cooperative strategies that transcend political and institutional boundaries.

#### Federal leadership is essential to effective solutions

Warm 11

David Warm is Executive Director of the Mid-America Regional Council

Federal Leadership in Sustainable Development — It Is Important!

<http://citiwire.net/columns/federal-leadership-in-sustainable-development-it-is-important/>

If the federal role in this arena is diminished, regional progress will be slower and less effective and America will suffer. Certainly federal planning funds are very helpful in supporting work that is hard, if not impossible, to fund otherwise. But federal policy leadership is even more important.¶ Federal policy affects how regions work in dozens of ways, and regions need the federal agencies — all of them, not just HUD — to help align their investments and policies with one another and with those made at the state, regional and local levels. If the federal government is not present, regions cannot make good decisions. Their efforts are thwarted and enervated by the absence of the most influential player, and the federal funds spent in dozens of areas are not spent strategically and are often counter-productive. Engaged federal leadership in sustainable development makes sense for the federal government and it makes sense for America.

#### Federal action is key because perceptions of leadership are tied to the willingness of the national government to back its industry the way other countries do

Breakthrough Technologies Institute 12

FUEL CELLS AT THE CROSSROADS¶ ATTITUDES REGARDING THE INVESTMENT CLIMATE¶ FOR THE US FUEL CELL INDUSTRY AND A¶ PROJECTION OF INDUSTRY JOB CREATION¶ POTENTIAL http://www.fuelcells.org/wp-content/uploads/2012/02/economicstudy.pdf

Government involvement is key to commercialization, particularly in the¶ transportation and stationary sectors. Government must go beyond traditional¶ roles like R & D, tax incentives, and subsidies. Many insisted that government¶ needed to be the first major customer for fuel cells thus helping, among other¶ things, to drive prices down to competitive levels. Respondents also saw the¶ government playing the leading role in educating the public about fuel cells,¶ building confidence in the technology, and creating consumer demand. Respondents often noted that Japanese and European companies were able to rely¶ on their governments, and asserted that US companies were not. Some mentioned¶ that the US government supported a wide range of potential technologies instead¶ of focusing on the most promising. Others noted that the Japanese, for example,¶ were not as severely affected by economic cycles because their government¶ supported them in all climates.

#### Signals of federal commitment to fuel cell commercialization are key to perceptions of U.S. leadership

Breakthrough Technologies Institute 12

FUEL CELLS AT THE CROSSROADS¶ ATTITUDES REGARDING THE INVESTMENT CLIMATE¶ FOR THE US FUEL CELL INDUSTRY AND A¶ PROJECTION OF INDUSTRY JOB CREATION¶ POTENTIAL http://www.fuelcells.org/wp-content/uploads/2012/02/economicstudy.pdf

Although the US is perceived as the leader in the stationary and portable sectors¶ and competing for the lead with the Japanese in the automotive sector, that lead is¶ highly tenuous, and there is great uncertainty about whether it can be maintained.¶ • The majority believes that strong US government support is needed to¶ successfully commercialize fuel cells, particularly in light of the strong support¶ being provided in Asia (principally Japan) and Europe. Clear policy direction and¶ investment support is imperative if the US fuel cell industry is to maintain a¶ leadership role.

#### Our link is based on perceptions of leadership--

Univ of Maryland Energy Research Center 12-2-11

http://www.energy.umd.edu/html/news/news\_story.php?id=6160

Wachsman (joint, Department of Chemical & Biomolecular Engineering and Materials Science & Engineering) explains that because fuel cells, hydrogen and vehicles have been linked in both policy and in the public perception of what fuel cell technology is and can do, the U.S. is at risk of falling behind on fuel cell development and implementation as it fails to consider other options.

#### It is U.S. government action that is key to perceptions of U.S. commitment

Breakthrough Technologies Institute 12

FUEL CELLS AT THE CROSSROADS¶ ATTITUDES REGARDING THE INVESTMENT CLIMATE¶ FOR THE US FUEL CELL INDUSTRY AND A¶ PROJECTION OF INDUSTRY JOB CREATION¶ POTENTIAL http://www.fuelcells.org/wp-content/uploads/2012/02/economicstudy.pdf

The US government is seen by many¶ as key to commercialization—at least¶ in the stationary and vehicular sectors.¶ Government actions and policy are¶ seen as dramatically affecting the¶ timetable for commercialization.¶ There is a feeling among many that the¶ portable sector can develop with¶ private support.¶ • The US government should transition¶ from being the R & D provider to¶ becoming an early adopter. The¶ government gets credit for having¶ done excellent R & D work over the¶ years.

#### The C-plan does not solve our leadership advantage—It is the federal government that has to negotiate with other countries to solve our impacts—The c-plan makes the federal govt look weak because it sends a signal that it cant solve at home—Leadership at home is key to leadership abroad

Clinton 91

William Clinton-President of U.S.¶ http://clintonpresidentialcenter.org/georgetown/speech\_newcovenant3.php

I spoke in my last lecture about how we must rebuild our nation’s economic greatness, for the job of restoring American’s competitive edge truly begins at home. I have offered a program to build the most well-educated and well-trained workforce in the world, and put our national budget to work on programs that make America richer, not more indebted.¶ Our economic strength must become a central defining element of our national security policy. We must organize to compete and win in the global economy. We need a commitment from American business and labor to work together to make world-class products. We must be prepared to exchange some short-term benefits — whether in the quarterly profit statement or in archaic work rules — for long-term success.¶ The private sector must maintain the initiative, but government has an indispensable role. A recent Department of Commerce report is a wake-up call that we are falling behind our major competitors in Europe and Japan on emerging technologies that will define the high-paying jobs of the future — like advanced materials, biotechnology, superconductors, and computer-integrated manufacturing.¶ I have mentioned a civilian advanced research projects agency to work closely with the private sector, so that its priorities are not set by government alone. We have hundreds of national laboratories with extraordinary talent that have put the United States at the forefront of military technology. We need to reorient their mission, working with private companies and universities, to advance technologies that will make our lives better and create tomorrow’s jobs.¶ Not enough of our companies engage in export — just 15 percent of our companies account for 85 percent of our exports. We have to meet our competitors’ efforts to help smaller and medium-sized businesses identify and gain foreign markets.¶ And most important, government must assure that international competition is fair by insisting to our European, Japanese and other trading partners that if they won’t play by the rules of an open trading system, then we will play by theirs.¶ We have no more important bilateral relationships than our alliance with Japan, a relationship that has matured from one of dependency in the 1950s to one of partnership today. Our relationship is based on ties of democracy, but as we cooperate, we also compete. And the maturity of our relationship allows American Presidents, as I will, to insist on fair play. As we put our own economic house in order, Japan must open the doors of its economic house, or our partnership will be imperiled with consequences for all the world.¶ Now we must understand, as never have before, that our national security is largely economic. The success of our engagement in the world depends not on the headlines it brings to Washington politicians, but on the benefits it brings to hardworking middle-class Americans. Our "foreign" policies are not really foreign at all.¶ When greenhouse gas emissions from developed nations warm the atmosphere and CFCs eat away at the ozone layer, our beaches and farmlands and people are threatened. When drugs flood into our country from South America and Asia, our cities suffer and our children are put at risk. When a Libyan terrorist can go to an airport in Europe and check a bomb in a suitcase that kills hundreds of people, our freedom is diminished and our people live in fear.¶ So let us no longer define national security in the narrow military terms of the Cold War. We can no longer afford to have foreign and domestic policies. We must devise and pursue national policies that serve the needs of our people by uniting us at home and restoring America’s greatness in the world. To lead abroad, a President of the United States must first lead at home.

#### Only perceptions that the U.S. government is effective at home can make it effective abroad

Steinberg 11

Dana Steinberg¶ Sharon McCarter, Vice President, Outreach & Communications U.S. Energy Security Policy: A Global Perspective http://www.wilsoncenter.org/article/us-energy-security-policy-global-perspective

Looking abroad, the United States is working through the G-20 to help other countries reduce inefficient fossil fuels and develop low carbon emission strategies "so they can change their energy mix to use less and go farther," said Goldwyn.¶ Another objective is helping Haiti and Pakistan expand their access to environmental services. Goldwyn said the State Department has engaged these nations to transform their energy services, particularly electricity, to improve reliability and access.¶ Also on the foreign policy front, Goldwyn said the administration seeks to bring China, India, Russia, and Brazil into the collective energy security system, develop new partnership agreements, and expose other countries to market mechanisms. He recognized Brazil's progress on sustainable housing and Mexico's advances in energy efficiency. "We can pool our resources, not with the U.S. telling everybody what to do, but to have every country that leads in an area work together to try to propagate these technologies," he said.¶ Another major goal he cited is to diversify energy supply and suppliers, not only the number of countries who supply energy but also the kinds used. He said Americans worry about oil and gas prices but not availability. But in many nations in Eurasia, Africa, and other emerging economies, access to energy resources is often in question and often becomes an issue of national power. "For other countries, access to oil and gas is not just an economic issue—it's not a matter of whether it's too expensive or not," he said. "In some countries, it's a matter of whether the lights go on and the heat goes on in the winter. It's about whether their economy can grow or not."¶ In efforts to diversify energy supply, Goldwyn said, renewable energy could help reduce the cost of wind and solar power. While there is also support for nuclear energy, concerns abound about waste disposal and the potential for nuclear proliferation.¶ In the United States, he said, high-level talks are occurring to engage suppliers and emerging suppliers from the Persian Gulf to Eurasia. The U.S. is increasingly engaging with Canada, Colombia, Angola, Nigeria, Mexico, Russia, and the U.S.-EU Energy Council to discuss energy markets, supply, and efficiency, he said. Strategic dialogues are also occurring with major consumers, such as China and India, nations that rely on America's liquid, open energy markets. Goldwyn said, "Policies supporting those open markets are important to them and us."¶ Goldwyn touted two projects his office has launched. The Energy Governance and Capacity Initiative seeks to improve transparency. The State Department assessed countries with 40 billion barrels of undiscovered oil and gas potential, which are on track to become energy producers. Launched in nine countries so far—including Uganda, Liberia, and Suriname—the Initiative pools the expertise from across the U.S. government to teach these nations to manage the business end of energy production before the revenues flow so they can govern better.¶ The second project is the Global Shale Gas Initiative. "Shale has revolutionized the global gas market," said Goldwyn. It's in large supply and available on the spot market in Europe and elsewhere. For countries primarily using coal for energy, accessing natural gas would use half the carbon output of coal. Many nations could produce an indigenous supply and costs would be lower due to higher efficiency. In 20 countries, the Initiative teaches about governance, environmental impact, transmission, pricing, and how to develop unconventional gas safely. This Initiative also uses the whole-of-government approach and, said Goldwyn, the effects ultimately would be good for the environment, climate, and economic development.¶ Goldwyn last spoke at the Wilson Center in 2005 during the launch of the book, Energy and Security: Toward a New Foreign Policy Strategy, which he co-edited with Jan Kalicki, counselor for international strategy at Chevron Corporation and a former Wilson Center scholar. The book, co-published by Woodrow Wilson Center Press, contends that the United States must lead at home before it can lead abroad and, in its foreign policy approach, should not dictate what other countries should do. Some of the book's tenets resonate in the energy security strategies being implemented today: investing in new technology; diversifying supply and suppliers; using natural gas to advance toward a low-carbon future; and expanding the collective energy system to incorporate strategic nations toward multilateral energy security diplomacy.

#### Mixed signals crush solvency—The c-plan devolves federal authority eliminating existing federal programs which sends a perverse signal to markets

Calem 11

Robert E. Calem is a frequent contributor to Edmunds Green Car Advisor and AutoObserver Green. Fuel-Cell Backers Criticize DOE Budget Cuts <http://www.autoobserver.com/2011/02/fuel-cell-backers-criticize-doe-budget-cuts.html>

"We have hundreds of fuel cell electric vehicles on the roads, and more hydrogen refueling stations in the state of California alone than in the entire rest of the world," said Ruth Cox, president and executive director of the Fuel Cell Hydrogen Energy Association, in her opening remarks. Despite that, she continued, "America's leadership in fuel cells and hydrogen energy is in jeopardy, because although we have a President who is committed to creating a clean energy economy, his administration has been misguided about the critical role fuel cells and hydrogen energy have to play in its realization."¶ The proposed budget cuts make the U.S. less competitive in the global hydrogen energy arena and send "a message to American industry and the world that fuel cells and hydrogen aren't viable near-term options for America's clean energy portfolio," she said.¶ Noting the Obama administration's pursuit of battery, solar and wind power generation, Cox also declared that "the funding to sustain our current leadership in fuel cells and hydrogen technologies is modest" by comparison, and she noted that fuel cells can complement other means of power generation by providing "a conversion and storage mechanism to make excess power available as hydrogen to fuel vehicles."

#### Mixed signals crush solvency—Confusion slows development

Breakthrough Technologies Institute 12

FUEL CELLS AT THE CROSSROADS¶ ATTITUDES REGARDING THE INVESTMENT CLIMATE¶ FOR THE US FUEL CELL INDUSTRY AND A¶ PROJECTION OF INDUSTRY JOB CREATION¶ POTENTIAL http://www.fuelcells.org/wp-content/uploads/2012/02/economicstudy.pdf

Respondents also noted that there remain significant new opportunities for leadership.¶ Many believed that the federal government should make a transition from being primarily¶ an R&D supplier to becoming an early consumer of fuel cell technology. Some¶ suggested that the US should undertake an effort similar to the massive highway building¶ project adopted under Eisenhower. Most were more conservative, suggesting tax breaks,¶ grants and subsidies.¶ Many believed that the government could break the “chicken and egg cycle” so¶ often mentioned in this series of interviews. The government is a “huge consumer with¶ direct buying power,” according to several interviewees. “The government can create¶ demand.” This demand is necessary to bring costs down to the level where fuel cell¶ products become commercially viable. “Otherwise, this chicken and egg cycle thing¶ could go on forever,” said one respondent.¶ Respondents often mentioned activities of the Japanese and Europeans. “It’s a¶ race to reduce costs to make these businesses viable,” according to one executive.¶ Several noted that the US government offers little support compared to governments in¶ Europe and Asia. “Our government takes a very traditional approach,” said one “and¶ that’s not enough.”¶ Strong sentiment among many was that the US government should “take a stand.”¶ People wanted the government to choose a clear direction, “pick a fuel,” choose among¶ technologies, and stop “playing all horses.” According to some, current policies are¶ leading to confusion and, given the current climate, confusion is adding to an already¶ slowed pace of development.

#### Federal investment is key to bond ratings and interest rates on private investments

Millar 11

WILLIAM W. MILLAR¶ PRESIDENT¶ AMERICAN PUBLIC TRANSRTATION ASSOCIATION¶ PO O¶ SUBMITTED TO¶ THE HOUSE APPROPRIATIONS SUBCMMITTEE ON TRANSPORTATION, HOUSING AND URBAN DEVELOPMENT AND RELATED AGENCIES¶ On Federal Transportation Investments for Fiscal Year 2012¶ April 14, 2011 http://www.apta.com/gap/testimony/2011/Documents/110414\_HouseTestimony\_2.pdf

Capital Investment Grants (New Starts) - The New Starts program is the primary source of federal investment in the construction or expansion of bus rapid transit projects, heavy and light rail transit systems, commuter rail systems. Unlike most other FTA programs, the New Starts program is funded from the General Fund, not the Mass Transit Account of the Federal Highway Trust Fund. Funding for New Starts was previously included in funding guarantees for highway and transit programs, and the success of these major, multi-year capital projects requires predictable support by Congress and FTA. Congress established Full Funding Grant Agreements (FFGAs) to ensure this predictability. A continued commitment to federal investment will also influence the willingness of private financial markets to fund public transportation projects and it will guarantee that the bond ratings will remain high and interest rates will remain low.¶ We urge the Congress to recognize the importance of long-term, predictable funding for all highway and transit programs, including New Starts. Going forward, whether the New Starts program is funded out of the general fund or from a trust fund, APTA believes that the program should grow at the same rate as the rest of the transit program. New Starts is essential to enhancing our nation’s mobility, accessibility and economic prosperity while promoting energy conservation and environmental quality.

#### The federal govt has unique experience with the present program that is key to solvency—Our solvency is empirical and theirs is speculative

Silver 11

Vice President of CalSTART <http://www.hydrogennet.dk/fileadmin/user_upload/PDF-filer/Brint_og_braendselsceller_internationalt/Dansk-amerikansk_samarbejde/Fuel_Cell_Collaboration_in_the_U_S__aug_2011_vers..pdf>

"Zero Emission Bus Program"

A National Program to Advance Zero Emission Bus Technologies and Energy Security

The Zero Emission Bus (ZEB) program builds on the success of the Federal Transit Administration’s (FTA) National Fuel Cell Bus Program (NFCBP) and will develop and deploy the next generation of clean, low carbon buses produced in the United States. The proposed $150 million ZEB program will continue efforts to commercialize zero-emission fuel cell buses while responding to the FTA Electric Drive Strategic Plan1 and supporting other zero emission and low carbon bus technologies. In short, the ZEB would be a straight forward expansion and augmentation of the NFCBP. The program would be investing in the development and deployment of technologies and products that would create jobs and grow clean energy companies in the United States.

The supporters are calling for the expansion and the augmentation of the existing program because there is still a large need for cleaner and lower carbon buses. Most urban areas still fail to meet the federal ambient air quality standards and most buses still produce significant levels of greenhouse gases and rely on oil, much of which is imported. The changes recommended to the existing program acknowledge the improvement of other technologies and recognize the need to support a variety of approaches. The goal for the 2020 timeframe would be commercially viable buses that produce zero, or very near zero emissions, that don’t rely on oil imports, and that produce 50% or less greenhouse gas emissions as compared to a conventional bus. As with the NFCBP, development, demonstration, and deployment projects will be carried out by nonprofit technology consortia, leveraging their knowledge, resources, and past successes in a proposed six-year program as part of the new surface transportation authorization legislation. This program will directly support the growth of U.S. clean transportation technology companies.

#### Expanding the existing FTA programs is key to exploiting current knowledge and experience and increased federal support is key to solvency

Silver 11

Vice President of CalSTART <http://www.hydrogennet.dk/fileadmin/user_upload/PDF-filer/Brint_og_braendselsceller_internationalt/Dansk-amerikansk_samarbejde/Fuel_Cell_Collaboration_in_the_U_S__aug_2011_vers..pdf>

"Zero Emission Bus Program"

The ZEB is designed to leverage the proven nonprofit consortia model used for the NFCBP. This process has a history of success and allows the FTA to take advantage of the knowledge, experience, and relationships that these consortia have to offer. The nonprofit consortia selected to conduct the program projects should have technical expertise in the relevant areas as well as experience managing fuel cell, electric drive, and other advanced transportation technology projects in public transit operations.¶ A six-year allocation of $150 million would give the FTA the resources to work with the technology consortia and meet the goals identified by the stakeholder working groups. Though this is an increase in funding over the $49 million allocated for the existing program, the scope of this effort is much larger. It is important that the program have sufficient resources to both continue the commercialization process for fuel cell buses and carry out early stage demonstrations and evaluations for other advanced propulsion technologies. The funding should also allow for a more flexible cost share requirement, an important consideration given today’s financial realities. The federal share of costs under the NFCBP is limited to 50 percent. In addition the funds should provide for the necessary refueling infrastructure and logistics and spare components Given the state-of-the economy and the financial condition of most transit properties, it’s recommended that the federal portion of the cost share be increased to 80%.

## Economy Add-on

#### Federal investment in bus systems is a massive boost to the economy

Crowley 09

Environmental Defense Fund Environmental Defense Fund has linked science, economics, law and innovative private-sector partnerships to create breakthrough solutions to the most serious environmental problems.

http://world-wire.com/news/0910260001.html

Increasing government investment in conventional and green transit bus systems would create high-quality manufacturing jobs, especially in states with double-digit unemployment rates, while significantly cutting auto-related global warming pollution, according to a new report released today.¶ The high unemployment states include: California (12.2%), Indiana (10%), Michigan (15.3%), and Ohio (10.1%). The study is timely because Congress is debating renewal of the federal transportation bill, which provides funds to help local bus systems purchase equipment. The current transportation bill expired in September, but was extended until later this month, and is expected to be extended longer as Congress continues developing the renewed bill.¶ Current U.S. transportation policy favors highway spending and deemphasizes public transit, so bus orders are small and sporadic, making it difficult for the bus industry to grow, according to the study. “If federal, state, and local policy were to shift to a clear, sustained commitment to public transit, the nation would have the manufacturing capability to meet the resulting increased demand for transit buses,” the study concludes.¶ Entitled “Public Transit Buses: A Green Choice Gets Greener,” the study is the 12th installment of the series, “Manufacturing Climate Solutions: Carbon-Reducing Technologies and U.S. Jobs,” prepared by researchers at the Duke University Center on Globalization, Governance & Competitiveness and sponsored by Environmental Defense Fund.¶ While domestic uncertainty about transit funding stymies bus manufacturing for U.S. markets, the study notes that U.S. companies still have managed to establish themselves as global leaders in hybrid bus manufacturing. However, European firms are rapidly catching up, in part because of their governments’ long-term commitment to public transit.¶ The United States was an early leader of compressed natural gas (CNG) transit bus technology development, the most common type of green bus worldwide, and already has an extensive refueling infrastructure for CNG, with CNG pipelines connecting the entire continental United States. Bus fleets throughout the United States have incorporated CNG, including the Los Angeles Transit Authority, which operates 2,200 CNG buses, comprising 88 percent of its fleet. However, diesel-electric hybrid buses are rapidly overtaking CNG as the primary green bus option in the United States.¶ Early testing for hydrogen-electric hybrids is ongoing in California, at Sunline Transit, Santa Barbara Valley Transit Authority and AC Transit, and in Connecticut at CTTRANSIT. Proterra, a firm developing an electric hybrid transit bus, plans by June 2010 to have infrastructure in place for the Foothills Transit Agency, operating in the San Gabriel and Pomona Valleys in California, with four more cities to come online afterwards.¶ U.S. manufacturing for transit buses and components is located in nearly every state in the eastern United States, with the highest concentrations in Indiana, Michigan, Ohio and Pennsylvania.¶ “Many of these jobs are in Midwestern states deeply affected by the recession, where manufacturing employment and capacity, especially in the motor vehicle industry, are crucial for maintaining a leadership position throughout the recovery period and beyond,” said Marcy Lowe, lead author of the study and a research associate at the Duke University Center on Globalization, Governance & Competitiveness. “Many of these transit jobs are high-quality, long-term positions.”¶ Other studies have identified transit as an important component for reducing both air and global warming pollution because it provides commuters an alternative to single-passenger vehicles.¶ “We’ve known for awhile that transit is good for the environment,” said Kathryn Phillips, a transportation policy expert with Environmental Defense Fund based in Sacramento. “This study shows that transit investment also is good for the American manufacturers and American jobs.”¶ “We need a 21st Century transportation policy that is smarter, safer, cleaner and provides more options,” said James Corless, director of Transportation for America. “Investing in green transit will help achieve that new direction and create good-paying American jobs at a time when we desperately need them.”¶ The number of commuters using public transit to go to work increased from nearly six million in 2004 to 6.8 million in 2007. When gasoline prices soared in 2008, U.S. public transit use increased even more sharply, although official figures are not yet available. Buses are the main U.S. transit mode, accounting for 40 percent of all transit passenger miles.¶ Continuing growth in transit demand could translate into larger and more consistent bus orders. However, domestic demand is heavily dependent on the availability of public funding for bus transit, an inherent constraint that is naturally worsened by the current economic recession. Bus manufacturers in the United States primarily manufacture on a built-to-order basis.¶ “Public transit spending is not sufficiently steady or reliable to encourage growth in the industry,” the report notes. “Firms may receive increased orders only to see them fall in subsequent years when funding levels drop and demand has already been satisfied. Many agencies can no longer meet federal financing formulas that require a local funding match of 20 percent.”¶ “Increasing government investment in bus transit systems could be our generations’ Works Progress Administration in terms of its economic and environmental impact,” concluded Phillips. “This report shows we have a great opportunity to create new manufacturing jobs during tough economic times and cut greenhouse gas emissions. We only need the political will to make it happen.”

#### Even though the number of jobs is small in the bus market the plan has massive economic benefits

Lowe et. al. 09

Marcy Lowe, Bengu Aytekin and Gary Gereffi of the Center on Globalization, Governance & Competitiveness, an affiliate of the Social Science Research Institute at Duke University¶ Public Transit Buses: A Green Choice¶ Gets Greener¶ http://www.cggc.duke.edu/environment/climatesolutions/greeneconomy\_Ch12\_TransitBus.pdf

The total number of jobs in domestic manufacture of transit buses is relatively small, at 25,000 to

33,000 jobs, many overlapping with the heavy truck industry. Yet the value of this employment

extends well beyond job numbers in several ways. First, many of these jobs are in Midwestern

states deeply affected by the recession, where manufacturing employment and capacity,

especially in the motor vehicle industry, are crucial for maintaining a leadership position

throughout the recovery period and beyond. Second, the bus industry’s shared skills and

capacities with the heavy truck industry and other automotive segments help the motor vehicle

industry as a whole maintain a diverse supplier base and wide range of competencies. Third, the

bus industry provides an important entry point for innovations in automotive technologies,

especially in new vehicles that require refueling infrastructure and other major changes. For

instance, transit agencies constitute a well-defined base of centrally managed fleets, ideal for

testing and proving plug-in hybrid and all-electric buses—thus leading the way for the passenger

car industry. For these reasons, employment in the transit bus manufacturing industry is an

important benefit of investment in public transit.

#### Bus orders have ripple effects in the economy

Lowe et. al. 09

Marcy Lowe, Bengu Aytekin and Gary Gereffi of the Center on Globalization, Governance & Competitiveness, an affiliate of the Social Science Research Institute at Duke University¶ Public Transit Buses: A Green Choice¶ Gets Greener¶ http://www.cggc.duke.edu/environment/climatesolutions/greeneconomy\_Ch12\_TransitBus.pdf

The U.S. market for heavy-duty transit buses is small, currently delivering 5,000 to 5,500 buses¶ per year. U.S.-based firms dominate the North American bus market, with an 88% share in total¶ buses and a 51% share in heavy-duty transit buses. Only five original equipment manufacturing¶ (OEM) firms supply nearly the whole market, and four of them are either domestic firms or local¶ subsidiaries of foreign firms. A small and shrinking manufacturer base is a major concern. For¶ instance, Cummins is now the only supplier of bus engines, the single most expensive part in a¶ transit bus, accounting for roughly 20% of the total cost. General Motors, formerly an important¶ supplier to the bus industry, left the market in the summer of 2009, posing a significant challenge.¶ Under current U.S. transportation policy, which favors highway spending and de-emphasizes¶ public transit, bus orders are small and sporadic; this makes it difficult for the bus industry to¶ grow. In the current recession, some plants will likely be busy filling orders stimulated by the¶ American Recovery and Reinvestment Act of 2009, but this boost is also partly offset by sharp¶ cutbacks in states’ transit spending. In addition, firms given a temporary lift by stimulus funds¶ may see orders fall in subsequent years when funding diminishes to typical levels. Unpredictable¶ demand from a small pool of customers (municipal transit authorities) makes it difficult for¶ manufacturers to maintain their capacity and workforce without periodic layoffs. In addition,¶ firms are often required to build buses specifically to each transit agency’s preferences. This increases bus costs an estimated 20-30%, affects production stability, and makes R&D more¶ expensive than is typical of other motor vehicle industries.¶ One promising niche lies in several varieties of green buses. About 32% of U.S. transit buses¶ have an alternative power source, i.e., other than diesel or gasoline. The bus industry serves as an¶ important entry point for advanced vehicle technologies, especially in new vehicles that require¶ refueling infrastructure and other major changes. For instance, since transit agencies have a welldefined¶ base of centrally managed fleets, they are ideal for testing and proving plug-in hybrid¶ and all-electric buses—thus leading the way for the passenger car industry. Also on the horizon¶ are hydrogen-fueled hybrid buses and hydrogen fuel-cell buses. Although the bus market is not¶ export-oriented, if U.S. firms continue to lead green advances as they have in electric hybrid¶ buses, they have potential to build an export market in selected components for green buses.

#### Fuel Cell Industry is key to economy

Curtin et. al. 11

Sandra Curtin, Jennifer Gangi and Elizabeth Delmont of the Breakthrough Technologies Institute in Washington, DC http://www.fuelcells.org/wp-content/uploads/2012/02/2011-State-of-States-July-2011-update.pdf

The fuel cell industry is vital to American industrial growth, manufacturing and our environmental and economic well-being. The fuel cell marketplace is expected to grow exponentially in the coming years and is rapidly expanding as more companies are entering the marketplace with commercial products for more applications and energy needs. By encouraging American manufacturing, jobs are created, and economies of scale can be attained that will lead to further price reductions for fuel cell and hydrogen technology and related equipment.

#### New bus orders will create immediate economic benefits

Davis 10

Stephen Lee Davis is the Deputy Communications Director for Transportation for America

Cleaner buses can create jobs, improve the environment

<http://t4america.org/blog/2010/01/14/creating-jobs-and-environmental-benefits-with-cleaner-transit-buses/>

A new study by Duke University illuminates the fact that thousands of green jobs are waiting to be tapped in transit bus manufacturing — if the federal government will make a sustained commitment to investing in public transportation.¶ The Duke University Center on Globalization, Governance and Competitiveness released a new report this morning during a briefing at the Natural Resources Defense Council that evaluated the many U.S. job opportunities that can reduce carbon emissions in public transit buses. Jobs in and related to public transportation are some of the lowest hanging fruit in the push for green jobs, so what’s keeping the domestic manufacturing industry from ramping up?¶ The U.S. market for heavy-duty transit buses is small, currently delivering 5,000 to 5,500 buses per year. U.S.-based firms dominate the North American bus market, with an 88% share in total buses and a 51% share in heavy-duty transit buses. Under current U.S. transportation policy, which favors highway spending and de-emphasizes public transit, bus orders are small and sporadic; this makes it difficult for the bus industry to grow.¶ The report is well worth a read, but for a much simpler case study of what this means in real life, consider one piece of the complex supply chain for transit buses that we tend to take for granted: seats. On a crowded bus or train, you may not get the chance to sit in one, but when you do, you probably don’t think about the design or innovation that went into that seat. It probably didn’t occur to you that seats can add hundreds or thousands of pounds of weight that the bus needs energy to carry.¶ David McLaughlin, vice president of the American Seating Company, a U.S.-based manufacturer of seats for buses and railcars (among many other things), made it clear at this morning’s briefing that increased investment in transit would be good for business. But he also stressed that those benefits are not limited to American Seating alone. As a result of the stimulus bill from 2009, McLaughlin’s company calculated $2.9 million in new business, the bulk of which resulted from seat orders for buses and railcars ordered by transit agencies across the country with stimulus dollars.¶ “$2.9 million means 11 new jobs for us at American Seating,” he said. In another internal study, His company discovered that 1 job at American Seating sustained roughly 6 others in their immediate supply chain.¶ Take those two facts together and you begin to see the economic impact of the small public transit investment in the stimulus — and what could happen on a much larger scale. American Seating, just one manufacturer of one particular component that goes into transit vehicles, created the equivalent of 11 jobs through the stimulus. Those 11 jobs create or sustain 66 more at the company that supply them.¶ Stimulus spending will not be enough, however. Although the economic activity resulting from the stimulus was important, McLaughlin said his business needs investment that is reliable, consistent and predictable — like the funding that could result from a full six-year transportation bill. Stable funding sources will fuel the research and development that can cut seats weights even further and enable buses to use less energy.¶ “The stimulus package has been a good thing, but what we really need is sustained predictable investment, so we can make the investments we need to make to ensure our viability. This isn’t just a public issue, it’s a public-private issue. …It’s jobs,” he said.¶ The message from all fronts this morning was consistent. To spur job creation through manufacturing cleaner transit buses, the industry needs reliable, predictable investment and government policies that encourage innovation. Increasing the available federal funding for new transit lines and rolling stock is one aspect. Ensuring operation of these new transit lines remains affordable is another. Both are needed. As the report says:¶ If federal, state and local policy were to shift to a clear, sustained commitment to public transit, the nation would have the manufacturing capability to meet the resulting increased demand for transit buses. However, the transit bus industry is unlikely to have significant market growth in the absence of several major changes: better management of public transit funds and improved coordination with manufacturing firms; significant, sustained public funding; and perhaps most important, a comprehensive transportation policy shift that encourages public transit use.¶ Or, in other words, give transit agencies money to buy new rolling stock — and the money to operate them — and you’ll be creating green jobs on Main Street all across America. Buy new hybrid buses for New York City or San Francisco to reduce emissions there, and support new jobs in towns like Grand Rapids, Michigan that need jobs more than anything.

## Military Capability Advantage

#### Successful civilian commercialization will lead to military use of fuel cells

Fein 04

Geoff S. Fein is the Defense Daily's lead reporter covering the Navy, Marine Corps, Coast Guard and intelligence programs, acquisition, research and development, and science and technology.

Military Fuel-Cell Programs Not Yet Ready for Prime Time <http://www.nationaldefensemagazine.org/archive/2004/February/Pages/Military_Fuel3647.aspx>

While the commercial industry is taking significant steps forward in the adoption of fuel cell technology, military researchers are taking a wait-and-see approach, expressing concern that fuel cells so far have not proven they can work in combat environments.¶ Commercial manufacturers, meanwhile, are hoping that breakthroughs in the civilian sector can spur military investments in the technology. “Our biggest issue is getting the military off their dime. There is a lot of inertia to overcome,” said Dale Church, chairman of MTI Micro, a fuel cell manufacturer. “We keep telling the military, if it doesn’t get onboard [it] will miss the wagon.”¶ Others believe that finding the money to invest in fuel cell research and programs is the biggest obstacle for the military to overcome. According to Atakan Ozbek, director of research for ABI in Oyster Bay, N.Y., even though the Department of Defense has agencies, such as the Army’s Research, Development and Engineering Command and the Defense Advanced Research Projects Agency, looking into fuel cells, the Pentagon doesn’t want to take the lead and bear all the expense of the research and development.¶ The Defense Department will “wait to see the commercial uses and for prices to drop,” said Ozbek. “It will be a slow process.” In the long run, the Pentagon views fuel cells as a problem-solving technology that will help troops alleviate the burden of carrying heavy loads of batteries to the front lines.

#### Future electrical power is key to readiness

Nicholas Sifer et al 6-2-2004. PMP project engineer, Marine Corps System Command, (Ashok S. Patil, Terry G. Dubois, Nicholas Sifer, Elizabeth Bostic, Kristopher Gardner, Michael Quah, Christopher Bolton), , http://64.233.179.104/scholar?hl=en&lr=&safe=off&q=cache:cIWWJBe6PCEJ:www.eecs.wsu.edu/~pedrow/classes/ee415/Fall\_2005/Refereed%20Papers/paper2\_cobalt.pdf

Electrical power for the future battlefield will become a critical enabling technology for robotics, sensors, auxiliary¶ power, soldier systems, microclimatic devices, and other systems being proposed to meet the tactical requirements of the future battlefield. The success of fuel cell power sources for military applications depends largely on the development of acceptable hydrogen sources and the success of commercial programs. Key applications such as the objective force warrior and land warrior will require fuel cells and hydrogen sources that are energy-dense, non-cumbersome and above all safe to carry and operate. Fuel processing efforts could provide future systems that would operate on logistic fuels. Primary barriers to this scenario involve the miniaturization of systems and the ability to tolerate fuels containing sulfur.

#### Energy needs are crippling U.S. warfighting capabilities

Department of the Navy 11

Manufacturing Fuel Cell Manhattan Project¶ Presented by the Benchmarking and Best Practices Center of Excellence¶ November 2011http://www1.eere.energy.gov/hydrogenandfuelcells/pdfs/manufacturing\_fuel\_cell\_manhattan\_project.pdf

The ability of the United States military to decisively defeat its enemies is greatly due to the ability of its warfighters to see first, react first, and strike first. This high degree of lethality is heavily dependent on the electronics equipment and weapon systems at their disposal. Electronics systems utilized by military personnel range from global positioning systems, tactical radios, small robots, and small unmanned aerial vehicles (UAVs) to larger systems, such as tracked vehicles, large UAVs, and satellite communications. The dependence on electronics has increased immensely over the last 60 years. Figure 3-1 shows the WWII standard “walkie-talkie” which was powered by 4 “D” cell batteries. This radio was the only portable electronic device used by a soldier, and not every soldier had one. The picture on the right shows the typical soldier of today using batteries in his gun sight, his squad radio, his global positioning system unit, his NightVision goggles, and even his watch. The logistical support provided to the warfighter has also dramatically changed. There was a commonly accepted notion that an “iron mountain” of supplies can be built up to support warfighters in combat operations. This includes a decidedly higher level of stocks supplied to the rear echelon than in previous operations. All of these facilities and equipment have one thing in common, the need for electrical energy. This need for energy is climbing faster than can be efficiently provided to the user. Currently, the vast majority of this energy comes from two sources, batteries and fossil fuel generators. Although both of these sources of energy are well integrated into the warfighter’s operating procedures, they also represent a significant logistics burden during combat with an associated high life-cycle cost.¶ Two conclusions can be drawn: the demands for power are increasing, and the logistical footprint for providing this power is increasing. This is becoming an increasing concern in recent conflicts where the movement of supplies throughout a combat area has introduced vulnerabilities that require an increase in resources needed for protection. Consequently, the military is looking at methods to reduce the logistical footprint of energy while meeting the increased force capabilities. Fuel cells are emerging as a technology with the potential to meet some of these increasing military energy requirements.

#### Independently, DOD dependence on fossil fuels for its vehicles makes the U.S. more likely to be drawn intp wars to protect oil supply lines

#### Growing demand and prices for oil makes DOD oil dependence dangerous – it will jack readiness and cause multiple scenarios for conflict

Parthemore 10

[Christine Parthemore, Fellow at the Center for a New American Security, September 2010, “Fueling the Future Force Preparing the Department of Defense for a Post-Petroleum Era,” <http://www.cnas.org/files/documents/publications/CNAS_Fueling%20the%20Future%20Force_NaglParthemore.pdf>, accessed on 7/11/12, Kfo]

The Risks of Petroleum Dependence The growing world demand for petroleum presents major geostrategic risks. High prices and rising demand are a boon to major suppliers and reserve holders such as Iran and Venezuela, which are unfriendly to the United States. It also affects the international behavior of rising powers such as China, which is on a quest to secure access to natural resources that is in turn expanding its influence around the globe. In Mexico, one of the top suppliers of petroleum to the United States, pipelines serve as an increasingly attractive target for dangerous cartels to fund activities that could undermine the Mexican government, destabilize the region and decrease U.S. homeland security.4 American foreign policy itself has been colored by its growing petroleum demands since the 1970s oil crises and subsequent declaration of the Carter doctrine, which stipulated that the United States would consider threats to the Persian Gulf region threats to its “vital interests” due to the strategic importance of its petroleum reserves.5 Dependence on petroleum for 94 percent of transportation fuel is also a dangerous strategic risk for the United States given the leverage oil can provide to supplier countries. Many European allies have experienced such leverage in action with Russia periodically threatening to reduce or cut off natural gas exports to countries highly reliant on their supplies (and in some cases carrying through with these threats). Similarly, national oil companies and OPEC can choose to increase or decrease their production rates to drive changes in the market. The more the United States reduces its dependence on petroleum, the better it can hedge against petroleum suppliers exerting political leverage over U.S. interests, including in times of crisis. At the operational level, heavy reliance on liquid fuels also constitutes a force protection challenge for DOD. Fuel supply convoys have been vulnerable to attack in both Iraq and Afghanistan, where the services have struggled to adapt to the challenges of terrorism, insurgency and violent extremism. In addition to minimizing these risks in the current wars, DOD must also conceptualize and plan for what the future will likely hold for America’s security. The Navy’s battle against pirates off the coast of the Horn of Africa foreshadows the littoral and unconventional challenges that await the United States in the coming decades, as populations continue to migrate toward the world’s coastal area. These types of problems often manifest at major shipping chokepoints (including petroleum transit chokepoints), and addressing them will include distinctive fueling requirements. The Air Force, likewise, confronts dramatic changes in manned and unmanned flight, in addition to the proliferation of space technologies, all of which could dramatically alter fuel needs. In another example, one recently published AirSea battle concept focused on China notes that the type of conflict it outlines could require hardening fueling infrastructure, improving aerial refueling, “stockpiling petrol, oil, and lubricants” and potentially “running undersea fuel pipelines between Guam, Tinian and Saipan.”6 As the character of warfare changes, DOD will have to continue to consider the attraction of fuel supply lines to opponents.

#### Fuel cells improve military capabilities

#### Department of the Navy 11

Manufacturing Fuel Cell Manhattan Project¶ Presented by the Benchmarking and Best Practices Center of Excellence¶ November 2011http://www1.eere.energy.gov/hydrogenandfuelcells/pdfs/manufacturing\_fuel\_cell\_manhattan\_project.pdf

Fuel cells offer certain tactical advantages for military applications in support of the warfighter in areas of transport, communications, and reconnaissance. The potential for reduced fuel and battery consumption, fewer supply convoys, reduced weight and volume for the soldier, and quiet power make fuel cells a tactically attractive alternate to standard generators.¶ A major disadvantage of fuel cells is the economics of implementing customized systems in their present form due to the high cost of manufacturing, as well as questions on the reliability of fuel cell systems in rugged military environments. To help understand how manufacturing affects the cost of fuel cells, the ONR undertook a study to determine the current manufacturing practices, identify gaps and issues preventing cost reduction, and to recommend manufacturing solutions to reduce the cost of fuel cells. This objective was achieved by commissioning a team of subject matter experts (SME) in the field of fuel cells.

#### Fuel Cells improve war-fighting capabilities across the board

Department of the Navy 11

Manufacturing Fuel Cell Manhattan Project¶ Presented by the Benchmarking and Best Practices Center of Excellence¶ November 2011http://www1.eere.energy.gov/hydrogenandfuelcells/pdfs/manufacturing\_fuel\_cell\_manhattan\_project.pdf

The warfighter of today has become increasingly dependent on electronics to achieve battle superiority. Their reliance on the production of electricity can range from small batteries to large diesel generators. However, reliance on these forms of power generation is becoming increasingly problematic. Use of batteries creates large and expensive logistical footprints while diesel generators are noisy, maintenance intensive, and consume large amounts of fossil fuels. Recent advances in fuel cells have made this form of energy a potential source for the generation of electricity. No matter what the weapons system, from the smallest hand held device to large naval platforms, the potential advantages of a fuel cell for providing energy include: low acoustic and thermal signatures, reduced maintenance, reduced weight, reduced volume, and environmentally beneficial.¶ The advantages offered by fuel cells depend on their actual applications. For example, when used as an auxiliary power unit (APU)/battery charger, they can provide electric power in areas where it is not feasible or practical to rely on a generator. This facilitates the use of rechargeable batteries and reduces the logistical footprint and life cycle costs. When used to provide power to unmanned systems, mission times can be increased. If used as a replacement for generators, they offer quiet, clean, low maintenance power. Even in large ships, they are seen as a distributed power source, simplifying the overall design and reducing the threat to a ship that sustains damage during combat.

#### Present energy approaches limit military effectiveness

Greeff 5-24-12

Tim Greeff is Vice President of Government Affairs Advanced Energy Economy¶ http://energy.nationaljournal.com/2012/05/powering-our-military-whats-th.php¶

Advanced energy increases the military’s operational effectiveness – that’s the only rationale that matters. Over the past decade, numerous U.S. Department of Defense (DoD) analyses have cited the military’s traditional approach to energy as a strategic risk. In response, DoD has taken steps to diversify energy sources – including renewable energy, advanced batteries, and hybridized microgrids – in order to make the military a safer, better fighting force. Limiting the military’s energy choices strictly on cost, as some in Congress propose, would be a step backward for the military and would put the lives of American fighting men and women at risk.¶ Like it or not, today’s military runs on energy. Trucks, tanks, and generators run on diesel fuel, while computers and other electronics run on batteries. In combat situations, both have to be delivered to the front lines, creating huge security risks on supply lines and burdens on our soldiers. The full cost of fuel – procurement, transport, and protection – can be as high as $400 per gallon by the time it is delivered to a remote Forward Operating Base (FOB) in Afghanistan; one out of every 50 military fuel resupply convoys in that country sustains a fatality or serious injury. Fuel supply security further upstream is also a constant strategic concern: a significant portion of the fuel used by the military is shipped through exposed “chokepoints” such as the Strait of Hormuz, which separates Iran and Oman by a scant 34 miles at its narrowest point.¶ Beyond fuel supply and delivery vulnerabilities, high and volatile energy prices are also a budgetary burden. Ray Mabus, Secretary of the Navy, has said that every $1 increase in the price of a barrel of oil results in a $31 million increase in the U.S. Navy’s energy costs. As a result, the two-year price range for petroleum of $71-117/barrel from 2009 to 2011 presented a $1.1 billion range in budgeting uncertainty.¶ Compounding the strategic risks facing commanders on the front lines is “DoD’s reliance on a fragile commercial grid,” which Dorothy Robyn, Deputy Under Secretary of Defense for Installations and Environment, recently said, “places the continuity of critical missions at risk.” Even in the U.S., military bases are located in many remote locations, and as the launch point for critical military operations such as drone missions, cannot risk blackouts from grid failures or sabotage. On-site renewable energy generation and microgrids increase reliability and safeguard military security.¶ As Navy Secretary Mabus explained in a recent speech, “Seeking out some viable energy options isn’t a fad... We’re doing it because we have to do it to be a more effective fighting force. The reasons are strategic, the reasons are tactical, and the reasons are essential to our national security.”

#### Fuel cells allow for lighter, more cost effective military solutions

Ashok S. Patil 2K, VP Sales & Mktg at Pierian Services and Richard Jacobs, march 2000, US Army Small Fuel Cell

Development Program US Army CECOM, RDEC, http://ieeexplore.ieee.org/iel5/62/18021/00831188.pdf?arnumber=831188

This presentation includes results of fuel cell research activities sponsored by the US Army for the last three years. It outlines current efforts and future plans. The soldier’s increasing power demands dictate that alternatives to batteries be exploited wherever possible. Fuel cells promise significant advantages in terms of weight, coupled with cost and/or logistics benefits. Considerable progress has been made in reducing size and weight of proton exchange membrane (PEM) fuel cells.

#### Fuel cells allow for combat vehicles to carry out stealth operations and solve mobility problems

Ashok S. Patil 04, VP Sales & Mktg at Pierian Services, (7 authors), June 2004, Portable fuel cell systems for America’s army: technology transition to the field, \*\*http://www.sciencedirect.com/science?\_ob=ArticleURL&\_udi=B6TH1-4CHS0SV-1&\_user=4257664&\_rdoc=1&\_fmt=&\_orig=search&\_sort=d&view=c&\_acct=C000022698&\_version=1&\_urlVersion=0&\_userid=4257664&md5=c1b0e679193c9e45931b8dfd79402a40\*\*,

An increasingly important combat vehicle application is a tactical mode of operation termed Silent Watch. This mode of operation usually requires that all mission requirements, other than mobility, be met while also meeting stringent acoustic and infrared signature levels. Silent Watch requirements usually preclude main engine operation (or small diesel engine auxiliary power units operation) due to the large acoustic signature. Additionally, many of today’s combat vehicles often have a large communications and situational awareness suite of electronic equipment that cannot be supported by the batteries alone. Fuel cell APUs may provide a solution to meeting the military requirements of Silent Watch. CERDEC recently installed a ruggedized 2 kW methanol/water reforming fuel cell APU onto a prototype command and control combat vehicle (see Fig. 2). The fuel cell unit provided power to mission critical communication and electronic equipment during Silent Watch exercises. As a result of not having to start the vehicle’s diesel engine, the soldiers at the Silent Watch site were able to avoid detection, hear and identify the opposition force’s exact location, and successfully call for reinforcements. While not officially fielded, this unit was one of the first military fuel cell systems to be ‘used and abused’ for an extended period of time out in real world environments (rain, dust, cold, and hot weather, vibration, etc.). However, the US military’s one fuel forward policy demands that America’s joint forces must rely on diesel, JP-8, and other logistics fuels to power the force [1]. While methanol/water reforming systems are available today for niche APU applications, CERDEC and its joint partners continue to develop other reformer approaches that will demand less water (as a fuel load) and will use higher hydrocarbon feeds such as diesel. The fuel issue continues to be a major challenge to broad acceptance and deployment of fuel cells in higher power applications.

#### Commercialization of fuel cell batteries spills over to military uses

Department of the Navy 11

Manufacturing Fuel Cell Manhattan Project¶ Presented by the Benchmarking and Best Practices Center of Excellence¶ November 2011http://www1.eere.energy.gov/hydrogenandfuelcells/pdfs/manufacturing\_fuel\_cell\_manhattan\_project.pdf

However, before fuel cells can be widely utilized in military weapon systems and support activities, there are challenges that must be overcome.¶ •¶ Ability to use logistics fuels¶ •¶ Reduced unit costs¶ •¶ Increased reliability of current designs¶ The use of logistics fuels to support the “one fuel forward” philosophy is still a goal being¶ pursued. Considerable research and development resources are being applied to reform JP8 in fuel cell systems. Based on current efforts, achievement of this goal remains for future development and may not be practical or affordable, particularly in small man-portable systems. There are non-JP8 fuel cell systems with a high technical readiness level (TRL) that use packaged fuels (methanol and propane) that can potentially be used in the near term, but these systems have high unit costs and low reliability due to a relatively immature production base.¶ Although fuel cell technology has been around for many years, there has been no large-scale commercial or military demand due to cost and reliability problems. Companies that do produce fuel cells for the commercial market do so in a “custom, hand-made” type of operation. Some of the high costs are offset by government sponsored research and development (R&D) and tax incentives. For companies developing fuel cells for the military market, only R&D prototypes have been delivered. Recent investments by DOD, along with stated needs by several DOD program managers, have resulted in advancements for smaller fuel cells, making them a viable power source in military environments.¶ Although the basic technology has reached a relatively high TRL, the manufacturing readiness level (MRL) still lags behind due to the general lack of accepted manufacturing best practices. The lack of significant volume for fuel cell products has hampered the industry’s ability to make capital investments in implementing¶ improvements and automation required to reduce unit prices and improve reliability. If the military is to widely adopt fuel cells as an energy source, these investments are required to further develop the manufacturing technology, process tools, and equipment to allow for more efficient production of these systems.

#### Fuel Cells are Key to future Military effectiveness

Department of the Navy 11

Manufacturing Fuel Cell Manhattan Project¶ Presented by the Benchmarking and Best Practices Center of Excellence¶ November 2011http://www1.eere.energy.gov/hydrogenandfuelcells/pdfs/manufacturing\_fuel\_cell\_manhattan\_project.pdf

The ability of the United States military to decisively defeat its enemies is greatly due to the ability of its warfighters to see first, react first, and strike first. This high degree of lethality is heavily dependent on the electronics equipment and weapon systems at their disposal. Electronics systems utilized by military personnel range from global positioning systems, tactical radios, small robots, and small unmanned aerial vehicles (UAVs) to larger systems, such as tracked vehicles, large UAVs, and satellite communications. The dependence on electronics has increased immensely over the last 60 years. Figure 3-1 shows the WWII standard “walkie-talkie” which was powered by 4 “D” cell batteries. This radio was the only portable electronic device used by a soldier, and not every soldier had one. The picture on the right shows the typical soldier of today using batteries in his gun sight, his squad radio, his global positioning system unit, his NightVision goggles, and even his watch. The logistical support provided to the warfighter has also dramatically changed. There was a commonly accepted notion that an “iron mountain” of supplies can be built up to support warfighters in combat operations. This includes a decidedly higher level of stocks supplied to the rear echelon than in previous operations. All of these facilities and equipment have one thing in common, the need for electrical energy. This need for energy is climbing faster than can be efficiently provided to the user. Currently, the vast majority of this energy comes from two sources, batteries and fossil fuel generators. Although both of these sources of energy are well integrated into the warfighter’s operating procedures, they also represent a significant logistics burden during combat with an associated high life-cycle cost.

Two conclusions can be drawn: the demands for power are increasing, and the logistical footprint for providing this power is increasing. This is becoming an increasing concern in recent conflicts where the movement of supplies throughout a combat area has introduced vulnerabilities that require an increase in resources needed for protection. Consequently, the military is looking at methods to reduce the logistical footprint of energy while meeting the increased force capabilities. Fuel cells are emerging as a technology with the potential to meet some of these increasing military energy requirements.

## AT: DOD Algae C-plan

#### Biofuels like algae can’t solve

Crane 5-23-12

Keith Crane¶ Director, RAND Corporation's Environment, Energy, and Economic Development Program¶ http://energy.nationaljournal.com/2012/05/powering-our-military-whats-th.php¶

To reduce its reliance on petroleum-derived fuels, the U.S. Department of Defense (DoD) has spent hundreds of millions of dollars over the past few years to develop, test, and certify renewable fuels—that is, liquid fuels manufactured from renewable sources of energy like vegetable oil from seeds or algae, animal fat, or various types of biomass. Renewable fuels derived from hydrogenated renewable oils are produced by processing animal fats or vegetable oils (from seed-bearing plants such as soybeans, jatropha, and camelina) with hydrogen. Various types of algae also have high oil content and are another possible source of oil for hydrotreatment. Fifty-fifty blends of hydrotreated oils have been successfully demonstrated in flight tests sponsored by the commercial aviation industry, and laboratory analyses and testing strongly suggest that hydrotreated renewable oils can also be formulated for use in tactical weapon systems. Unfortunately, it is highly unlikely that appreciable amounts of these renewable oils can be affordably and cleanly produced in the near future.¶ Animal fats and waste vegetable oils may offer an affordable low-greenhouse-gas route to hydrotreated renewable oils, but currently available commodities are already used for other commercial purposes. Because the supply of these feedstocks is limited, substitutes would need to be found for use in other applications, and the substitutes may cause additional greenhouse gas emissions. Production potential is also an issue with animal fats and waste oils: The available supply of these feedstocks will likely limit production to no more than 30,000 barrels per day, which is less than two-tenths of a percent of the 18 million barrels of liquid fuels that are consumed each day in the United States.¶ With regard to feedstock vegetable oils, to keep lifecycle greenhouse gas emissions at levels lower than those of petroleum-derived fuels, these oils must be derived from crops that do not compete with food production and that minimize nonbeneficial direct and indirect changes in land use. Jatropha and camelina are often mentioned as ideal plants to meet these requirements, but there exists little evidence to back these claims. Even if low-greenhouse-gas approaches can be established and verified, total fuel production is likely to be limited. Producing just 200,000 barrels per day (about 1 percent of U.S. petroleum consumption) from these crops would require an area equal to about 10 percent of the croplands currently under cultivation in the United States.¶ Advanced approaches using algae or other microorganisms may offer a sustainable approach for producing hydrotreated renewable oils suitable for military applications. However, technological development challenges suggest that it is highly unlikely that these advanced approaches will constitute an important fraction of the commercial fuel market until well beyond the next decade.¶ Given the extremely small quantity of such fuels available on the global market, DoD investments in large-scale testing and certification of hydrotreated renewable oils are premature and should be discontinued.

#### Biofuels are counterproductive for the military

Kreutzer 12

 David Kreutzer¶ Research Fellow in Energy Economics and Climate Change, Heritage Foundation¶ http://energy.nationaljournal.com/2012/05/powering-our-military-whats-th.php¶

Though the military has an impressive record for developing technologies to meet its frequently unique requirements, adopting biofuels is unlikely to help meet any mission other than earning political brownie points.¶ There are three reasons offered for why the military should spend money on biofuel development: (1) reducing battlefield exposure for fuel transportation, (2) decreasing dependence on volatile petroleum markets, and (3) restricting funding for hostile regimes and terrorist organizations. However, conventional fuels offer superior solutions for all three goals.¶ Switching to biofuels to reduce expensive and dangerous convoys makes no sense at all for one simple reason: Biofuels have lower energy density than conventional fuels and so will require more expensive and dangerous convoys. Biofuels are not produced at the battlefield.¶ The problem with dependence on volatile commodity markets is that commodity prices sometimes spike upwards. But the biofuels are more costly than the petroleum-based fuels—even when petroleum prices are high. Switching to more costly substitutes is hardly a reasonable solution. The Air Force spends about $35 per gallon for its bio jet fuel—10 times the cost of conventional fuel.¶ The entire U.S. military currently consumes about 360,000 barrels per day of petroleum-based fuel, with 175,000 barrels per day (or less) going to the Air Force’s jets. A single platform in the Gulf of Mexico (Thunderhorse) produces as much petroleum as these jets consume and at a much lower cost than the biofuel replacements.¶ The Keystone XL Pipeline would bring enough petroleum from a very secure Canada to meet our total military consumption two or three times over. The same story holds for other potential sources of conventional petroleum, such as the Arctic National Wildlife Refuge.¶ The Air Force’s target is to replace about 26,000 barrels per day with biofuels. Whatever energy security that may provide could be doubled by a single well in the Gulf of Mexico.¶ As a strategic policy, switching the military to biofuels can only make our enemies think we are not serious. If the entire military consumption were switched away from petroleum, that would cut worldwide demand by 0.4 percent. This cut would reduce revenues to oil producers by about 1.5 percent. Let’s hope biofuels are not anti-terrorism Plan A.¶ Though some energy technologies that are too expensive for general civilian use may make sense for the military, biofuels are not among them. The military needs to rethink its biofuels program.

## Racism Advantage

#### Present federal policies perpetuate racial apartheid in transportation as the old dirty equipment is assigned to the inner cities

Seymour 06

Sean, Assoc Prof of Law and Chemistry Univ of Vanderbilt¶ Set the Captives Free!: Transit Inequity in Urban Centers, and the Laws and Policies which Aggravate the Disparity¶ George Mason University Civil Rights Law Journal¶ Winter, 2005¶ 16 Geo. Mason U. Civ. Rts. L.J. 57 Lex/Nexis

The continued socioeconomic polarization of American cities directly impacts transportation policies. n68 Transit authorities create and exacerbate the polarization by providing two types of transit: superior service for affluent riders and inferior service for captive riders from low-income neighborhoods. n69 The disparate treatment is at least partially fueled by "white fear" n70 and money.¶ Transit authorities are well-aware of white fear. If whites and blacks cannot live together, send their kids to the same schools, dine together in restaurants, or attend church together, why should the two groups feel comfortable riding a bus or train together? A considerable number of white persons would prefer to stand on a crowded bus or train rather than sit in an empty seat next to a black person. n71 A regular transit customer in a large city knows which transit routes are [\*67] "black" and which ones are "white." n72 Some suburban communities even design their own bus systems to ensure exclusivity. n73¶ Transportation policies favor high-income riders, both financially and in the service provided. When the distance traveled per trip is considered, low-income riders - who usually make short trips - subsidize high-income riders from the suburbs, especially if transit fares are uniform. n74 Thus a suburban passenger who travels 20 miles may only pay 20 percent of the true cost of the trip, whereas an inner-city passenger who travels one mile may pay more than twice the true cost of the trip. n75¶ [\*68] Rail transit, the mode of choice for high-income passengers, n76 almost always requires larger subsidies than bus transit. n77 Buses carry more than 60 percent of transit riders but only receives 31 percent of capital funds. n78 Federal guidelines often require that federal transportation dollars fund capital subsidies rather than labor subsidies. n79 Because rail transit is capital-intensive and bus transit is labor-intensive, a system that depends on capital subsidies necessarily favors rail over bus; thereby benefiting high income riders. n80 In spite of the benefits of rail transit, white riders will choose to drive if numerous minorities also ride the train. n81¶ The high-income customers who do ride the bus typically get more for their money - better equipment and better service - than minority customers in low-income communities. The bus fleet in a large metropolitan area is diverse; it typically includes older diesel-powered buses and newer alternative fuel buses. n82 Transit agencies are gradually replacing aging diesel fleets with compressed natural gas (CNG) buses in response to the U.S. Department of Energy's Clean Cities Program. n83 For transit agencies that have a limited supply of CNG buses, it is no coincidence that the newer buses are often or [\*69] exclusively assigned to routes in higher-income neighborhoods while the diesel-powered buses continue to service low-income areas. n84 A conscientious transit observer can still see that, in many metropolitan areas, "white" bus routes are often assigned newer, cleaner buses than "black" bus routes. n85 In addition to bad equipment, buses which serve low-income neighborhoods are often overcrowded. n86¶

#### Present transportation inequity locks minorities into a system that destroys their health and creates a cycle of inequality

 Seymour 06

Sean, Assoc Prof of Law and Chemistry Univ of Vanderbilt¶ Set the Captives Free!: Transit Inequity in Urban Centers, and the Laws and Policies which Aggravate the Disparity¶ George Mason University Civil Rights Law Journal¶ Winter, 2005¶ 16 Geo. Mason U. Civ. Rts. L.J. 57 Lex/Nexis

"Side Effects"¶ ¶ Transportation inequity adversely affects three critically important concerns of urban core residents: jobs, education, and health. The demand for transportation equity in the urban core extends far beyond "new" versus "old" or bus versus rail: it is firmly rooted in the health and prosperity of a people.¶ [\*70] Although high-paying jobs have remained in cities, many entry-level jobs suitable for low-income residents have moved to the sprawling outer-ring suburbs. n87 Public transportation is often inadequate or unavailable for inner-city residents to make the reverse commute. n88 These residents must either find someone who owns a car as is willing to drive them, rely on employee shuttles, or make treacherous walks from the nearest transit stop. n89 This "spatial mismatch" is a formidable challenge for the reverse commuters in the urban core, n90 especially for welfare recipients who are making the mandatory transition n91 from welfare to work. n92¶ Many students in the urban core depend on mass transit to attend school and college. n93 The lack of funding for school buses and the renewed emphasis on neighborhood schooling forces many K-12 students [\*71] in the inner city to depend on public transportation, n94 particularly those who travel outside of their neighborhood to attend a "better" charter, magnet, or suburban school. n95 Similarly, a significant number of college students from low-income neighborhoods live at home; thus, they use public transit to attend community colleges or urban university campuses. n96 When mass transit becomes expensive, inaccessible, or inconvenient, students from the urban core start to miss school. n97¶ Transportation inequity has created or exacerbated health problems among the residents of the urban core. n98 Researchers have linked the high levels of air pollution present in poor inner-city neighborhoods to asthma, heart disease, lung cancer, birth defects, brain damage, and premature death. n99 The high rate of asthma in low-income neighborhoods, which is exacerbated and possibly caused by diesel exhaust fumes, n100 has received nationwide attention. n101¶ [\*72] The high air pollution in these areas has been caused by transportation policies and practices like highway construction, n102 heavy vehicular traffic, and the extensive use of diesel-powered buses. Low-income residents may continue to face the health effects of their physical environment because they do not have the economic resources or political power to change zoning regulations or to reroute heavy vehicular traffic. n103

#### Bus inequity creates transportation apartheid

Hess 12

Amanda Hess, reporter for The Atlantic Cities Race, Class, and the Stigma of Riding the Bus in America

July 11, 2012 <http://www.nationaljournal.com/thenextamerica/culture/race-class-and-the-stigma-of-riding-the-bus-in-america-20120711>

The U.S. government has made efforts to accommodate the superior attitudes of white, upper-class commuters dating back to the dawn of public transportation in America. In 1896, the Supreme Court decided in Plessy v. Ferguson that Louisiana railroads were within their rights to run "separate but equal" segregated trains so that white riders wouldn’t be forced need to sit near black travelers. In 1955, black riders successfully reversed the ruling only after staging a year-long boycott of Montgomery’s segregated bus system (the bus service responded by cutting routes to black neighborhoods and increasing fares for white riders by 50 percent until the courts forced it to integrate its seating). The landmark decision didn’t stop the U.S. government from pursuing transportation solutions that disproportionately favored wealthier, whiter travelers. Soon, heavy federal investment in the U.S. highway system had allowed upwardly mobile commuters to flee the cities for the suburbs entirely, leaving lower-income minority residents moored, carless, in the inner city.¶ ¶ Fifty years of urban gentrification and suburban integration later, Manhattan Institute data suggests that the all-white American neighborhood is "effectively extinct." But U.S. transportation systems have not been marching toward racial integration—quite the opposite. According to the research of Mark Garrett and Brian Taylor, minorities accounted for 21 percent of bus riders in 1977. By 1995, that number had jumped to 69 percent. In that time, the proportion of minority car drivers rose just 8 percent.¶ As minority bus ridership rises, the racial stigma against the transportation form compounds. When Atlanta launched its Metropolitan Atlanta Rapid Transit Authority (MARTA) system in the 1970s, some hissed that the acronym stood for "Moving Africans Rapidly Through Atlanta." Today, though 78 percent of MARTA riders are black, many black residents still struggle to access the city bus lines, which fail to stretch deep enough into the sprawling black suburbs. (One critic has characterized the lingering problem as "transportation apartheid"). And the racial stigma against buses lingers even in lines that have not yet been built and boarded. When a new bus route was charted through a white Tempe, Arizona, neighborhood a few years ago, neighbors complained that the line would attract serial killers and child rapists. Also: "bums," "drunks," and "Mexicans," who the commentators feared would soon be "drinking out of our water hoses."¶ ¶ The ramifications of this stigma stretch far beyond NIMBY name-calling. Localities have responded by pouring funds into more gentrifiable transit systems at the expense of the city bus—even if ridership on subways and light rails represents a relatively boutique market. In 1995, activists in Los Angeles formed the Bus Riders Union to fight the city’s massive investment in its rail system, which they claimed violated the civil rights of the city’s minority residents. Though buses are cheaper, easier to implement, more flexible, and practically serve a greater diversity of riders than rail, the city had allocated 70 percent of its transportation budget to what amounted to just 6 percent of the system's (disproportionately white) travelers. Despite some legal victories, the union continues to protest the city’s lopsided investment in its rail dreams, which now include a federally-backed "subway to the sea" to connect downtown to Santa Monica in the next decade. Over the past four years, the city has also cut bus service by 7 percent and bumped transit fares by 44 percent.¶

#### The lack of investment in city bus systems is a manifestation of class based racism that must be rejected

Mann 96

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Across this region, one of the primary ways in which racial and class segregation is enforced is through the dismal quality of the bus system and the corresponding lack of mobility for many poor people and people of color. On public transportation, how does one go from Boyle Heights in East Los Angeles to Sylmar in the San Fernando Val-ley, from Watts to East Los Angeles, from Korea-town to Torrance, or from the Crenshaw district to Orange County to look for work or to keep a job? At present, the answer is that one cannot make these trips on public transportation. Mike Davis, author of City of Quartz, has commented that the objective impact of the terrible quality of bus service from predominantly African American and Latino areas to parks and recreation areas is to prevent youth of color from getting out of the barrios and ghettos. This, of course, perpetuates the old segregation plans on which the city was origi-nally developed, and must be rejected.

In Los Angeles, racial discrimination is reflected in the bus versus rail debate. Transit racism of this sort may take other forms in other cities, but is essentially the same regardless of the particular modes of transportation in which class-based racism resides. In Los Angeles, it can be broken down clearly and simply: This chart shows the material basis of what a racially discriminatory, separate and unequal, two-tier mass transportation system looks like, and the actual lived experience for bus riders is even worse than the stark numbers can convey. It reflects the dominant patterns of modern urban life: the use of public funds by increasingly reactionary corporate elites to plunder public services while claiming budget shortfalls and penalizing an increasingly powerless and growing population of low-income people of color, women, and immigrants. Even by middle-class standards this particular story in Los Angeles gets worse, because there are virtually no middle-class passengers who are even willing to benefit from the MTA’s class-biased largesse. They still prefer to drive their cars and leave the ghost trains running half empty. But no mind, since the purpose of the rail system was never to carry passengers anyway. The MTA just continues to build until the money runs out. Thus, stopping the rail construction “in its tracks” is essential to finding money to repair, let alone uplift, the bus system.

## Auto Industry Advantage

#### We spur auto industry revival

Pollin 10

Robert Pollin- Political Economy Research Institute Univ of Mass

Industrial Policy and the Revival of U.S. Manufacturing

January 2010 http://www.peri.umass.edu/543/

An obvious priority here would be to build manufacturing capacity around clean energy technologies, including green buses and rail cars, as well as automobiles. Investments in these areas could be the basis for a revival of a transformed U.S. auto industry.¶ A program to dramatically improve public bus services throughout the country well illustrates the broader possibilities and approach. Let’s say, for example, the federal government commits to doubling the number of buses now operating throughout the country, and requires that all the new buses operate at high energy efficiency levels. Such a program could produce major environmental and social benefits: even at current fuel-efficiency standards, transporting people via public transportation, as opposed to private cars, produces a net reduction in carbon emissions of about 45 percent per passenger mile, while the average costs for passengers of public transportation are about half those of people traveling by car. Meanwhile, the government orders for clean-energy buses would establish a guaranteed market for manufacturers. Some of these orders could be filled by the current suppliers, all of whom now operate in the U.S. The rest could be supplied by U.S. auto firms, including GM and Chrysler, assuming these companies see the opportunities open to them through converting part of their unprofitable auto manufacturing operations into a newly-expanding market for clean-energy buses.

#### Current damage to auto industry will crush conventional readiness

Gallagher 6 (Paul -- an economic analyst and editor for Executive Intelligence Review -- EIR – June 9th -- http://www.larouchepub.com/eirtoc/2006/eirtoc\_3325.html)

Auto production plants which are being idled in the United States this year and next—a total of nearly 80 million square feet of capacity full of very diverse and capable machine tools—are also being rapidly sold off at auctions, and their unmatched machine-tool capabilities lost to the national economy. Rather than simply being "idled" with the possibility of workforces returning and work resuming, these plants are disappearing under auctioneers' hammers almost as fast as they are shut down. A list of 65 major auto plants shutting down, and their capacities which may be lost, was featured in EIR, May 12, 2006 and in the LaRouche PAC pamphlet, Economic Recovery Act of 2006. The pattern of auctions, of which two examples are shown here, makes clear that the automakers and major auto supply producers, seeing at least 65-70 of their plants as unutilized capacity, do not plan or expect that capacity to come back into use for production of automobiles; rather, underutilization will continue to grow by outsourcing under conditions of rampant globalization. The pattern also presents a challenge to Congress to act fast to save this huge unutilized chunk of the auto sectors' machine-tool design and production capability, and use it for missions more urgent to the nation's economy than producing cars and light trucks to fill the ranks of lengthening traffic jams across the country. Lyndon LaRouche has proposed, and his LaRouche PAC is mobilized to get through Congress, a Federal Public Corporation to adopt the capacity the automakers are discarding, and use it to help build a new national infrastructure from high-speed rail lines to electric power. `No Longer Required' EIR's investigation shows that three major auto plants, closed within six months or less, were auctioned off in their entirety in the second half of May; and a fourth auction, in late April, sold off machinery for production of electrical systems from four different plants of Delphi Corporation: in Rochester, New York; Athens, Alabama; and Dayton and Moraine, Ohio. The complete plant contents auctioned were the General Motors transmission plant in Muncie, Indiana, hammered away in a three-day sale May 16-18; the metal stamping and machining plant known as "Chrysler machine," sold off in Toledo, Ohio on May 24-25; and the Delphi electrical systems plant in Irvine, California, auctioned on May 23. The Toledo plant's auction sale notice is shown in the illustration, marked "no longer required" by Chrysler. The featured machines in the sale included some of the largest and most capable metal presses used in the auto industry. The case of Muncie Manual Transmissions LLC, "one of the largest gear manufacturers in North America," is shown here in the auction company's brochure. Its illustrations make clear that most of the machines in this plant are quite new, built and bought since 1995. Virtually all of its machinery was auctioned off from May 16-18. "The building will be empty now," said one person present, and GM's plan is to demolish it immediately. That plant has some 600,000 square feet of production space, and had 300 remaining production workers before being closed. The workforce had recently used about 500 major machine tools in the plant; many had a replacement value of $500,000-1,000,000 each. All sold, according to the auction brochure, and the entire plant full of machinery apparently brought about $30 million. So a rough estimate might be that the machine tools were sold for 15 cents on the dollar of their replacement value for production. It is no secret that the purchasers at these auctions include other U.S. firms, scrap outfits, and foreign firms employing machine tools, including for production for export to the United States. People in the business indicate that the pace of these sales has been brisk for more than a decade; but the size of the auctions has definitely grown in the past two years or so, with large plants like this going under the hammer. "We also see a lot of aerospace tools" from Boeing and other companies, said one. As for the city of Muncie, it has been told to hope that the GM jobs that were lost, will be matched by new jobs gained—from a Sallie Mae "center for debt management"! Machine tools and productive skills will be "no longer required" there. Dissipation of Bankrupt's Assets In Delphi's case, a full 25 out of its 33 auto parts and supply plants in the country are on the management's list to close down or sell; in addition, others, like the Irvine electrical systems plant, have been closed in recent months. The management under CEO Steve Miller, who was brought in last year to declare the company bankrupt, are flouting the principles of bankruptcy by hiding the accounts of the company's outsourced foreign operations (already 75% of its total work!) while bankrupting and trying to liquidate only the U.S. capacity. On May 28, calls to the lawyers for parties contesting Delphi's filing in New York Federal bankruptcy court, found that with the exception of the UAW's lawyer, none of those attorneys was aware that the productive assets of the "bankrupt" company were being auctioned off. Sources say that the UAW has attempted to protest and stop the auctions of Delphi's plant and equipment in the court, but has been unable to do so. The attorney representing Delphi's shareholders said that the actions would not be permitted unless Delphi had sought and received permission from Judge Robert Drain to sell the machines. None of the attorneys knew whether Delphi had gotten Drain's approval, nor could this be learned from the judge's clerk. In any case, it is clear that the intention of Delphi's management is "globalization by bankruptcy," and that critical productive machinery of the "bankrupt" company is being dissipated—a violation of at least the spirit of the law—through auctions to other firms, other divisions, and other countries, because it does not intend to emerge from bankruptcy to produce again in the United States. And vital high-technology productive machine tools and other capacity of the U.S. national economy, essential for producing the infrastructure of productivity, are being lost. Had Congress already acted along the legislative lines LaRouche is calling for, this capacity could have been purchased by a Federal Public Corporation and saved for use in the critical purposes of building a new national economic infrastructure, and creating skilled, semi-skilled, and unskilled employment. Another month's set of U.S. auto sales reports came in on June 2 and showed the urgent need to diversify the "product" of the auto industrial sector in this way, as it will not come back to building more autos for sale. Ford's U.S. sales through May are 3.3% below a year ago; Daimler-Chrysler's, 4.1% down; Ford-Volvo's 6.3% down; GM's, 4.6% down; Nissan's, 8.4% down. Toyota, Hyundai, and Mazda's sales are still up for the year, but the overall national trend is down. Total sales of cars and light trucks fell from a 16.7 million annual rate last May, to a 16.3 million rate this May, and the annual sales rate for January-May 2006 as a whole, is only 16.4 million units, compared to 16.9 million for all of 2005, and 17.1 million in 2004. Use It or Lose It International Association of Machinists president Thomas Buffenbarger charged in a Washington, D.C. speech May 15, "We have lost the ability to manufacture the means of our prosperity," and now Congress has given away "the ability of this country to defend itself" by outsourcing its machine-tool production in aerospace-defense and auto. Every week that Congress delays emergency legislation to save this remaining industrial power, more of it is lost, irretrievably. Auto skilled trades workers, machinists, and others among America's dwindling base of industrial production workers, realize that the loss of machine-tool and other skilled engineering employment in the United States, could end technological progress in our economy, and ruin our national security. In LaRouche PAC's one-hour documentary DVD on retooling and saving the auto industry, "Auto and World Economic Recovery," the auto unionists and Midwest elected officials interviewed all stressed the potential threat: The United States could find itself in a war, needing new munitions and related industrial production, with effectively all of our machine-tool design and production capability exported to other nations. These nations may not be allies, in part because of their exploitation by the very same low-wage outsourcing which made them the repositories of the machine tools now being auctioned off from Rochester, Toledo, and Irvine.

#### Conventional readiness is key to prevent war

Record 95 (JEFFREY prof , Department of Strategy and International Security @ USAF Air War College -- Parameters, Autumn, pp. 20-30. http://www.carlisle.army.mil/USAWC/parameters/1995/record.htm

In terms of training, sustainability, and weaponry, it is always better to be ready and modern than unready and obsolete. What Congress does not look at, because it is constitutionally incapable of doing so in a coherent fashion, is the broader and far more critical question: Ready for what? What exactly should we expect our military to do? Against whom do we modernize? Have we correctly identified future threats to our security and the proper forces for dealing with those threats? Are we breathlessly and blindly pursuing modernization for its own sake, or are we tying it in with the quality and pace of hostile competition? These are the questions I would like to address. Informed line-item judgments on readiness and modernization hinge on informed judgments at the level of strategy, whose formulation is the responsibility of the Executive Branch. Our present strategy portends an excessive readiness for the familiar and comfortable at the expense of preparation for the more likely and less pleasant. Introducing Realism Into Our Assessments The basis of present strategy is the Administration's Bottom-Up Review, a 1993 assessment of US force requirements in the post-Soviet-threat world. The assessment concluded, among other things, that the United States should maintain ground, sea, and air forces sufficient to prevail in two nearly simultaneous major regional contingencies. For planning purposes the assessment postulated another Iraqi invasion of Kuwait (and Saudi Arabia's eastern province) and another North Korean invasion of South Korea--two large and thoroughly conventional wars fought on familiar territory against familiar Soviet-model armies. Congressional and other critics rightly point to disparities between stated requirements for waging two major wars concurrently and the existing and planned forces that would actually be available. Shortfalls are especially pronounced in airlift, sealift, and long-range aerial bombardment. Critics also note that the Bottom-Up Review more or less ignores the impact of Haiti- and Somalia-like operations on our capacity to fight another Korean and another Persian Gulf war at the same time. Few in Congress or elsewhere, however, have questioned the realism of the scenario. How likely is it that we would be drawn into two major wars at the same time? What are the opportunity costs of preparing for such a prospect? The prospect of twin wars has been a bugaboo of US force planners since the eve of World War II--the only conflict in which the US military was in fact called upon to wage simultaneously what amounted to two separate wars. Chances for another world war, however, disappeared with the Soviet Union's demise. Moreover, two points should be kept in mind with respect to World War II. First, the two-front dilemma came about only because of Hitler's utterly gratuitous declaration of war on the United States just after Pearl Harbor--a move that has to go down as one of the most strategically stupid decisions ever undertaken by a head of state. Had Hitler instead declared that Germany had no quarrel with the United States, and therefore would remain at peace with it, President Roosevelt would have been hard put to obtain a congressional declaration of war on Germany, or, with one, to pursue a Germany-first strategy. Second, during World War II the United States was compelled to pursue a win-hold-win strategy against Germany and Japan, respectively, even though we spent 40 percent of the GNP on defense, placed 12 million Americans under arms, and had powerful allies (unlike Germany or Japan). We sought to--and did--defeat Germany first, while initially remaining on the strategic defense in the Pacific. In the decades since 1945, US planners persisted in postulating scenarios involving at least two concurrent conflicts, even though we have never had the resources to wage two big wars at the same time. Recall that the Vietnam conflict was a "half-war" in contemporary US force planning nomenclature. More to the point, our enemies have without exception refused to take advantage of our involvement in one war to start another one with us; not during the three years of the Korean War, the ten years of the Vietnam War, or the eight months of the Persian Gulf crisis of 1990-91. States almost always go to war for specific reasons independent of whether an adversary is already at war with another country. This is especially true for states contemplating potentially war-provoking acts against the world's sole remaining superpower. In none of the three major wars we have fought since 1945 did our enemies, when contemplating aggression, believe that their aggressive acts would prompt war with the United States. If prospects for being drawn into two large-scale conventional conflicts at the same time are remote, prudence dictates maintenance of sufficient military power to deal quickly and effectively with such conflicts one at a time. And for this we are well prepared. Our force structure remains optimized for interstate conventional combat, and it proved devastating in our last conventional war, against Saddam Hussein's large--albeit incompetently led--Soviet-model forces. Though most national military establishments in the Third World, which today includes much of the former Soviet Union, are incapable of waging large-scale conventional warfare, the few that are or have the potential to do so are all authoritarian states with ambitions hostile to US security interests. Among those states are Iran, Iraq, Syria, a radicalized Egypt, and China. Russia can be excluded for probably at least the next decade. Russia's conventional military forces have deteriorated to the point where they have great difficulty suppressing even small insurrections inside Russia's own borders. The humiliating performance of the Russian forces in Chechnya reveals the extent to which draft avoidance, demoralization, disobedience, desertion, political tension, professional incompetence, and the virtual collapse of combat support and combat service support capabilities have wrecked what just a decade ago was an army that awed many NATO force planners. China is included not just as a potential regional threat but as a potential global threat. We need to be wary of today's commonplace notion that the United States is the last superpower, that we will never again face the kind of global and robust threat to our vital security interests once posed by the Soviet Union, and before that, the Axis Powers. The present planning focus on regional conflict should not blind us to the probable emergence over the next decade or two of at least one regional superpower capable of delivering significant numbers of nuclear weapons over intercontinental distances and of projecting conventional forces well beyond their national frontiers. China comes first to mind. China's vast and talented population and spectacular economic performance could provide the foundation for a military challenge in Asia of a magnitude similar to that posed by the growth of Japanese military power in the 1930s. Our capacity for large-scale interstate conventional combat is indispensable to our security. It served us well in Korea and the Persian Gulf, where we continue to have vital interests threatened by adversaries who have amassed or are seeking to amass significant, and in the case of North Korea, vast amounts of conventional military power.

## AT: Recession Emperically disproves leadership advantage

#### The current economic downturn did not affect the U.S. relative position

Kagan 12

Robert Kagan is senior Fellow at Brookings Institute Not Fade Away: Against the Myth of American Decline

<http://www.brookings.edu/research/opinions/2012/01/17-us-power-kagan>

The answer is no. Let’s start with the basic indicators. In economic terms, and even despite the current years of recession and slow growth, America’s position in the world has not changed. Its share of the world’s GDP has held remarkably steady, not only over the past decade but over the past four decades. In 1969, the United States produced roughly a quarter of the world’s economic output. Today it still produces roughly a quarter, and it remains not only the largest but also the richest economy in the world. People are rightly mesmerized by the rise of China, India, and other Asian nations whose share of the global economy has been climbing steadily, but this has so far come almost entirely at the expense of Europe and Japan, which have had a declining share of the global economy.

## AT: Military Dominance assures Heg

#### Perceptions of U.S. economic leadership are key to international leadership

Gelb 10

 [Leslie H. Gelb, a former New York Times columnist and senior official in the state

and defense departments, is currently president emeritus of the Council on Foreign Relations, Fashioning a Realistic Strategy for the Twenty-First Century,? Fletcher Forum of World Affairs vol.34:2 summer 2010

http://ui04e.moit.tufts.edu/forum/archives/pdfs/34-2pdfs/Gelb.pdf

Power is what it always has been. It is the ability to get someone to do something they do not want to do by means of your resources and your position. It was always that. There is no such thing in my mind as “soft” power or “hard” power or “smart” power or “dumb” power. It is people who are hard or soft or smart or dumb. Power is power. And people use it wisely or poorly. Now, what has changed is the composition of power in international affairs. For almost all of history, international power was achieved in the form of military power and military force. Now, particularly in the last fifty years or so, it has become more and more economic. So power consists of economic power, military power, and diplomatic power, but the emphasis has shifted from military power (for almost all of history) to now, more economic power. And, as President Obama said in his West Point speech several months ago, our economy is the basis of our international power in general and our military power in particular. That is where it all comes from. Whether other states listen to us and act on what we say depends a good deal on their perception of the strength of the American economy. A big problem for us in the last few years has been the perception that our economy is in decline.

[Plug in military and auto industry add ons as turns]

## AT: People won’t use buses

#### New buses will be used—Their evidence assumes old bus systems

Brosch 03

Gary Brosch¶ Executive Committee¶ National Bus Rapid Transit Institute; University of Florida ¶ Hearing: Bus Rapid Transit and Other Bus Service Innovations¶ Tuesday, June 24, 2003 <http://banking.senate.gov/public/index.cfm?FuseAction=Hearings.Testimony&Hearing_ID=c40237a7-97a6-42e2-93e5-29b6c307ee50&Witness_ID=bd0f6625-b1f2-4f79-9bbc-eeb2adc61072>

Another lesson learned is that even in auto dominated Los Angeles, people will ride a bus system that is fast, efficient, and convenient. The old myth that people will ride trains but not buses is based on a paradigm of trains being clean and fast and buses being dirty and slow. BRT has changed that paradigm! Success stories in the United States and abroad have shown that BRT can be a highly praised and successful form of public transit. Fast, convenient, and frequent service are what transit users want and BRT systems provide all of these factors in a very cost-effective manner.

## AT: Lack of infrastructure is the barrier

#### The plan does infrastructure for the bus system demonstrating the viability and commercial capabilities of the infrastructure and the buses

#### Fueling infrastructure is coming now

Thomas 12

C. E. (Sandy) Thomas has over 50 years experience in scientific research and related engineering activities. He was the Director of the Laser and Optics Division of KMS Fusion He was a member of the Board of Directors and served on the Executive Committee of the National Hydrogen Association. Dr. Thomas has BSEE, MSEE and Ph.D. degrees from the University of Michigan <http://www.cleancaroptions.com/html/fuel_cell_vehicle_faq.html>

Hydrogen fueling systems are being added in clusters around the US to support regional introductions of FCEVs. If you live in one of these pilot cities such as Los Angeles, Sacramento, New York, Columbia, S.C. or Washington DC, then chances are you could fuel a FCEV today. The plan is to expand these clusters of fueling stations over time, adding hydrogen fueling stations on interstate highways until the entire country is covered with hydrogen pumps.¶ Other countries have similar plans to add networks of hydrogen fueling stations, with Germany and Japan taking the lead. In September of 2009, eight major organizations announced their intent to build a hydrogen fueling network in Germany sufficient to support the “few hundred thousand” FCEVs planned by the auto companies by the 2015 time period.

## AT: Technology does not exist

#### There are no tech barriers

Thomas 12

C. E. (Sandy) Thomas has over 50 years experience in scientific research and related engineering activities. He was the Director of the Laser and Optics Division of KMS Fusion He was a member of the Board of Directors and served on the Executive Committee of the National Hydrogen Association. Dr. Thomas has BSEE, MSEE and Ph.D. degrees from the University of Michigan <http://www.cleancaroptions.com/html/fuel_cell_vehicle_faq.html>

Will a “breakthrough” in hydrogen storage technology be required?¶ Short answer: No, reduced storage volume and cost would be welcomed, but a “breakthrough” in hydrogen storage is certainly not necessary to proceed full steam ahead on hydrogen and FCEVs.¶ Long answer: all car companies making FCEVs are now storing hydrogen as a compressed gas in carbon fiber-reenforced composite tanks. This is the same technology used to store compressed natural gas on hundreds of thousands of natural gas vehicles around the world.¶ These compressed gas tanks do take up more space on the vehicle than gasoline tanks, so we would welcome new hydrogen storage technology if it cut down on space in the vehicle at an affordable price, but a “breakthrough” is not required to proceed with FCEVs. The car companies have been able to accommodate compressed gas tanks and still achieve up to 430 miles range (See Question #1 above) without sacrificing passenger or trunk space.

## Bus Manufacturing Advantage

#### The bus manufacturing sector is key to growth in the entire transportation sector

Lowe et. al. 09

Marcy Lowe, Bengu Aytekin and Gary Gereffi of the Center on Globalization, Governance & Competitiveness, an affiliate of the Social Science Research Institute at Duke University¶ Public Transit Buses: A Green Choice¶ Gets Greener¶ http://www.cggc.duke.edu/environment/climatesolutions/greeneconomy\_Ch12\_TransitBus.pdf

The total number of jobs in domestic manufacture of transit buses is relatively small, at 25,000 to

33,000 jobs, many overlapping with the heavy truck industry. Yet the value of this employment

extends well beyond job numbers in several ways. First, many of these jobs are in Midwestern

states deeply affected by the recession, where manufacturing employment and capacity,

especially in the motor vehicle industry, are crucial for maintaining a leadership position

throughout the recovery period and beyond. Second, the bus industry’s shared skills and

capacities with the heavy truck industry and other automotive segments help the motor vehicle

industry as a whole maintain a diverse supplier base and wide range of competencies. Third, the

bus industry provides an important entry point for innovations in automotive technologies,

especially in new vehicles that require refueling infrastructure and other major changes. For

instance, transit agencies constitute a well-defined base of centrally managed fleets, ideal for

testing and proving plug-in hybrid and all-electric buses—thus leading the way for the passenger

car industry. For these reasons, employment in the transit bus manufacturing industry is an

important benefit of investment in public transit.

#### Bus manufacturing will not grow now

Lowe et. al. 09

Marcy Lowe, Bengu Aytekin and Gary Gereffi of the Center on Globalization, Governance & Competitiveness, an affiliate of the Social Science Research Institute at Duke University¶ Public Transit Buses: A Green Choice¶ Gets Greener¶ http://www.cggc.duke.edu/environment/climatesolutions/greeneconomy\_Ch12\_TransitBus.pdf

Industry interviews suggest that in the absence of a major transportation policy change that¶ includes significant, sustained funding for public transit vehicles, relevant firms in the bus¶ industry are not expecting to increase employment significantly in the coming years. Domestic¶ demand is heavily dependent on the availability of public funding for bus transit, an inherent¶ constraint that is naturally worsened by the current economic recession. Lead firms anticipate¶ adding small increments in employment commensurate with increases in bus orders that are¶ anticipated as transit fleets replace aging vehicles.¶ It is likely that the fast-growing market for green buses, especially electric hybrids, will mainly¶ help OEMs keep the workforce they already have, perhaps creating a modest increase in jobs.¶ Since the transit bus industry is inherently not oriented toward exports, with buses mainly¶ produced in the country where they are sold—or at least in countries at similar levels of¶ economic development—U.S. exports of buses will likely continue to stay within the North¶ American market. Within key components, however, fast-growing orders for hybrid buses do¶ appear to create potential for U.S. firms to export hybrid propulsion systems for buses, which¶ could have a positive effect on employment.

#### U.S. bus manufacturing industry is in trouble now

Hidalgo and DeVries 06

FTA Commissioned report Non-Rail Vehicle Market Viability Study¶ Hidalgo & DeVries, Inc.¶ FINAL REPORT¶ FTA Project Number: MI-26-7008-05.1¶ January 19, 2006¶ http://www.fta.dot.gov/documents/Non-Rail\_Vehicle\_Market\_Study\_FINAL\_REPORT.pdf

The U.S. non-rail vehicle (bus) manufacturing industry faces extreme challenges today.¶ In the last decade, no fewer than ten manufacturers have either reorganized or gone out of-¶ business. Today, the financial condition of most bus manufacturers is tenuous at best.¶ Presented as a stand-alone report to the Federal Transit Administration (FTA), the¶ purpose of this publication is to provide an exploratory evaluation of the viability of the¶ U.S. bus manufacturing industry to meet the demand for fixed-route transit buses. This¶ study is available to all interested readers but includes information particularly salient to¶ federal transportation officials, transit agency representatives, and bus manufacturing¶ industry professionals.

Lowe et. al. 09

Marcy Lowe, Bengu Aytekin and Gary Gereffi of the Center on Globalization, Governance & Competitiveness, an affiliate of the Social Science Research Institute at Duke University¶ Public Transit Buses: A Green Choice¶ Gets Greener¶ http://www.cggc.duke.edu/environment/climatesolutions/greeneconomy\_Ch12\_TransitBus.pdf

Public transit spending is not sufficiently steady or reliable to encourage growth in the industry.

Firms may receive increased orders only to see them fall in subsequent years when funding

levels drop and demand has already been satisfied. This makes it difficult for bus manufacturers

to maintain their capacity and workforce without having to lay off workers periodically. In the

current recession, many agencies can no longer meet federal financing formulas that require a

local funding match of 20%. Cutbacks in state funding appear to threaten even the gains

promised by funding from the stimulus bill, the American Recovery and Reinvestment Act of

2009. To illustrate, the Chicago Transit Authority used stimulus money to order 58 new hybrid

buses from New Flyer. It also placed a larger order of 140 buses, which it intended to pay for

with state money. However, the state funds were subsequently cut and the CTA was forced to

delay the large order. This so disrupted New Flyer’s production schedule that, in August 2009,

the company was forced to begin laying off 320 people, or 13% of its workforce (Cooper, 2009).

#### The U.S. bus manufacturing industry is floundering

Hidalgo and DeVries 06

FTA Commissioned report Non-Rail Vehicle Market Viability Study¶ Hidalgo & DeVries, Inc.¶ FINAL REPORT¶ FTA Project Number: MI-26-7008-05.1¶ January 19, 2006¶ http://www.fta.dot.gov/documents/Non-Rail\_Vehicle\_Market\_Study\_FINAL\_REPORT.pdf

A general consensus emerged from the study that the viability of the U.S. bus¶ manufacturing industry is at risk. Increasingly, the ability of bus manufacturers to meet¶ the demands of public bus transit has diminished. Research related to the needs of transit¶ agencies, with respect to non-rail vehicles, demonstrated that a variety of factors¶ influence the purchasing decisions of transit agencies, including fleet size, vehicle age,¶ service needs, and financial capacity. Vehicle types and sizes that are critical for current¶ and future operations of transit agencies reflect each agency’s operating environments,¶ including service area climate, population size, and community needs. In addition, new¶ technology that addresses fuel economy and environmental requirements is also¶ considered an important factor for driving purchasing decisions, particularly decisions¶ made by large transit agencies. The inter-related issues of maintenance, technical¶ training, implementation of new technology/alternative fuel sources, as well as budgetary¶ constraints, pose challenges for transit agencies. The diversified needs and challenges of¶ the transit agencies, in turn, have gravely impacted the bus manufacturers and their¶ ability to meet the market demands.¶ Needless to say, the bus manufacturers have expressed serious concerns regarding the¶ state of the industry. The fluctuation in demand and the general lack of volume in orders¶ and purchases of transit buses threaten the bus manufacturing business. Various issues ––¶ such as procurement and contracting, warranties, the Buy America policy, funding, and¶ demand for new technologies –– have compounded the difficulties faced by bus¶ manufacturers today. In addition, costs of doing business have become increasingly high,¶ specifically materials and fuel prices and healthcare costs. Requirements such as the¶ Altoona Bus Test, 12-year/500,000 mile service life, and the 2007 and 2010 emissions¶ standards also pose major challenges for the bus manufacturers.¶ Research results suggest that the current crisis faced by the transit bus industry must be¶ addressed immediately. Expanded examination of specific issues relating to public¶ transit needs and trends will enhance FTA’s ability to assess policies and develop new¶ initiatives in order to respond to the increasing demands of the transit bus industry.

#### Increased investment spurs the bus manufacturing industry

Lowe et. al. 09

Marcy Lowe, Bengu Aytekin and Gary Gereffi of the Center on Globalization, Governance & Competitiveness, an affiliate of the Social Science Research Institute at Duke University¶ Public Transit Buses: A Green Choice¶ Gets Greener¶ http://www.cggc.duke.edu/environment/climatesolutions/greeneconomy\_Ch12\_TransitBus.pdf

The bus manufacturing industry comprises an estimated 25,000-33,000 jobs, including many that

overlap with the heavy truck industry. The value chain involves a considerable number of small

and large manufacturers in nearly every state in the eastern United States, including Indiana,

Michigan, Ohio and other hard-hit industrial states. These encompass makers of components

from engines and transmissions, to windows, lighting, seating and flooring—including a very

important after-market segment, which accounts for an estimated 10% of industry revenue.

If federal, state and local policy were to shift to a clear, sustained commitment to public transit,

the nation would have the manufacturing capability to meet the resulting increased demand for

transit buses. However, the transit bus industry is unlikely to have significant market growth in

the absence of several major changes: better management of public transit funds and improved

coordination with manufacturing firms; significant, sustained public funding; and perhaps most

important, a comprehensive transportation policy shift that encourages public transit use.

## Inherency Extensions

#### Fuel Cell buses require more development to reduce costs

DOE 08

Department of Energy Report Fuel Cell School Buses¶ Report to Congress http://hydrogen.energy.gov/pdfs/epact\_743\_fuel\_cell\_school\_bus.pdf

Although fuel cell bus technology has come a long way since the early demonstrations of the mid 1990s, the technology is not yet at the optimization stage. For fuel cell transit bus development and implementation to move ahead to deployment and commercialization, the industry must overcome several critical challenges. Cost reduction is a top priority; this includes reducing the capital cost of the fuel cell system and vehicle, as well as the cost to install infrastructure, deliver fuel, and operate and maintain both vehicles and infrastructure. Fuel cell system durability also must improve—and be proven—for fuel cell transit buses to compete with buses that use conventional technologies. Significant work is required to ensure that fuel cell buses can operate in normal service with the same, or better, performance and reliability as today’s conventional technology buses.

## Topicality—Purchasing Vehicles T

#### Counter-interpretation—Vehicles that are part of a mass transit system are part of the infrastructure—The subway system includes the subway train and the bus system includes the buses—We don’t unlimit because it doesn’t allow buying private cars—only vehicles that are part of a mass transit system

#### Purchasing buses is officially defined by the govt as investing in transportation infrastructure

GAO 11

'Recovery Act: Funding Used for Transportation Infrastructure ¶ Projects, but Some Requirements Proved Challenging'¶ http://www.gao.gov/assets/330/320358.html

States and other recipients continue to report using Recovery Act ¶ funds to improve the condition of the nation's transportation ¶ infrastructure, as well as invest in new infrastructure. For example, ¶ according to DOT data, 68 percent of highway funds have been used for ¶ pavement improvement projects, such as resurfacing, reconstruction, ¶ and rehabilitation of existing roadways, and almost 75 percent of ¶ transit funds have been used for upgrading existing facilities and ¶ purchasing or rehabilitating buses (see figure 2). According to FAA ¶ officials, Recovery Act funding was used to rehabilitate and ¶ reconstruct airport runways and taxiways, as well as to upgrade or ¶ purchase air navigation infrastructure such as air traffic control ¶ towers, engine generators, back-up batteries, and circuit breakers. ¶ The Recovery Act grant provided to Amtrak has been used to make ¶ infrastructure improvements and return cars and locomotives to service.

#### Contextually Federal transportation infrastructure investment under the Recovery Act included transit bus purchases

GAO 11

'Recovery Act: Funding Used for Transportation Infrastructure ¶ Projects, but Some Requirements Proved Challenging'¶ http://www.gao.gov/assets/330/320358.html

We found that the Recovery Act requirement to obligate funds quickly ¶ likely influenced the types of projects selected for funding in some ¶ states. State and local officials we interviewed noted that the ¶ primary factor considered in project selection was to meet Recovery ¶ Act deadlines for obligating funds, which likely limited the types of ¶ projects that were selected for funding.[Footnote 49] Federal and ¶ state officials also noted the tension between the purposes of the ¶ Recovery Act, which included preserving and creating jobs and ¶ promoting economic recovery, and investing in infrastructure to ¶ provide long-term economic benefits, among other Recovery Act goals. ¶ For example, the Recovery Act provided a relatively quick infusion of ¶ federal funding for highway and transit programs, but as we noted ¶ earlier, the majority of projects selected for highway and transit ¶ funding were pavement rehabilitation and bus purchases. State and ¶ local officials told us that to meet the act's obligation deadlines ¶ they prioritized projects that had already progressed significantly ¶ through the project development and design process and could move to ¶ construction. In some cases, state officials told us that this ¶ prohibited other, potentially-higher priority projects from being ¶ selected for funding. As a result, many Recovery Act highway projects ¶ selected for funding did not require extensive environmental ¶ clearances, were quick to design, and were quickly obligated, bid, and ¶ completed. Several states told us that their mix of highway projects ¶ would likely have been different had the obligation deadlines been ¶ longer. For example, officials in California told us that had the ¶ Recovery Act timelines been longer they would have likely pursued more ¶ large-scale projects. According to Texas transportation officials, ¶ projects that had already progressed significantly through the project ¶ development process were preferred. However, transportation officials ¶ in Virginia and Washington State said that the Recovery Act funding ¶ allowed their states to select projects that would meet the obligation ¶ time frames while also addressing state priorities, such as investing ¶ in infrastructure with potential long-term economic impacts and ¶ addressing preservation and safety needs.

#### Contextually spending on transportation infrastructure has included investing in buses

GAO 11

'Recovery Act: Funding Used for Transportation Infrastructure ¶ Projects, but Some Requirements Proved Challenging'¶ http://www.gao.gov/assets/330/320358.html

As of May 31, 2011, nearly $45 billion (about 95 percent) of Recovery ¶ Act transportation funds had been obligated for over 15,000 projects ¶ nationwide, and more than $28 billion had been expended. Recipients ¶ continue to report using Recovery Act funds to improve the nation’s ¶ transportation infrastructure. Highway funds have been primarily used ¶ for pavement improvement projects, and transit funds have been ¶ primarily used to upgrade transit facilities and purchase buses.

#### Supplying new buses is contextually investment in transportation infrastructure

Federal Transportation Agency 12

http://recovery-and-reinvestment-act.theblaze.com/l/158247/Transit-Infrastructure-Investments

Transit Infrastructure Investments - Ozark Regional Transit, Inc. in Springdale, AR This is part of the transit infrastructure renewal and job creation programs. We are replacing obsolete rolling stock, adding bus shelters and implementing an on-line operating system.

#### Acquiring public transit rolling stock is contextually transportation infrastructure investment

AMO 12

Association of Municipalities of Ontario

http://www.amo.on.ca/Content/NavigationMenu/SustainableMunicipalities/FederalPublicTransitFunds/default.htm

The Federal Public Transit Fund (PTF) provided targeted funding for public transit infrastructure. Created in 2005 and completed in 2010, this one time funding program allocated approximately $400 million for public transit investments across the country. Through Municipal Funding Agreements, AMO administered $56 million of the Public Transit Fund for 78 of the 79 Ontario municipalities that provide transit service. ¶ PTF funding was distributed in 2006 to municipalities on the basis of transit ridership, using 2004 data from the Canadian Urban Transit Association. The eligible categories included rapid transit, rolling stock, para-transit, intelligent transport systems and active transportation infrastructure.

#### The most common definition includes buses as transportation infrastructure

Goswami 04

Joydeep Goswami

University of Texas at Austin The Economic Impact of the Houston Bikeway

Program on Houston http://documents.publicworks.houstontx.gov/documents/divisions/ecd/research\_paper\_081304.pdf

Transportation is an integral component of a city’s economic viability. The term¶ transportation itself, however, is broad and must be defined. Transportation can include anything¶ that involves the conveyance of passengers or goods (Lexico Publishing Group, 2004). Most¶ commonly, however, a city’s transportation infrastructure includes automobiles, buses, subways,¶ and railways. However, with an ever-increasing population and environmental concerns,¶ alternative forms of transportation must be developed. These alternative forms of transportation¶ must not only provide a safe alternative to traffic congestion and air polluting vehicles, but also¶ must be economically sensible. Because of these concerns, many cities worldwide have turned to non-motorized transportation (NMT). Non-motorized transportation refers to any form of¶ transportation without the use of a combustion motor. This can include walking, bicycling,¶ human porterage, animal drawn carts, and handcarts/wheelbarrows (Guitink, 1994). However,¶ the most common types of NMT include bicycling and walking. Although primarily thought of¶ as a recreational activity, bicycling and walking have been increasingly looked at as an¶ alternative form of city-wide transportation. A properly developed bikeway system can grant a¶ great degree of accessibility throughout a city (TDM, 1994). Also, with gasoline prices¶ consistently on the rise, an alternative form of transportation for short distance trips would be¶ extremely economical for a citizen. Figure 1.1 shows the increase in gasoline prices in Houston¶ over the last two years.

#### We are contextually topical

Taylor 11

Timothy Taylor is an Economist America's Infrastructure Problem: Engineering vs. Economic Perspectives http://conversableeconomist.blogspot.com/2011/08/americas-infrastructure-problem.html

Here are some examples of what I mean by the engineering approach of putting costs on infrastructure, from the report: "Investment of roughly $220 billion annually (2010 dollars) is needed from 2010 to 2040, based on unit costs, minimum tolerable conditions, and data sources consistent with current application of federal highway, bridge, and transit investment models. This breaks down to an average investment of approximately $196 billion per year for highway pavements and bridges, including $161 billion for congestion mitigation and $35 billion for preservation of existing facilities. In addition, $25 billion per year in transit capital infrastructure investment (including rolling stock as well as trackage, terminals, and roadways for access) is needed. Approximately 37% of this highway and bridge investment and 25% of this transit investment will be needed simply to resolve existing deficiencies of almost $74 billion that are already affecting the U .S. economy. The remainder is needed to prevent deficiencies from recurring or getting worse over time....If present trends continue, the funding gap for rail and bus transit, seen as 41% in 2010, is expected to increase to 55% by 2040. The expected gap in highway funding, 48% in 2010, is expected to increase to 54% by 2040."

#### Transportation infrastructure includes vehicles

Revised Code of Washington 47.46.020, 2010 (http://apps.leg.wa.gov/rcw/default.aspx?cite=47.46.020)

(5) "Transportation systems and facilities" means capital-related improvements and additions to the state's transportation infrastructure, including but not limited to highways, roads, bridges, vehicles, and equipment, marine-related facilities, vehicles, and equipment, park and ride lots, transit stations and equipment, transportation management systems, and other transportation-related investments.

## Politics

### General Uniqueness Thumper

Jackson 7-5-12

David Jackson political reporter for USA Today

Obama to stress auto bailout in Ohio http://content.usatoday.com/communities/theoval/post/2012/07/obama-to-stress-auto-bailout-in-ohio/1#.UA3HpaB2N-0

¶ Michigan isn't the only state where the car industry is big.¶ ¶ Northern Ohio is loaded with auto suppliers -- and their voting employees -- and that is why President Obama plans to stress the auto industry bailout during his bus trip today through the region.¶ ¶ As part of that pitch, Obama plans to announce that his administration is filing a complaint with the World Trade Organization over Chinese import duties on some U.S. cars.¶ ¶ Among the vehicles affected by the protest: Jeep Wranglers made in Toledo, the area where Obama plans to kick off a two-day bus tour with a speech later this morning.¶ ¶ The president has stops scheduled for later today in Sandusky and Parma.¶ ¶ As it prepared to launch a two-day trip through northern Ohio and western Pennsylvania, the Obama re-election team sent reporters an e-mail of a Toledo Blade story reporting that Jeep Wranglers set a monthly sales record for the second month in a row. Chrysler has seen sales growth for 27 straight months.¶ ¶ Some of these statistics may well pop up in Obama's Toledo speech late this morning, as well as a reminder that Republican Mitt Romney once supported a managed bankruptcy of Chrysler and GM.¶ ¶ An unnamed administration aide also told the Blade about the forthcoming trade complaint against China with the World Trade Organization:¶ ¶ The enforcement action aims to force China to rescind the duties it placed disproportionately on General Motors Co. and Chrysler Group LLC imports because of the 2009 taxpayer rescue of the auto industry.¶ ¶ The enforcement action ties in with the President's campaign message that his administration went to bat for workers in the auto industry in early 2009 to save as many as 1 million auto and auto-parts jobs that could have been lost in bankruptcy liquidation of the two companies.

### General No Election Link Thumpers

#### Politicians won’t try to use bus purchases as an election issue

Weinstock et al 11

Annie Weinstock, Walter Hook, Michael Replogle, and Ramon Cruz of the Institute for Transportation and Development Policy in New York¶ May 2011¶ Recapturing Global¶ Leadership in¶ Bus Rapid Transit http://www.itdp.org/documents/20110526ITDP\_USBRT\_Report-LR.pdf

In short, U.S. BRT has suffered from a lack of¶ political leadership. Most major politicians in the United States are still unaware of BRT[Bus Rapid Transit] and do¶ not think of it as a worthy platform on which to¶ campaign. In fact, many politicians would rather¶ promise a rail system that they cannot deliver¶ than promise a BRT[Bus Rapid Transit] system that they do not quite¶ understand. Most transportation commissioners¶ have limited faith in their political leadership’s¶ understanding of transportation issues and are¶ reluctant to elevate their BRT[Bus Rapid Transit] projects to a higher¶ political level for fear that the political leadership¶ will intervene in a largely non-constructive way.¶ Perhaps because BRT is still seen as a lower-cost¶ consolation prize for cities without the funds¶ to implement a rail project, rather than a viable¶ alternative with significant operational advantages,¶ political leaders tend to pay less attention¶ to BRT[Bus Rapid Transit] projects than to rail projects.

#### Obama won’t push it or use it as a campaign issue because he perceives it as a Bush idea

Thomas 12

C. E. (Sandy) Thomas has over 50 years experience in scientific research and related engineering activities. He was the Director of the Laser and Optics Division of KMS Fusion He was a member of the Board of Directors and served on the Executive Committee of the National Hydrogen Association. Dr. Thomas has BSEE, MSEE and Ph.D. degrees from the University of Michigan <http://www.cleancaroptions.com/html/fuel_cell_vehicle_faq.html>

If hydrogen-powered fuel cell electric vehicles are so good for the environment and so good at reducing oil consumption, why is the US Obama administration not enthusiastically supporting the development of hydrogen and FCEVs[Fuel Cell Electric Vehicles]?¶ Short answer: We do not know; the administration has never written a white paper, let alone a peer-reviewed article explaining why they are enthusiastically supporting BEVs and PHEVs while trying to kill the DOE’s hydrogen & fuel cell program.¶ Longer answer: We can only speculate, since the administration has never explained their fixation on BEVs and PHEVs and the exclusion of FCEV. One possibility is that the enthusiastic support of hydrogen-powered FCEVsby former President George W. Bush caused the Obama political operatives to label the FCEV as a Republican project, and hence it must be rejected by the new Democratic administration.

#### The media will ignore new bus projects—They are not sexy like large scale rail capital projects

Feigenbaum 12

Baruch Feigenbaum is Transportation Policy Analyst June 15, 2012, California Transportation Professor Makes the Case for BRT over Rail¶ http://reason.org/blog/printer/california-transportation-professor

Transit funding can be a contentious issue. While most transportation planners favor a local bus network as the backbone of a metro area’s transportation system, they are divided on whether higher volume corridors should be served by rail or Bus Rapid Transit (BRT). While many regions have extensive transit plans, there is only a finite amount of funding available. Additionally, transit systems in most U.S. cities consume a sizable percentage of cities' transportation budgets but move only a small percentage of residents. In many regions politics, economics and regional infighting further complicate the situation.¶ In an interview I conducted with UCLA Professor of Urban Planning Dr. Brian Taylor, we discussed the cost, effectiveness, and politics of BRT[Bus Rapid Transit] versus rail in Los Angeles. Los Angeles has utilized heavy-rail, light-rail, BRT, express bus, and local bus. The many transit technologies make the city a good case study.¶ While Los Angeles is often considered a car-oriented metropolis with poor transit, this is not an accurate description. Los Angeles has a higher population density than any city in the U.S. including New York City. Los Angeles has the second lowest number of expressway miles per capita of any U.S. metro area. And it has one of the top ten transit systems in the country. In many ways Los Angeles is more similar to San Francisco, Washington D.C., and Seattle than Atlanta or Houston. ¶ In general Professor Taylor favors BRT over rail. Constructing a BRT line is much more cost effective than constructing a rail line. The savings allows more money to be spent on operating and maintenance costs that are often underfunded. ¶ Also interesting is Dr. Taylor’s study on the politics of transit:¶ Major capital projects are sexy ribbon-cutting events that also attract media attention. However, from a media standpoint increasing service quality or reducing headways are non-events. Elected leaders are often more concerned with building political capital than with implementing the most cost effective transit service and new rail service raises political capital. Taxpayers see a tangible product from their tax dollars, even if it is often not the best use of those tax-dollars.¶ Below is a sample of the interview. The full interview is available here. ¶

#### Not Unique—The federal government just announced a $13 million dollar bus program—If they wanted to make it a campaign issue they could already use it

NAFTC 6-5-12

National Alternative Fuels Training Consortium

http://naftcenews.wvu.edu/naftc\_enews/2012/06/05/department-of-transportation-funds-fuel-cell-bus-research

U.S. Transportation Secretary Ray LaHood recently announced that $13.1 million in federal funding will go toward research and demonstration projects under the Federal Transit Administration (FTA) National Fuel Cell Bus Program. The program aims to advance hydrogen fuel cell power for transit buses and reflects the Obama administration’s commitment to address the U.S.’s energy challenges, reduce the country’s dependence on foreign oil and promote cleaner air. “President Obama’s all-of-the-above energy strategy includes adopting alternative fuels that let transit agencies bypass the gas pump altogether and reduce our carbon footprint,” said LaHood. “This investment moves us closer to achieving the President’s goal of reducing oil imports by a third in a little over a decade.”¶ The funds were disbursed between CALSTART in Pasadena, Calif.; the Center for Transportation and the Environment in Atlanta and the Northeast Advanced Vehicle Consortium in Boston. All three will engage in work to develop various fuel cell components, test American-made buses under real-world conditions powered by fuel cells and conduct educational outreach.¶ “With gas prices on the rise, we know that the availability of reliable transit as a transportation choice is a significant part of relieving the pain at the pump for millions of riders each day,” said Federal Transit Administrator Peter Rogoff. “And, the Department is taking it a step further by investing in a new generation of clean-fuel technology to make transit an even more significant part of our nation’s overall approach to a secure energy future.”¶ The funding aims to bring fuel cell buses into commercial service faster, which would have a positive impact on the environment, as well as save energy. According to the National Renewable Energy Lab (NREL) and the FTA, every fuel cell-powered bus put into service in the U.S. could reduce carbon released into the atmosphere by 100 tons annually, as well as eliminate the need for 9,000 gallons of fuel every year over the life of the vehicle. That translates into a savings of more than $37,000 per year per vehicle for buses currently running on diesel fuel.¶ The FTA’s National Fuel Cell Bus Program was created to develop affordable hydrogen fuel cell buses for the nation’s public transit agencies and to increase public acceptance of fuel cell-powered vehicles. The 11 projects were selected among 26 proposals seeking $52 million in federal funds.

### General No Political Capital Link

#### No link to Presidential political capital—empirically congress puts the funding for fuel cells in over the presidents objection. Empirically no political capital is required

McDermott 09 (Mat McDermott, masters in environment and energy policy, Treehugger, Congress Hearts Hydrogen: Federal Fuel Cell Funding Could Soon Be Restored, 7-22-09 http://www.treehugger.com/corporate-responsibility/congress-hearts-hydrogen-federal-fuel-cell-funding-could-soon-be-restored.html

Energy Secretary Stephen Chu and President Obama pulled funding for hydrogen car research from the budget, saying that it was more important to concentrate on other technologies, but members of Congress aren't having any of it. The New York Times reports that both the House and the Senate are pushing forward on restoring funding, in fact more funding than was axed by Chu and Obama: In the House, in the Energy Efficiency and Renewable Energy Program, $153 million was approved last Friday for hydrogen and fuel cells, with $40.45 million going to producing hydrogen from coal. (Yes, hydrogen from coal -- hardly what I'd call renewable energy, nor a particularly energy efficient use of resources...) In the Senate, a total of $190 million was approved for the same program. If approved in its entirety this would be some $20 million-plus more than was in the original budget.

### Plan Popular Turns

#### The plan would be popular in rust belt swing states

Crowley 09

Environmental Defense Fund Environmental Defense Fund has linked science, economics, law and innovative private-sector partnerships to create breakthrough solutions to the most serious environmental problems.

http://world-wire.com/news/0910260001.html

Increasing government investment in conventional and green transit bus systems would create high-quality manufacturing jobs, especially in states with double-digit unemployment rates, while significantly cutting auto-related global warming pollution, according to a new report released today.¶ The high unemployment states include: California (12.2%), Indiana (10%), Michigan (15.3%), and Ohio (10.1%). The study is timely because Congress is debating renewal of the federal transportation bill, which provides funds to help local bus systems purchase equipment. The current transportation bill expired in September, but was extended until later this month, and is expected to be extended longer as Congress continues developing the renewed bill.¶ Current U.S. transportation policy favors highway spending and deemphasizes public transit, so bus orders are small and sporadic, making it difficult for the bus industry to grow, according to the study. “If federal, state, and local policy were to shift to a clear, sustained commitment to public transit, the nation would have the manufacturing capability to meet the resulting increased demand for transit buses,” the study concludes.¶ Entitled “Public Transit Buses: A Green Choice Gets Greener,” the study is the 12th installment of the series, “Manufacturing Climate Solutions: Carbon-Reducing Technologies and U.S. Jobs,” prepared by researchers at the Duke University Center on Globalization, Governance & Competitiveness and sponsored by Environmental Defense Fund.¶ While domestic uncertainty about transit funding stymies bus manufacturing for U.S. markets, the study notes that U.S. companies still have managed to establish themselves as global leaders in hybrid bus manufacturing. However, European firms are rapidly catching up, in part because of their governments’ long-term commitment to public transit.¶ The United States was an early leader of compressed natural gas (CNG) transit bus technology development, the most common type of green bus worldwide, and already has an extensive refueling infrastructure for CNG, with CNG pipelines connecting the entire continental United States. Bus fleets throughout the United States have incorporated CNG, including the Los Angeles Transit Authority, which operates 2,200 CNG buses, comprising 88 percent of its fleet. However, diesel-electric hybrid buses are rapidly overtaking CNG as the primary green bus option in the United States.¶ Early testing for hydrogen-electric hybrids is ongoing in California, at Sunline Transit, Santa Barbara Valley Transit Authority and AC Transit, and in Connecticut at CTTRANSIT. Proterra, a firm developing an electric hybrid transit bus, plans by June 2010 to have infrastructure in place for the Foothills Transit Agency, operating in the San Gabriel and Pomona Valleys in California, with four more cities to come online afterwards.¶ U.S. manufacturing for transit buses and components is located in nearly every state in the eastern United States, with the highest concentrations in Indiana, Michigan, Ohio and Pennsylvania.¶ “Many of these jobs are in Midwestern states deeply affected by the recession, where manufacturing employment and capacity, especially in the motor vehicle industry, are crucial for maintaining a leadership position throughout the recovery period and beyond,” said Marcy Lowe, lead author of the study and a research associate at the Duke University Center on Globalization, Governance & Competitiveness.

#### The plan creates an immediate increase in jobs in critical rust belt swing states Pennsylvania, Michigan and Ohio

Lowe et. al. 09

Marcy Lowe, Bengu Aytekin and Gary Gereffi of the Center on Globalization, Governance & Competitiveness, an affiliate of the Social Science Research Institute at Duke University¶ Public Transit Buses: A Green Choice¶ Gets Greener¶ http://www.cggc.duke.edu/environment/climatesolutions/greeneconomy\_Ch12\_TransitBus.pdf

It is possible, however, to make useful job estimates based on general rules of thumb in the¶ industry. For example, the leading transit bus OEMs employ approximately one employee per¶ finished transit bus, in a U.S. market estimated by the FTA’s National Transit Database at 5,000¶ to 5,500 buses annually. The bus value chain consists of supplied components, however, such¶ that a multiplier can be applied in order to approximate total employment. According to industry¶ interviews, a multiplier of 5 to 6 appears to be appropriate for the bus industry, higher than the¶ multiplier of 4 often used for the motor vehicle industry as a whole. Applying the bus multiplier,¶ total employment in the bus industry is likely to amount to 25,000 to 33,000 jobs. Many of these¶ jobs do not entail work exclusively on bus components but include overlap with other segments¶ of the motor vehicle industry.¶ The geographic distribution of selected U.S. manufacturing locations for transit buses and¶ components is shown in Figure 5. These jobs are located in nearly every state in the eastern¶ United States, with the highest concentrations in Indiana, Michigan, Ohio and Pennsylvania.¶ Several OEMs and firms involved in tires, windows, lighting and aftermarket are found in¶ California. North Carolina and South Carolina each have a number of relevant manufacturing¶ locations in nearly all segments of the value chain, including major firms such as Daimler Buses¶ North America (Orion), Freightliner Custom Chassis, Cummins, and Michelin.

#### Bus programs are popular with conservatives

Weinstock et al 11

Annie Weinstock, Walter Hook, Michael Replogle, and Ramon Cruz of the Institute for Transportation and Development Policy in New York¶ May 2011¶ Recapturing Global¶ Leadership in¶ Bus Rapid Transit http://www.itdp.org/documents/20110526ITDP\_USBRT\_Report-LR.pdf

Fiscal conservatives and fiscally-conservative¶ organizations, such as the libertarian Reason Foundation, can be strong allies in support for¶ BRT[Bus Rapid Transit]. Many fiscal conservatives recognize the need¶ for mass transit or accept that the government¶ will continue to pursue it. But the high cost of rail¶ does not necessarily fit into a fiscally conservative¶ agenda. Thus, fiscal conservatives are likely¶ to be swayed by the case for an equal ( or better )¶ transit solution that is a fraction of the cost of¶ rail. The Reason Foundation, which already supports¶ BRT, states that “funds available for transit¶ will always be limited. It is therefore incumbent¶ on policymakers to invest these limited funds¶ in ways that produce the greatest value for the¶ taxpayer dollar.”1 Further, fiscal conservatives are¶ likely to support performance-based contracting¶ of BRT[Bus Rapis Transit operations over public monopoly operations.¶ The Reason Foundation also argues that¶ “competition is one of the best ways to improve¶ transit service.”2

Plan popular - Senate Leaders superior fuel cells

Brown 11(Sherrod Brown, Senator of Ohio, Bipartisan Pair of Senators Lead Call for Continued Investment in Fuel Cells, 5/3/11 http://www.brown.senate.gov/newsroom/press/release/bipartisan-pair-of-senators-lead-call-for-continued-investment-in-fuel-cells

In Bipartisan Letter, Senators Brown, Graham Lead 14 Senators in Urging Energy Secretary Chu to Maintain Funding for Hydrogen and Fuel Cell Programs That Drive Down the Cost of Fuel Cell Systems U.S. Sens. Sherrod Brown (D-OH) and Lindsey Graham (R-SC) today called for the Department of Energy’s continued support and investment in fuel cell and hydrogen energy programs. In a letter to Energy Secretary Steven Chu, the senators urged him to maintain funding for these two programs that spur long-term job creation and expansion of new clean energy technology. “These successful energy programs—like the Stark State Fuel Cell Prototyping Center—are critical to Ohio’s economic development and in aiding our nation’s energy independence,” Brown said. “Fuel cell and hydrogen technologies are on the cusp of revolutionizing the way we use energy in Ohio and we should allocate all possible resources to encourage our state’s manufacturers, private sector investors, suppliers, and potential customers to embrace this promising new technology.” “The State of Ohio offers the fuel cell industry unmatched growth potential, Ohio has a great supply chain, a skilled workforce, the R&D strengths, and an enviable partnership with the State of Ohio and the Ohio fuel cell industry,” said Pat Valente, Executive Director of the Ohio Fuel Cell Coalition. “With continued Federal Support the industry could be creating hundreds of jobs over the next few years. Without support Ohio competitive advantage could evaporate.” “We are grateful to Senators Brown and Graham, and their 12 distinguished colleagues from across the country, for this forceful message of support to preserve American jobs and leadership in the fuel cell and hydrogen energy industry,” said Ruth Cox, president and executive director of the Fuel Cell and Hydrogen Energy Association (FCHEA). “The disproportionate budget cuts proposed by the DOE would seriously undermine American competitiveness in this core clean energy technology—the last such technology in which the U.S. has a technical and manufacturing lead. Our industry is proud to be creating jobs as part of America’s growing clean energy economy, and we are even prouder that so many notable Senators are standing up to ensure fuel cells and hydrogen energy remain an integral component of our clean energy portfolio. According to a report in Forbes Magazines, Ohio is a national leader in fuel cell development with more than 100 companies and organizations based in Ohio. Below is a list of the Ohio Fuel Cell Coalition Members. Ohio Fuel Cell Coalition Members Counties Hocking College Athens Crown Equipment Auglaize Central Ohio Technical College Coshocton, Knox, Licking NASA Glenn Research Center Cuyahoga Technology Management, Inc. (TMI) Cuyahoga Die-Matic Corporation Cuyahoga GrafTech Cuyahoga Timcal Graphite and Carbon Cuyahoga Wellman Products Cuyahoga The Lanly Company Cuyahoga Makel Engineering Cuyahoga NorTech (founding sponsor) Cuyahoga ElectroSonics Medical Inc. Cuyahoga FirstFuelCells.com Cuyahoga Case Western Reserve University Cuyahoga NexTech Materials Delaware Sierra Lobo Erie, Montgomery Battelle Franklin DJW Technology Franklin Edison Welding Institute Franklin American Electric Power (AEP) Franklin American Municipal Power Inc. Franklin Ohio Department of Development (founding sponsor) Franklin City of Westerville, Electric Division Franklin, Delaware City of Dublin Franklin, Delaware, Union Pilus Energy Inc. Hamilton University of Cincinnati Hamilton University of Toledo Lucas Refractory Specialties Inc. Mahoning Youngstown State University Mahoning EMTEC Montgomery Faraday Technology Montgomery Mound Technical Solutions Montgomery Precision Energy and Technology Montgomery Sinclair Community College Montgomery Catacel Portage Kent State University Portage Energy Technologies Inc. Richland Gorman-Rupp Industries Richland Plug Power Shelby Contained Energy Stark Rolls-Royce Fuel Cell Systems (US) Inc. Stark Stark Development Board Stark Stark State College of Technology Stark Lockheed Martin Summit Item North America Summit FirstEnergy Summit The University of Akron Summit Technical Staffing Professionals Trumbull Delphi Trumbull, Montgomery Tuscarawas County Port Authority Tuscarawas Azbil - Yamatake Sensing Controls Warren Today’s letter, joined by 12 senators, said that fuel cells and hydrogen energy systems—which are among the DOE’s most successful programs—must continue to play an important role in our nation’s energy diversification.

#### Plan popular – house and senate loves it

McDermott 09 (Mat McDermott, masters in environment and energy policy, Treehugger, Congress Hearts Hydrogen: Federal Fuel Cell Funding Could Soon Be Restored, 7-22-09 http://www.treehugger.com/corporate-responsibility/congress-hearts-hydrogen-federal-fuel-cell-funding-could-soon-be-restored.html

Energy Secretary Stephen Chu and President Obama pulled funding for hydrogen car research from the budget, saying that it was more important to concentrate on other technologies, but members of Congress aren't having any of it. The New York Times reports that both the House and the Senate are pushing forward on restoring funding, in fact more funding than was axed by Chu and Obama: In the House, in the Energy Efficiency and Renewable Energy Program, $153 million was approved last Friday for hydrogen and fuel cells, with $40.45 million going to producing hydrogen from coal. (Yes, hydrogen from coal -- hardly what I'd call renewable energy, nor a particularly energy efficient use of resources...) In the Senate, a total of $190 million was approved for the same program. If approved in its entirety this would be some $20 million-plus more than was in the original budget.

#### Bus spending is popular even with people who would not use the system

Brosch 03

Gary Brosch¶ Executive Committee¶ National Bus Rapid Transit Institute; University of Florida ¶ Hearing: Bus Rapid Transit and Other Bus Service Innovations¶ Tuesday, June 24, 2003 <http://banking.senate.gov/public/index.cfm?FuseAction=Hearings.Testimony&Hearing_ID=c40237a7-97a6-42e2-93e5-29b6c307ee50&Witness_ID=bd0f6625-b1f2-4f79-9bbc-eeb2adc61072>

A surprising and important lesson we have learned is that non-users of transit respond positively to BRT systems. Let me tell you why this is the case and why it is important. Non-transit users like BRT [Bus Rapid Transit] systems because they are perceived as being cost-effective and highly utilized. No one likes to see near empty buses or trains. BRT systems operating with very frequent service, with mostly full buses, in a cost-effective manner are pleasing even to the non-user. Given the relatively low percentage of taxpayers riding transit, it is important that non-transit users perceive that their tax dollars are being used wisely. Without the support of non-users, local funding commitments would not be possible. With the support of BRT system users and non-users, local communities are finding BRT a truly win-win alternative.

#### Plan is popular--Unions will support bus transit expansion

Weinstock et al 11

Annie Weinstock, Walter Hook, Michael Replogle, and Ramon Cruz of the Institute for Transportation and Development Policy in New York¶ May 2011¶ Recapturing Global¶ Leadership in¶ Bus Rapid Transit http://www.itdp.org/documents/20110526ITDP\_USBRT\_Report-LR.pdf

Recently, new reformist leadership was elected to¶ the presidency of the Amalgamated Transit Union¶ ( ATU ), the branch of the Teamsters that works in¶ public transportation. ATU represents most of the¶ bus drivers in most cities in the United States. The¶ Transport Workers Union ( TWU ) represents bus¶ drivers only in New York City,4 Philadelphia, Houston,¶ and San Francisco.5 The rest belong to ATU.¶ Due to the current fiscal crisis, the union movement¶ is taking a new interest in BRT[Bus Rapid Transit]. There were¶ 1,100 layoffs in Chicago recently. Detroit lost¶ twenty-five percent of its bus drivers, and the¶ remainder took a pay cut. The entire bus system¶ of Clayton City, Georgia ( a suburb of Atlanta ) was¶ shut down, resulting in the loss of hundreds of¶ union jobs. Transit sector job losses are a major¶ issue in dozens of cities across the country.

### Plan Unpopular Turns

#### Bus investments are unpopular

Freemark 11

Yonah Freemark is reporter for the Transport Politic http://www.thetransportpolitic.com/2011/05/25/the-silly-argument-over-brt-and-rail/

The real divisions between bus and rail are political: For those who would fight for improved transit systems in their cities, the truth is that rail projects do certainly have more appeal among members of the public. Thus a billion-dollar rail project may be easier to stomach for a taxpaying and voting member of the citizenry than a quarter-billion BRT line. While the former is qualitatively different than what most car drivers are used to, the latter mode is too easily lumped in with the city bus, which car users have already paid to avoid.¶ Better transit can come in many forms, but in a country in which the vast majority of people have no contact with public transportation this side of Disney World, making the argument for investments in more buses is difficult, to say the least. BRT is just not sexy until you’ve experienced it. Which is why the considerable success of BRT in South America has not convinced many U.S. cities to abandon their ambitions for more rail.

Pro Bus political forces are small and insignificant and swamped by groups opposing it

Weinstock et al 11

Annie Weinstock, Walter Hook, Michael Replogle, and Ramon Cruz of the Institute for Transportation and Development Policy in New York¶ May 2011¶ Recapturing Global¶ Leadership in¶ Bus Rapid Transit http://www.itdp.org/documents/20110526ITDP\_USBRT\_Report-LR.pdf

The chapter reviews political obstacles to the¶ development of BRT[Bus Rapid Transit] in the United States, including¶ lack of awareness of BRT in political circles,¶ politicians’ lack of control over transit systems, a¶ small, less politically-powerful transit-riding constituency,¶ and lack of a clear corporate lobby in¶ support of BRT. Organized labor has the potential¶ to be a strong proponent of BRT, and presents no¶ real obstacle to gold-standard BRT, but thus far¶ has played a minor role. Local citizens’ groups,¶ businesses, motorists, and concerned individuals¶ are also more empowered in the United¶ States than in other countries to oppose changes¶ proposed by the government, and this provides¶ another obstacle to BRT development.

#### Bus expansion is unpopular and will generate backlash from the suburbs and the cities

Weinstock et al 11

Annie Weinstock, Walter Hook, Michael Replogle, and Ramon Cruz of the Institute for Transportation and Development Policy in New York¶ May 2011¶ Recapturing Global¶ Leadership in¶ Bus Rapid Transit http://www.itdp.org/documents/20110526ITDP\_USBRT\_Report-LR.pdf

Many communities in the United States have¶ opposed new BRT[Bus Rapid Transit] lines in higher-income neighborhoods¶ because they feared it would bring¶ lower-income minorities and elevated crime rates¶ to the neighborhood, though groups will rarely¶ admit that this lies behind their opposition.¶ On the other side, some lower-income neighborhoods¶ have opposed BRT because of the concern¶ that they are getting a second-class solution.¶ This is especially the case in cities where higherincome¶ neighborhoods get light rail or where¶ lower-income communities have been promised¶ rail and are instead getting BRT.¶

#### Bus expansion is unpopular

Earl Blumenauer 11

Rep, Third Congressional District, Oregon

Opening letter In Annie Weinstock, Walter Hook, Michael Replogle, and Ramon Cruz of the Institute for Transportation and Development Policy in New York¶ May 2011¶ Recapturing Global¶ Leadership in¶ Bus Rapid Transit http://www.itdp.org/documents/20110526ITDP\_USBRT\_Report-LR.pdf

While bus rapid transit has worked well in large and medium-sized cities from Bogotá, Colombia to¶ Curitiba, Brazil to Guangzhou, China, it is less well known in the United States. BRT[Bus Rapid Transit is sometimes met¶ with skepticism and resistance from transportation planners and engineers who are unfamiliar with¶ how to build high-quality BRT systems, since we have limited examples here at home. Citizens too¶ are often concerned about dedicating the requisite street space to buses.

## AT: Platinum disad

#### Turn, The problem now is a surplus of platinum on the market and we need a short term increase in demand to stabilize platinum

Mining Daily May 2012

http://www.miningweekly.com/article/platinum-demand-game-changer-needed-to-balance-market-2012-05-04

A game-changing shift in demand would be required to alleviate the global platinum surplus, which stood at 735 000 oz last year, precious metals consultancy Thomson Reuters GFMS global head of precious metals Paul Walker said this week.¶ “My fear is that we are entering a period of structural surpluses in the platinum market where there is a degree of agility on the supply side and nothing in terms of demand that will bring about a balanced market.”¶

#### Platinum suppliers will easily adjust to increased demand and they empirically did so with catalytic convertors

Thomas 12

C. E. (Sandy) Thomas has over 50 years experience in scientific research and related engineering activities. He was the Director of the Laser and Optics Division of KMS Fusion He was a member of the Board of Directors and served on the Executive Committee of the National Hydrogen Association. Dr. Thomas has BSEE, MSEE and Ph.D. degrees from the University of Michigan <http://www.cleancaroptions.com/html/fuel_cell_vehicle_faq.html>

Is there enough platinum in the world to support fuel cell vehicles?¶ Short answer: Yes, there is enough platinum in the world (primarily in South Africa and Russia) so that mining companies can gradually increase their annual platinum production to support a ramp-up in fuel cell electric vehicles over the next few decades.¶ Long answer: Some analysts have pointed out that if we suddenly converted all passenger vehicles to FCEVs overnight with today’s catalyst loading, then the auto industry would require the world’s entire platinum production capacity, implying that there is not enough platinum¶ But all cars could not be converted to fuel cell operation overnight; any major technology innovation takes many years if not decades to achieve significant market penetration. The mining industry would have many years to ramp up production to meet new platinum demand, just as they did when automobile catalytic converters began using significant quantities of platinum (and palladium). So the key question is how much platinum is available around the world, not how much is currently mined each year.¶ Based on the FCEV ramp up used in this model, the platinum mining industry would have to increase their production by less than 1% per year to cover the US FCEV market. The DOE analysis firm Tiax has conducted a detailed analysis of platinum demand to support a global FCEV deployment, and their data show that a 3%/year growth rate in platinum production should be enough. This is approximately the same growth rate that the platinum industry achieved in the 1960 to 2000 time period when catalytic converters were being deployed. Johnson Matthey, a major precious metal supplier, has suggested that up to 4%/year platinum growth rate should be feasible.¶ The Tiax report concluded that a robust global FCEV deployment would consume between 22% and 26% of currently known platinum resources by 2050. Presumably by that time (if not long before), fuel cells running on non-precious metal catalysts will have been developed.¶

#### Non Platinum fuel cells are coming now

Sacramento Bee 7-23-12

http://www.sacbee.com/2012/07/23/4650912/fuel-cell-market-forecast-to-2015.html

For decades, researchers have been experimenting with various metals to replace expensive platinum catalysts in proton exchange membrane (PEM) fuel cells. As per our findings, recent R&D activities related to fuel cell have developed platinum free fuel cells which are expected to significantly reduce the cost of fuel cell in the coming years. The report covers the major R&D initiatives along with patents that have been filed.

#### More evidence

Science Daily 11

Working Towards Replacing Platinum in Fuel Cells: Performance of Iron-Based Catalysts Improved http://www.sciencedaily.com/releases/2011/08/110810133118.htm

Having pioneered the development of the first high-performance iron-based catalyst for fuel cells, researchers at INRS recently achieved a second major advance. They developed a new and improved iron-based catalyst capable of generating even more electric power in fuel cells for transportation applications. Previously, only platinum-based catalysts could produce similar performance. The new research findings from the team of Professor Jean-Pol Dodelet were published in Nature Communications. With these new and promising results, we bolster the prospect of iron-based catalysts replacing platinum ones in the electrochemical reduction of oxygen, one of two reactions needed to activate the electric power generator we call a fuel cell. Platinum is rare and very costly, whereas iron is the second most abundant metal on earth and is inexpensive.

#### Not Unique—Increased platinum demand is inevitable because of Chines jewelry consumption

Seth 12

 Shivom Seth Reporter for Mine World Wednesday , 29 Feb 2012

http://www.mineweb.co.za/mineweb/view/mineweb/en/page35?oid=146320&sn=Detail&pid=102055

Global recession or not, China has remained the world's largest platinum consumer in 2011. Net demand for platinum among Chinese consumers last year was 1.325 million ounces, or 10% more than the previous year, with the jewellery industry predicting that its proportion of the strong trend is expected to last all through 2012.¶ Platinum traded at $1,712.88 an ounce early Wednesday, up from a three year average of almost $1,546 an ounce.¶ Traders said demand jumped in China mainly as a result of higher levels of purchasing. "Despite higher prices, purchases of platinum by China was predicted to rise by 35,000 oz to 1.69 million ounces in 2011. Though it has been slightly lower, the 10% jump suggests that manufacturers, retailers and even consumers are adjusting to higher price levels," said an analyst tracking the white metal.¶ He added that the economic uncertainty and the higher prices had, however, ensured that gross platinum demand by the European jewellery industry had actually weakened. "The high price of gold all through 2011 also appears to have encouraged consumers to choose platinum pieces rather than gold items, with just a very small price difference," said the analyst.¶ China though continued to be the world's largest market for platinum jewellery. Data released by the Platinum Guild International showed that China continued to rule the roost in 2011.¶ In a report, the Guild has noted that in general, China and India had a larger appetite for platinum, while consumption in the US and Japan remained constant in 2011. What has contributed hugely to this phenomenon, according to CEO Gao Weizheng of the Guild, is the proliferation of retail jewellery stores seen in second and third-tier Chinese cities over the past 12 months. ¶ The Guild has predicted that a further expansion of retail networks in China will provide a new stimulus for the industry and that platinum will continue to hold the attention of Chinese jewellery buyers over gold, with a dramatic upswing in Japan also to be witnessed this year.

### Obama good Link Turns

#### Obama will lose now because of Unemployment

Cafferty 7-19-12

Jack Cafferty- CNN

http://caffertyfile.blogs.cnn.com/2012/07/19/should-the-economy-prevent-president-obama-from-winning-a-second-term/?hpt=hp\_t2

Storm clouds are gathering for President Barack Obama.¶ The latest New York Times/CBS News poll shows Mitt Romney with a 1-point lead over Obama with 4% of voters undecided. And when asked about the economy, the difference is even more glaring. Romney holds an 8 percentage point lead over the president. Just 39% of those surveyed approve of the president's handling of the economy. That's down from 44% in April.¶ More bad news for the president:¶ In the crucial battleground of Virginia, Romney has closed a 12-point gap with Obama, and the two are now tied, according to the latest Quinnipiac University poll. In 2008, Obama became the first Democrat to win that state since 1964.¶ Suffice to say that if there is no significant improvement in the economy - and it better start soon - Obama could have problems in Virginia and elsewhere.¶ The jobs picture remains bleak. Unemployment has been above 8% for 41 consecutive months now. Forty-one months. This morning, first-time jobless claims jumped sharply - up 34,000 from the previous week.¶ A new Gallup Poll shows Americans overwhelmingly say creating "more or better jobs" is the most important thing the government can do to jump-start the economy. That’s why some of the president's words and actions aren't helping much.

#### Obama will lose the rust belt now and it will cost him the election

Feehery 6-20-12

John Feehery is currently the President of Quinn Gillespie Communications and Director of QGA Government Affairs.<http://www.thefeeherytheory.com/2012/06/20/rust-belt-moving-against-obama/>

While tactically this segmented strategy may be smart, strategically it could turn out to be a disaster for the President. It has become clear that the Obama campaign is giving up on white, working class voters. They don’t like the Obama very much, and with the economy continuing to be a basket case, they blame him for their economic troubles.¶ Making specific appeals to African-Americans, gays and Hispanics doesn’t help win white voters. And this can hurt in especially in the Rust Belt. Pennsylvania is 80 percent white. Michigan is 76 percent white. Wisconsin is 83 percent white. Iowa is 88 percent white.¶ If Obama gets less than 30 percent of the white vote in these states, he is toast. And right now, the trend lines are not looking good for him.¶ On the other hand, Mitt Romney has be careful not to alienate the entire Hispanic community. Florida’s non-Hispanic white vote percentage is only 58 percent. Texas, shockingly, is only 45 percent.¶ This tells me two things.¶ First, Obama is in big danger of losing the Rust Belt in this coming election.

#### Lack of job stimulation will cost Obama the election

Thomasson 7-12-12

Dan K. Thomasson, former editor of the Scripps Howard News Service

<http://www.reporternews.com/news/2012/jul/13/dan-k-thomasson-82-percent-unemployment-obamas/>

The latest job figures make it increasingly easy to see a change in the White House in November based on an economy that can't seem to pull itself out of the doldrums and a president who insists he's not to blame. With a few more months of substandard job creation, how likely is it that President Barack Obama will be the only incumbent since Franklin D. Roosevelt to survive an unemployment rate higher than 7.2 percent?¶ The Labor Department's announcement Friday of just 80,000 new jobs in June — 20,000 less than had been forecast — didn't budge the overall jobless rate off the current 8.2 percent mark, meaning unemployment has been stuck above 8 percent for 41 months. The stock market responded negatively to the jobs number.¶ Some 13 million Americans are out of work, and a whole bunch of them have given up looking. Time's a-wasting for any kind of a serious turnaround that might save this administration. If history is any judge, it doesn't matter much whether Mitt Romney can do any better. A whole lot of voters — more every day — will be willing to roll the dice in Romney's favor.¶ Now we are told that the Federal Reserve is laying plans for more economic stimulation, under the assumption that it may be necessary to keep away the wolves of a second recession.¶ What exactly the Fed would do is not clear — take another shot at lowering interest rates, perhaps. But some economists don't think the Fed has enough arrows left in its quiver to matter much.¶ There are some positive signs in all this. The housing market limped up slightly and some sectors showed minor gains in employment. Health care and manufacturing had 13,000 and 11,000 new jobs, respectively. But all in all, it was a bad day for the president and his campaign, made worse by a realization that too much time has been spent worrying about the health care reform law and its big price tag.¶ If you doubt the impact the economic numbers have on the election, go back to 1992. The first George Bush had an 89 percent approval rating after Desert Storm, but it declined sharply later that year to 36 percent when Democratic challenger Bill Clinton's campaign tried to show the president lacked concern over hard times. As Clinton campaign strategist James Carville said of the key issue, "It's the economy, stupid."¶ In the current campaign, Romney wasted no time in charging that the president's policies had led to the continued anemic outlook.¶ The 200,000-plus jobs created a few months ago would have to be repeated for three years, the experts say, before the economic picture could be as rosy as before 2008.¶ You have to wonder what the president can do at this stage to overcome the situation. He has called for more spending on infrastructure that would bolster the public employee numbers. Good luck with that from a Congress in which Republicans and even some Democrats now are committed to cutting spending. Besides, don't look for any relief from Capitol Hill until after November.¶ Romney contends the job market is being curtailed by corporate tax rates that are too high and U.S. trade policy that is too restrictive. He also lambasted the administration for overregulation, a common complaint among Republicans.¶ Obama's tour through the hard-hit Rust Belt states has been predictable. He has taken credit for policies that he claims saved the auto industry and he has talked about such elusive goals as tapping into the American character. It is difficult, however, to imagine how this will sell among people who have lost their jobs or fear they are about to and see no way out of the dilemma.¶ This president is in what the first Bush liked to refer to as "deep doo-doo." The pocketbook issue is the only thing that matters.

#### Unemployment in the rust belt is the key to a Romney win

Stirewalt 6-18-12

Chris Stirewalt is digital politics editor for Fox News ¶ Romney’s Path to Presidency Runs Through Rust Belt¶ http://www.foxnews.com/politics/2012/06/18/romneys-path-to-presidency-runs-through-rust-belt/#ixzz21Tyf99Xe

It’s no accident that Mitt Romney’s first barnstorming bus tour as de facto Republican nominee takes him through the Rust Belt. Economically distressed, packed with working-class white voters and politically volatile, these states represent Romney’s best chance for a victory in the fall.¶ While Romney must certainly win Florida and reclaim the two southern states snatched by President Obama in 2008, Virginia and North Carolina, Romney has the most room to grow in the Rust Belt.¶ During his five-day swing Mr. Romney’s bus will be driving through eight states worth 105 electoral votes, all won by Obama. While Indiana is all but certain to switch back to red, and Ohio and Iowa stand out as true swing states, most of the rest promise to be tough tests for Romney, particularly Pennsylvania, Michigan and Wisconsin.¶ But there is more potential in this region for Romney than any other GOP nominee in a generation. The key to winning these states for Republicans in the modern era is to forge a coalition between moderate suburbanites and more conservative rural and small-town voters.¶ With antipathy toward Obama very strong in rural counties and Romney a candidate seemingly tailor-made for suburban voters, that coalition may be in reach for the GOP in a way not seen since the Reagan era.¶ The Rust Belt was where the Republicans got wiped out in 2006 and 2008 House elections, but also where the GOP staged its strongest comeback in 2010.¶ More than half of the 35 seats reclaimed by Republicans in the 2010 election from Democratic victories in the previous two cycles came in the states on Romney’s circuit and 22 of the 63 overall Republican pickups nationwide came from these states along Interstate 70 and to its north.¶ Obama says his target region is the Mountain West, partly a function of the fact that his campaign manager hails from the region and has staked so much on holding and gaining in that part of the country. Obama’s move to grant temporary amnesty to illegal immigrants who came to America as minors is evidence of how far the president is willing to go to keep Colorado, Nevada and New Mexico in his column and try to make Republicans waste resources in Arizona.¶ President Obama also needs to play some defense out West, too. Since Obama is almost guaranteed to give back 26 electoral votes from North Carolina and Indiana, Romney could really box in the president if he were to pluck another 15 electoral votes from Nevada and Colorado away from the blue team.¶ But there are only 20 electoral votes up for grabs in states beyond the Mississippi River Valley.¶ With Obama staggering a bit after the opening round of the general election fight, the political universe is already shrinking down to a trapezoidal swatch of the nation from Richmond, Va. to Des Moines, Iowa to Milwaukee, Wis., to Manchester, N.H. and back to Richmond. The residents of this quadrangle will see more of the candidates (and political ads) than anyone else.¶ Florida, with as many electoral votes now as shrinking New York, will remain a strong temptation for Obama, but the real battleground for this election will be the same as it has been for three consecutive cycles. And at the heart of it is the Rust Belt.¶ The demographics and economic conditions of these states bode well for Romney. After 40 years of economic decline, the Panic of 2008 and resulting recession has proven particularly painful in these states. Areas with shrinking populations and low-growth economies are generally shielded from the worst of a downturn, but also often have the hardest time regaining even nominal growth.¶ There are success stories – a natural gas boom in some regions to the east and strong, stable job growth in Iowa – but the overall picture is of a region pushed to the brink by a perpetually lousy economy.¶ Romney’s message is that Obama has made the recession worse and longer than necessary by adding an expensive, complex health-insurance entitlement program and new environmental and labor restrictions onto an already sagging economy.

#### The plan would create an employment boom in rust belt swing states

Crowley 09

Environmental Defense Fund Environmental Defense Fund has linked science, economics, law and innovative private-sector partnerships to create breakthrough solutions to the most serious environmental problems.

http://world-wire.com/news/0910260001.html

Increasing government investment in conventional and green transit bus systems would create high-quality manufacturing jobs, especially in states with double-digit unemployment rates, while significantly cutting auto-related global warming pollution, according to a new report released today.¶ The high unemployment states include: California (12.2%), Indiana (10%), Michigan (15.3%), and Ohio (10.1%). The study is timely because Congress is debating renewal of the federal transportation bill, which provides funds to help local bus systems purchase equipment. The current transportation bill expired in September, but was extended until later this month, and is expected to be extended longer as Congress continues developing the renewed bill.¶ Current U.S. transportation policy favors highway spending and deemphasizes public transit, so bus orders are small and sporadic, making it difficult for the bus industry to grow, according to the study. “If federal, state, and local policy were to shift to a clear, sustained commitment to public transit, the nation would have the manufacturing capability to meet the resulting increased demand for transit buses,” the study concludes.¶ Entitled “Public Transit Buses: A Green Choice Gets Greener,” the study is the 12th installment of the series, “Manufacturing Climate Solutions: Carbon-Reducing Technologies and U.S. Jobs,” prepared by researchers at the Duke University Center on Globalization, Governance & Competitiveness and sponsored by Environmental Defense Fund.¶ While domestic uncertainty about transit funding stymies bus manufacturing for U.S. markets, the study notes that U.S. companies still have managed to establish themselves as global leaders in hybrid bus manufacturing. However, European firms are rapidly catching up, in part because of their governments’ long-term commitment to public transit.¶ The United States was an early leader of compressed natural gas (CNG) transit bus technology development, the most common type of green bus worldwide, and already has an extensive refueling infrastructure for CNG, with CNG pipelines connecting the entire continental United States. Bus fleets throughout the United States have incorporated CNG, including the Los Angeles Transit Authority, which operates 2,200 CNG buses, comprising 88 percent of its fleet. However, diesel-electric hybrid buses are rapidly overtaking CNG as the primary green bus option in the United States.¶ Early testing for hydrogen-electric hybrids is ongoing in California, at Sunline Transit, Santa Barbara Valley Transit Authority and AC Transit, and in Connecticut at CTTRANSIT. Proterra, a firm developing an electric hybrid transit bus, plans by June 2010 to have infrastructure in place for the Foothills Transit Agency, operating in the San Gabriel and Pomona Valleys in California, with four more cities to come online afterwards.¶ U.S. manufacturing for transit buses and components is located in nearly every state in the eastern United States, with the highest concentrations in Indiana, Michigan, Ohio and Pennsylvania.¶ “Many of these jobs are in Midwestern states deeply affected by the recession, where manufacturing employment and capacity, especially in the motor vehicle industry, are crucial for maintaining a leadership position throughout the recovery period and beyond,” said Marcy Lowe, lead author of the study and a research associate at the Duke University Center on Globalization, Governance & Competitiveness.

#### The plan creates an immediate increase in jobs in critical rust belt swing states Pennsylvania, Michigan and Ohio

Lowe et. al. 09

Marcy Lowe, Bengu Aytekin and Gary Gereffi of the Center on Globalization, Governance & Competitiveness, an affiliate of the Social Science Research Institute at Duke University¶ Public Transit Buses: A Green Choice¶ Gets Greener¶ http://www.cggc.duke.edu/environment/climatesolutions/greeneconomy\_Ch12\_TransitBus.pdf

It is possible, however, to make useful job estimates based on general rules of thumb in the¶ industry. For example, the leading transit bus OEMs employ approximately one employee per¶ finished transit bus, in a U.S. market estimated by the FTA’s National Transit Database at 5,000¶ to 5,500 buses annually. The bus value chain consists of supplied components, however, such¶ that a multiplier can be applied in order to approximate total employment. According to industry¶ interviews, a multiplier of 5 to 6 appears to be appropriate for the bus industry, higher than the¶ multiplier of 4 often used for the motor vehicle industry as a whole. Applying the bus multiplier,¶ total employment in the bus industry is likely to amount to 25,000 to 33,000 jobs. Many of these¶ jobs do not entail work exclusively on bus components but include overlap with other segments¶ of the motor vehicle industry.¶ The geographic distribution of selected U.S. manufacturing locations for transit buses and¶ components is shown in Figure 5. These jobs are located in nearly every state in the eastern¶ United States, with the highest concentrations in Indiana, Michigan, Ohio and Pennsylvania.¶ Several OEMs and firms involved in tires, windows, lighting and aftermarket are found in¶ California. North Carolina and South Carolina each have a number of relevant manufacturing¶ locations in nearly all segments of the value chain, including major firms such as Daimler Buses¶ North America (Orion), Freightliner Custom Chassis, Cummins, and Michelin.

#### Employment in the Rust Belt is key to the election

Kotkin 6-25-12

Joel Kotkin is a presidential fellow in urban futures at Chapman University¶ Despite Obama’s Policies, The Rust Belt’s Revival Could Save His Campaign¶ http://www.thedailybeast.com/articles/2012/06/25/despite-obama-s-policies-the-rust-belt-s-revival-could-save-his-campaign.html

The health of the manufacturing economy may prove even more important to the president’s reelection than the Dow Jones index. If industrial growth softens or goes into reverse—for instance, if Europe’s economic troubles cross the Atlantic—the Midwest will feel the effects first.¶ And if the Rust Belt suffers, Obama’s path to a second term gets that much tougher.

#### Improving status for rust belt workers equals an Obama win

Kotkin 6-25-12

Joel Kotkin is a presidential fellow in urban futures at Chapman University¶ Despite Obama’s Policies, The Rust Belt’s Revival Could Save His Campaign¶ http://www.thedailybeast.com/articles/2012/06/25/despite-obama-s-policies-the-rust-belt-s-revival-could-save-his-campaign.html

Yet improving conditions for those workers—particularly in the industrial heartland—could save his flagging presidency.¶ The industrial zone’s four key states—Michigan, Ohio, Wisconsin, and Pennsylvania—constitute the most critically contested territory in this year’s contest. Fifty-four electoral votes are at play here, with Pennsylvania’s 20 votes alone equaling all those at stake in the much-ballyhooed battleground of the Intermountain West (Colorado, Nevada, and New Mexico).