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RPS Comp. Adv: 1ac (1/2)

A.) Federal leadership on alternative energy is key to spurring innovation which is vital to America reclaiming it's technological leadership

Raveche, President of Stevens Institute of Technology, 2K7

(Hal, "Technology innovation; America needs a new strategy now" Washington Times January 26th)

While there is some validity to both sides of the argument, the growing prevalence of a risk-averse mindset is stifling the American entrepreneurial spirit that fuels the national economic engine.

Government may have been among the first to corner the risk-aversion market. The operating mantra for the bureaucracy was, and remains, that the punishment for taking a risk and making a mistake to be ridiculed, disciplined or fired was far more severe than the potential reward for thinking beyond the norm and dreaming up with a better idea, program or policy.

The result is to discourage innovation by many of the people who know best how to fix the broken programs that they deal with every day.

Elected leaders, as well as CEOs, who embark on radically different paths are often lambasted by the protectors of the status quo and likely to find themselves with the label "former" attached to their titles simply for traveling down the path of innovation.

Risk aversion has had a devastating impact on America's leadership in technology. The fact is, no president, Republican or Democrat, and no previous Congress has ever developed a meaningful national technological strategy for the United States.

Certainly, there were fits and starts the Kennedy Space Program, the Carter Shale Oil Program, the Reagan Strategic Defense Initiative and the Clinton/Gore Human Genome Initiative but never has a comprehensive and consistent strategy been employed.

The failure may be directly linked to the potential backlash that could result from a president or Congress being accused of "picking the winners and losers" for future business growth.

Unfortunately, this kind of government thinking has reached the private sector.

The Sarbanes-Oxley reforms, whose purpose was improving accountability and transparency in corporate governance, has also chased innovative thinkers from corporate boardrooms. Choosing to serve on a corporate board or deciding to take a small private company public may now not be worth the risk.

Risk aversion in the private marketplace has had a paralyzing effect on high-tech growth. In 2000, there were an estimated 170 initial public offerings for high-tech companies; by 2006 the number of such IPOs dwindled to 35.

Economic competition from Singapore, Taiwan, Korea, India, China and Japan reminds us of the atrophy in the domestic auto industry. The burgeoning presence of nail and tanning salons on Main Street USA stands in stark contrast to Singapore's stem-cell "research city," Taiwan's science parks and the new R&D labs in Bangalore, India.

To be remembered for rebuilding America, our president must commit to re-establishing the global technological leadership of the United States and take a risk on some technologies that meet our national needs, such as alternative energy, for decades to come.

If the new Congress really wants to improve the future for America's working families, it will leave the self-congratulatory echo chamber about enhancements to the minimum wage and get down to the hard work of implementing a national strategy for technological innovation, even if this threatens the defenders of the status quo.

The 110th Congress can be inspired by the bipartisan 1980 Bayh-Dole Act, enabling universities to own intellectual property from federally sponsored research. Prior to this transformational legislation, the annual number of university patents fluctuated below 500. By 1990 it doubled and, by 2003 it exceeded 3,000, with a threefold increase in the number of participating universities, which furthered high tech economic growth.

We need such visionary initiatives now from Congress and the president.

RPS Comp. Adv: 1ac (2/2)

US technological leadership and economic competitiveness is key to hegemony

Khalilzad, fellow at RAND, 95

(Zalmay, "Losing the moment? The United States and the World after the Cold War?" Washington Quarterly Vol 18 no 2 Spring)

The United States is unlikely to preserve its military and technological dominance if the U.S. economy declines seriously. In such an environment, the domestic economic and political base for global leadership would diminish and the United States would probably incrementally withdraw from the world, become inward-looking, and abandon more and more of its external interests. As the United States weakened, others would try to fill the Vacuum.

To sustain and improve its economic strength, the United States must maintain its technological lead in the economic realm. Its success will depend on the choices it makes. In the past, developments such as the agricultural and industrial revolutions produced fundamental changes positively affecting the relative position of those who were able to take advantage of them and negatively affecting those who did not. Some argue that the world may be at the beginning of another such transformation, which will shift the sources of wealth and the relative position of classes and nations. If the United States fails to recognize the change and adapt its institutions, its relative position will necessarily worsen.

C.) Loss of American hegemony leads to nuclear war

Khalilzad, fellow at RAND, 95

(Zalmay, "Losing the moment? The United States and the World after the Cold War?" Washington Quarterly Vol 18 no 2 Spring)

Under the third option, the United States would seek to retain global leadership and to preclude the rise of a global rival or a return to multipolarity for the indefinite future. On balance, this is the best long-term guiding principle and vision. Such a vision is desirable not as an end in itself, but because a world in which the United States exercises leadership would have tremendous advantages. First, the global environment would be more open and more receptive to American values -- democracy, free markets, and the rule of law. Second, such a world would have a better chance of dealing cooperatively with the world's major problems, such as nuclear proliferation, threats of regional hegemony by renegade states, and low-level conflicts. Finally, U.S. leadership would help preclude the rise of another hostile global rival, enabling the United States and the world to avoid another global cold or hot war and all the attendant dangers, including a global nuclear exchange. U.S. leadership would therefore be more conducive to global stability than a bipolar or a multipolar balance of power system.

RPS Comp. Adv: Renewable key Tech Comp- Squo jacks

Renewable Energy is vital to sustaining our economic and technological competitiveness- squo policies surrender the market to foreign countries

Kammen, Director of Renewable and Appropriate Energy Lab (RAEL), 2K7

(Daniel, Testimony before Senate Environment & Public Works Committee, US Fed News September 25)

Senator Barrie Sanders, Hearing Chair, and other members of the Senate Environment and Public Works Committee, I appreciate your invitation to appear before you today. I am particularly appreciative your inspiring efforts to develop a comprehensive approach to environmental quality, human health protection, and economic development for the nation. I am grateful for the opportunity today to speak with you on the energy, climate, and security issues that face our nation and the planet.

In this testimony I highlight the key finding that while **a continuation of business as usual energy choices will result in socially, politically, and environmentally costly and destructive climate change**, the motivation to invest in solutions to climate change can be simply that a green economy can also be exceedingly vibrant. In fact, **an economy built around a suite of low-carbon technologies can be resistant to price shocks as well as secure against supply disruptions as well as inclusive of diverse socioeconomic groups. A new wave of job growth - both 'high technology' and ones that transform 'blue collar labor' into 'green collar' opportunities. The combination of economic competitiveness and environmental protection is a clear result from a systematic approach to investing in climate solutions.**

Clean energy systems and energy efficiency investments also contribute directly to energy security and to domestic job growth versus off-shore migration. Renewable energy systems are more often local than imported due to the weight of biomass resources and the need for operations and maintenance.

A growing number of state, regional, and national economies are assuming leadership positions for a clean, low carbon, energy economy. These 'early actors' are reaping the economic benefits of their actions. Among the global leaders are Brazil, Denmark, Iceland Germany, Japan, Spain, all of which have made significant commitments to a green economy, **and all are seeing job growth and rapidly expanding export opportunities.** In the United States several states have embarked on significant climate protection efforts, and half of U. S. states have taken the vital step of adopting minimum levels of renewable energy requirements.

On the vitally important issue of transportation a set of European nations have followed the lead of California, Illinois and other U. S. states in adopting a Low Carbon Fuel Standard (Kammen, 2007). The goal of a Low Carbon Fuel Standard is to reduce the greenhouse impact of fossil fuel emissions, and to begin to move toward a diverse set of economically and environmentally sustainable transportation choices.

Job Growth in a Green Economy - Empirical Lessons

Expanding the use of renewable energy is not only good for our energy self-sufficiency and the environment; it also has a significant positive impact on employment. My students and I have examined the observed job growth in a number of technology sectors (Kammen, Kapadia and Fripp, 2004).

We reviewed 13 independent reports and studies that analyzed the economic and employment impacts of the clean energy industry in the United States and Europe. These studies employ a wide range of methods, which adds credence to the findings. In addition to reviewing and comparing these studies, we have examined the assumptions used in each case, and developed a job creation model which shows their implications for employment under several future energy scenarios.

RPS Comp. Adv: Squo policies prevent renewable- jacks leadership

The anti-renewable stance of the squo is crushing US technical innovation which guts competitiveness and international leadership

Ascribe Newswire 2K1

("World Leaves Bush Behind; U.S. Environmental Leaders Applaud Global Warming Treaty Negotiations" July 23rd)

While the deal reached in Bonn is by no means perfect, it is far better than the alternative of a collapse in these negotiations. It allows us to intensify efforts to confront global warming, the most serious environmental threat of the 21st century. We will have to build on this small but important down payment in the years ahead by requiring industrialized countries to make much deeper reductions in global warming pollution, creating a more robust system of financial and technology assistance to developing countries, and aggressively promoting climate-friendly energy efficiency and renewable energy technologies.

In the United States, we will now turn our attention to winning meaningful domestic policies to attack the global warming threat, including higher fuel economy standards for cars and light trucks, binding caps on carbon dioxide emissions from power plants, and **requirements that a steadily increasing share of our electricity come from clean renewable energy** sources such as wind, biomass, and solar energy. There is bipartisan support in our Congress for these initiatives, and growing public awareness of the need for the U.S. to clean up our act at home.

I am convinced that the United States will eventually join the rest of the world in ratifying and implementing the Kyoto treaty. **By rejecting Kyoto, President Bush has refused to meaningfully participate in the fight against global warming. The economic and geopolitical consequences of this irresponsible stance have become much clearer** in light of today's negotiating breakthrough. **U.S. companies will not long accept being left on the sidelines, as their competitors in Europe and Japan take advantage of the market opportunities** for clean technology exports created by the Kyoto Protocol. **President Bush must now come to understand that his failure to act on global warming jeopardizes not only the environment, but also future U.S. economic competitiveness.**

Nathalie Eddy, Greenpeace Climate campaigner

Today will go down in history as the first day of the clean energy century. It is a victory for the world and for future generations, and a monumental failure for the Bush administration. Leaders around the world have taken a significant step forward in the fight to stop global warming, while the United States has stood on the sideline, a complete non-player in these global negotiations.

Make no mistake, today's action by the assembled ministers marks one of the greatest foreign policy disasters in the history of the United States and President Bush is to blame. We **as a nation have lost a tremendous amount of international prestige and power.** We applaud the European Union for stepping into the leadership vacuum left by the misguided policies of President Bush and his corporate polluter backers.

This is not the end of a process, but rather the beginning of the next campaign. Nations must move to ratify now. Greenpeace will work harder than ever to bring the United States into the Kyoto Protocol as soon as possible. We will challenge President Bush at every step, until he understands that the American people want action now to save our climate and protect our children. It's time to put the health and well being of people ahead of the profits of the polluters in the fossil fuel industry. **Americans have long been at the forefront of technological innovation, but President Bush's actions threaten to put us behind the rest of the world in developing clean, renewable energy sources.** Energy policy is global warming policy, and President Bush has failed on both fronts. The Kyoto Protocol puts the fossil fuel industry on the road to extinction.

RPS Comp. Adv: Renewables = Tech Leadership

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RPS Comp. Advantage: Renewables key to Tech. Leadership(1/2)

Renewable energies are the market of the future and crucial to American economic and technological leadership.

Romm, acting principal deputy assistant secretary office of energy efficiency and renewable energy, 96

(Joseph, Capitol Hill Hearing Testimony FDCH, March 14th) [Fay = Chris Fay, chairman and ceo Shell UK]

This is only a scenario, it probably won't occur exactly as described. However, **our actions today can have an impact, both positive and negative.** Fay notes that **"new technologies cannot leap from laboratory to mass market over night.** They must first be tested in niche markets, where some succeed but many fail. Costs fall as they progress down the 'learning curve with increasing applications **The long term nature of the research, and the real potential for failure, is why many options must be pursued at once and why private sector companies are reluctant to invest.** Fay observes that **"renewables will have to progress quickly if they are to supply a major proportion of the world's energy** in the first half of the next century... **They can only emerge through the process of widespread commercial experimentation and competitive optimization."**

Federal investments clearly make a difference in technology development and global market share. Consider the case of photovoltaics. In 1955, Bell Laboratories invented the first practical PV cell. Through the 1960s and 1970s, investments and purchases by NASA for space use helped sustain the PV industry and gave America leadership in world sales. In 1982, federal support for renewable energy was cut deeply, and within three years Japan became the world leader in PV sales. The Bush Administration began to increase funding for solar energy and, in 1990, launched a voluntary collaborative with the American PV industry to improve manufacturing technology; three years later, the United States regained the lead in PV sales in this rapidly growing industry. The Clinton Administration has further accelerated funding for PVs.

Sadly, however, the deep cuts of the 1980s have taken their toll: **in the past decade, German and Japanese companies snapped up several major American PV companies** that accounted for 63% of the PVs manufactured in the United States. **Such purchases represent a huge savings for our foreign competition. They don't have to spend hundreds of millions of dollars to see which technologies succeed.** They need- only let the United States do the basic research and early development and then spend a few tens of millions of dollars plucking the winners when the federal government abandons funding for applied research, demonstration, and deployment. While some argue that the cuts in federal R&D will be made up for by the private sector, historically this hasn't happened. **When the government pulls out of a promising long-term technology area, it sends a signal to the industrial and financial community that the area has no long-term promise** and that the federal government is not a reliable- partner.

Finally, while low U.S. electricity prices are a boost to us economically, they create one disadvantage. **Renewable energy will be cost-effective in foreign countries before it is in America. Countries like Germany and Japan** not only **have far larger government financial incentives for the use and export of renewable energy,** they typically pay far more for electricity: In 1991, the price for electricity in Germany's industrial sector was 8.8 cents per kilowatt- hour, whereas in the United States it was 4.8 cents per kilowatt-hour.

The primary competitive advantage the United States has had in renewables is technological leadership driven by federal research and development support. That advantage is being taken away by current and proposed Congressional budget cuts. These cuts will have two effects.

First, the transition to low-cost renewables that Shell envisions **will likely be slowed,** since America remains the leader in most relevant renewable technologies, and U.S. government funding remains a sizable fraction of total world R&D funding. The transition, however, even if slowed, seems inevitable at some point in the middle of the next century.

Second, when the transition occurs, the United States will miss what could be a very large new source of jobs in the next century. Using Shell's numbers, annual sales in renewable-energy technologies may hit \$50 billion in 2020, and almost \$400 billion in 2040. In the later year such an industry would support several million jobs.

Moreover, as noted above, **the United States will be importing \$100 billion worth of Oil annually** 10 to 15 from now. With **prudent the peak, followed by a gradual decline as U.S made technology and domestic fuels, including home-grown biomass with its implications for rural economic development, substitute for imported oil.** With proposed Congressional cuts, however, we could end up only augmenting our debilitating trade deficit in oil with a dollop of oil-replacing technologies.

We cannot know today which technologies will deliver the lowest cost energy in the future, which is why the DOE pursues a variety of approaches. Indeed, a widely held view, which I share, is that **diversity of supply itself minimizes overall cost. That way, the nation is protected from global shocks that only affect some of its sources of energy,** such as an oil crisis, **or an unanticipated national or global environmental crisis.**

Low-cost Environmental

What is so remarkable about the renewable scenario is that federal energy R&D might ultimately demonstrate that the lowest cost form of power is also the one that generates the least pollution. The key national goal of improving the environment would then be an automatic by-product of our effort to achieve a low cost, diversified, and secure energy portfolio. In this sense, renewable energy may do in the future what energy efficiency does today cost-effectively lower the energy bills of businesses and consumers while avoiding pollution. Energy R&D reduces both the economic cost of energy and many of 22 the societal costs too.

The environmental goal is an essential one for energy R&D because pollution and energy use are inextricably linked. Most urban air quality problems in this nation and around the world are linked to the production and consumption of energy. Some 54 million Americans live in areas

RPS Comp. Advantage: Renewables key to Tech. Leadership(2/2)

that regularly violate air quality standards. The American Lung Association estimates that Americans spend \$50 billion each year on health care needs that result directly from air pollution alone. As much as 80% of urban air pollution is caused by transportation energy use. Energy efficient transportation and alternative fuel technologies can substantially cut these emissions-improving local environmental quality, and cutting health care costs as well. Energy efficient technologies in homes, offices, and industry reduce emissions from power plants, further improving local and regional air quality and further cutting health care costs. And the global market potential for clean technologies in the next century is tremendous, exceeding \$400 billion.

The half-dozen most energy-intensive industries in the country are responsible for the vast majority of the industrial pollution: steel, aluminum, petroleum refining, chemicals, pulp and paper products, glass, and metal casting. These industries account for about 80% of the energy consumed in U.S. manufacturing and more than 90% of U.S. manufacturing hazardous waste. They represent the biggest opportunities to increase energy and resource efficiency while reducing pollution. That's why the DOE has been forming partnerships with these industries to develop clean technologies.

Funding for pollution prevention is the best opportunity for the nation to avoid the need for costly environmental regulations. The government has a role in advancing pollution prevention for several reasons. First, pollution prevention technologies often benefit many companies only a small amount, so no one company has the incentive to spend the money by itself. Second, prevention has so many public benefits not fully captured in the marketplace: reduced resource consumption, improved environment, reduced energy consumption, and increased jobs and competitiveness. Thus the private sector will inevitably under invest in R&D on clean technologies. Third, while it is certainly possible that the 120 governments represented in the Intergovernmental Panel on Climate Change were wrong in December when they concluded, "the balance of evidence ... suggests a discernible human influence on global climate," it seems imprudent to base federal energy R&D policy on that hope. Fortunately, the same investments that prevent industrial pollution and urban air pollution while lowering the nation's energy bills,- also minimize greenhouse gas emissions.

World-Class R&D

The final goal of national energy R&D policy is **maintaining America's leadership in science and technology**, since that **is the engine of productivity and job growth essential to our economic well-being in the next century**. Here the Department of Energy has demonstrated unique success by winning more R&D 100 awards (given annually to the most innovative and important technologies) than any other organization since 1963. The DOE has won 386 R&D 100 awards, more than all other federal agencies combined and General Electric, Westinghouse, Dow Chemical, Dupont, and Hewlett-Packard more than combined. In the past five years, projects supported by the Office of Energy Efficiency and Renewable Energy have won 31 R&D 100 awards representing more than 6% of the total number of awards given during that time, which is especially remarkable given that the Energy Efficiency R&D budget represents under one half of one percent of the nation's total R&D funding.

In the past two years, the Department has achieved major breakthroughs in high-efficiency lighting, super-insulating material, photovoltaic energy conversion, high-temperature superconductivity, and conversion of biomass to ethanol. As industry scales back its longer term, higher risk R&D in response to increased domestic and foreign competition and low energy prices, the federal government must redouble its efforts if we are to ensure a steady stream of technologies that enhance productivity, create jobs, avoid pollution, lower energy costs, and reduce dependence on imported oil. Such basic and applied R&D delivers so many societal benefits that it cannot in any respect whatsoever be considered "corporate welfare," a term implying a giveaway with no societal benefits.

We must invest in a spectrum of technologies because we cannot know which investments will pay off in the future. For example, when the original government-funded research was done on jet engines, who could have guessed that decades later it would lead to the turbine technology that is today generating electricity and helping to keep down electricity rates?

RPS Comp. Adv: Renewable Energy key to technological leadership

The United States has fallen behind international competitors- only an expansion of renewable energy can restore our technological leadership and preserve our economic strength

Herzog et al. Post-doc researchers at Renewable and Appropriate Energy Laboratory (RAEL), 2K1

(Antonia V, Timothy Lipman, Jennifer Edwards, Daniel Kamman, “Renewable Energy: A Viable Choice” *Environment* Vol 43, Issue 10 Dec)

RENEWABLE energy systems—notably solar, wind, and biomass—are **poised to play a major role in the energy economy** and in improving the environmental quality **of the United States**. California's energy crisis focused attention on and raised fundamental questions about regional and national energy strategies. Prior to the crisis in California, there had been too little attention given to appropriate power plant siting issues and to bottlenecks in transmission and distribution. **A strong national energy policy is now needed. Renewable technologies have become both economically viable and environmentally preferable alternatives to fossil fuels.** Last year the United States spent more than \$600 billion on energy, with U.S. oil imports climbing to \$120 billion, or nearly \$440 of imported oil for every American. In the long term, even a natural gas-based strategy will not be adequate to prevent a buildup of unacceptably high levels of carbon dioxide (CO₂) in the atmosphere. Both the Intergovernmental Panel on Climate Change's (IPCC) recent Third Assessment Report and the National Academy of Sciences' recent analysis of climate change science concluded that climate change is real and must be addressed immediately—and that U.S. policy needs to be directed toward implementing clean energy solutions.[1]

Renewable energy technologies have made important and dramatic technical, economic, and operational advances during the past decade. A national energy policy and climate change strategy should be formulated around these advances. **Despite dramatic technical and economic advances in clean energy systems, the United States has seen far too little research and development (R&D) and too few incentives and sustained programs to build markets for renewable energy technologies and energy efficiency programs.**[2] Not since the late 1970s has there been a more compelling and conducive *environment* for an integrated, large-scale approach to renewable energy innovation and market expansion.[3] Clean, low-carbon energy choices now make both economic and environmental sense, and they provide the domestic basis for our energy supply that will provide security, not dependence on unpredictable overseas fossil fuels.

Energy issues in the United States have created “quick fix” solutions that, while politically expedient, will ultimately do the country more harm than good. It is critical to examine all energy options, and never before have so many technological solutions been available to address energy needs. In the near term, some expansion of the nation's fossil fuel (particularly natural gas) supply is warranted to keep pace with rising demand, but that expansion should be balanced with measures to develop cleaner energy solutions for the future. **The best short-term options for the United States are energy efficiency, conservation, and expanded markets for renewable energy.**

For many years, renewables were seen as energy options that—while environmentally and socially attractive—occupied niche markets at best, due to barriers of cost and available infrastructure. In the last decade, however, the case for renewable energy has become economically compelling as well. There has been a tree revolution in technological innovation, cost improvements, and our understanding and analysis of appropriate applications of renewable energy resources and technologies—notably solar, wind, small-scale hydro, and biomass-based energy, as well as advanced energy conversion devices such as fuel cells.[4] There are now a number of energy sources, conversion technologies, and applications that make renewable energy options either equal or better in price and services provided than the prevailing fossil fuel technologies. For example, in a growing number of settings in industrialized nations, wind energy is now the least expensive option among all energy technologies—with the added benefit of being modular and quick to install and bring on-line. In fact, some farmers, notably in the U.S. Midwest, have found that they can generate more income per hectare from the electricity generated by a wind turbine than from their crop or ranching proceeds.[5] Also, photovoltaic (solar) panels and solar hot water heaters placed on buildings across the United States can help reduce energy costs, dramatically shave peak-power demands, produce a healthier living *environment*, and increase the overall energy supply.

The United States has lagged in its commitment to maintain leadership in key technological and industrial areas, many of which are related to the energy sector.[6] **The United States has fallen behind Japan and Germany** in the production of photovoltaic systems, behind **Denmark** in wind and cogeneration system deployment, and behind Japan, Germany, **and Canada** in the development of fuel-cell systems. **Developing these industries within the United States is vital to the country's international competitiveness, commercial strength, and ability to provide for its own energy needs.**

RPS Comp. Adv: National Leadership key to the Renewable Market

National leadership is needed to promote the use of renewable- the technology is here and can be quickly deployed with low cost while reducing CO2 emissions

Herzog et al. Post-doc researchers at Renewable and Appropriate Energy Laboratory (RAEL), **2K1**

(Antonia V, Timothy Lipman, Jennifer Edwards, Daniel Kamman, “Renewable Energy: A Viable Choice” *Environment* Vol 43, Issue 10 Dec)

Recent analysis by the Union of Concerned Scientists focused on the costs and environmental impacts of a package of clean energy polices and how fossil fuel prices and consumer energy bills would be affected. They found that using energy more efficiently and **switching from fossil fuels to renewable energy sources will save consumers money by decreasing energy use.**[41] A whole-economy analysis carried out by the International Project for Sustainable Energy Paths has also shown that Kyoto-type targets can easily be met, with a net increase of 1 percent in the nation's 2020 GDP, by implementing the right policies.[42]

One of the greatest advantages that energy efficiency and renewable energy sources offer over new power plants, transmission lines, and pipelines is the ability to deploy these technologies very quickly. They can be installed—and benefits can be reaped—immediately.[43] In addition, **reductions in CO₂ emissions will have a “clean cascade” effect on the economy because many other pollutants are emitted during fossil fuel combustion.**

The renewable and energy-efficient technologies and policies described here have already proven successful and cost-effective at the national and state levels. Supporting them would allow the United States to cost-effectively meet GHG emission targets while providing a sustainable, clean energy future.[44]

We stand at a critical point in the energy, economic, and environmental evolution of the United States. Renewable energy and energy efficiency are now not only affordable, but their expanded use will also open new areas of innovation. Creating opportunities and a fair marketplace for a clean energy economy requires leadership and vision. The tools to implement this evolution are now well known. We must recognize and overcome the current roadblocks and create the opportunities needed to put these renewable and energy-efficient measures into effect.

State action lacks uniformity preventing the success of a RPS- federal government key

Herzog et al. Post-doc researchers at Renewable and Appropriate Energy Laboratory (RAEL), **2K1**

(Antonia V, Timothy Lipman, Jennifer Edwards, Daniel Kamman, “Renewable Energy: A Viable Choice” *Environment* Vol 43, Issue 10 Dec)

While the participation of 12 states signals a good start, this patchwork of state policies would not be able to drive down the costs of renewable energy technologies and move these technologies fully into the marketplace. Also, **state RPS policies have differed substantially from each other thus far. These differences could cause significant market inefficiencies, negating the cost savings that a more comprehensive, stream-lined, market-based federal RPS package would provide.**

RPS Comp. Adv: Renewables = Tech Leadership

The US has fallen behind in the renewable energy market sacrifice and only a federal commitment to development can reverse the loss of leadership

Sawin, Senior Researcher & Director, Energy and Climate Change Program '02

(Janet, "Losing the Clean Energy Race", 26 March 2002, <http://www.greenbiz.com/column/2002/03/26/losing-clean-energy-race> accessed 24 June 2008)

The United States once led - actually, began - **the clean energy revolution**. As recently as 1990, U.S. industries played the dominant global role in wind and solar PV development and deployment.

But, **due to a lack of appropriate and consistent government support** for clean energy technologies, and government subsidies that continue to favor dirty, conventional fuels and technologies, **we are losing our role as technological leaders**.

We are now falling farther and farther behind as Japan and Europe surpass us with regard to total installed clean energy generating capacity, share of the global market, and ownership of manufacturers.

U.S. companies must compete in the global marketplace.

If this trend is not reversed, America will lose millions of potential high-wage, high-tech jobs, billions of dollars in potential investment and revenue. The US will also fail to glean multiple benefits not traditionally measured in economic terms that come with clean, safe, domestic and renewable energy technologies - including cleaner environment, reduced risk of global warming, improved human health, better quality of life, and a more secure future.

With only 4.5 percent of the United States land area and a fraction of its wind resource potential, Germany has more than double the U.S. installed wind energy capacity. Denmark, a small nation of about five million people, is the world's leading manufacturer of wind turbines, with several turbine companies that consistently rank in the global top ten. The U.S. share of global PV shipments reached a peak in 1996, declining from 44 percent that year to 27 percent in 2001.

Total grid-connected PV in the United States is now estimated to be only 15 percent of that in Japan, and 31 percent of that in Germany.

The rising demand for Japanese and European made technology is due primarily to the dramatic increases in demand for renewable energy capacity in these countries, sparked by successful government policies aimed to develop markets for renewable energy. Meanwhile, the U.S. government continues to subsidize fossil fuels and nuclear power, at levels many times that for renewable energy technologies.

Around the world, leaders in business and government are calling for a transition to a clean energy economy to address global climate change, increase national security and meet rising demand for energy worldwide. Perhaps most importantly, the American public wants clean energy.

RPS Comp. Adv: RPS key to export opportunities

National RPS is the most effective means for getting renewable energy into the market. Our plan will solve for energy price shocks at a low cost while opening export opportunities abroad

Herzog et al. Post-doc researchers at Renewable and Appropriate Energy Laboratory (RAEL), **2K1**

(Antonia V, Timothy Lipman, Jennifer Edwards, Daniel Kamman, “Renewable Energy: A Viable Choice” *Environment* Vol 43, Issue 10 Dec)

The Renewable Portfolio Standard (RPS) is akin to the efficiency standards for vehicles and appliances that have proven successful in the past. A gradually increasing **RPS is designed to integrate renewables into the marketplace in the most cost-effective fashion, and it ensures that a growing proportion of electricity sales is provided by renewable energy. An RPS provides the one true means to use market forces most effectively—the market picks the winning and losing technologies. A number of studies indicate that a national renewable-energy component of 2 percent in 2002, growing to 10 percent in 2010 and 20 percent by 2020, that would include wind, biomass, geothermal, solar, and landfill gas, is broadly good for business and can readily be achieved.** [32] **States that decide to pursue more aggressive goals could be rewarded through an additional federal incentive program.** In the past, federal RPS legislation has been introduced in Congress, and it was proposed by the Clinton administration, but it has yet to be reintroduced by either this Congress or the Bush administration.

Including renewables in the United States' power-supply portfolio would protect consumers from fossil fuel price shocks and supply shortages by diversifying the energy options. A properly designed RPS will also create jobs at home and export opportunities abroad. To achieve compliance, a federal RPS should use market dynamics to stimulate innovation through a trading system. **National renewable energy credit trading will encourage development of renewables in the regions of the country where they are the most cost-effective, while avoiding expensive long-distance transmission.**

The coal, oil, natural gas, and nuclear power industries continue to receive considerable government subsidies, even though they are already well established. Without RPS or a similar mechanism, many renewables will not be able to survive in an increasingly competitive electricity market focused on producing power at the lowest direct cost. And while RPS is designed to deliver renewables that are most ready for the market, additional policies will still be needed to support emerging renewable technologies, like photovoltaics, that have enormous potential to become commercially competitive.

RPS is the surest market-based approach for securing the public benefits of renewables while supplying the greatest amount of clean power at the lowest price. It creates an ongoing incentive to drive down costs by providing a dependable and predictable market. RPS will promote vigorous competition among renewable energy developers and technologies to meet the standard at the lowest cost.

Analysis of the RPS target for 2020 shows renewable energy development in every, region of the country, with most coming from wind, biomass, and geothermal sources. In particular, the Plains, western, and mid-Atlantic states would generate more than 20 percent of their electricity from renewables. [33] Texas has become a leader in developing and implementing a successful RPS that then-Governor Bush signed into law in 1999. The Texas law requires electricity companies to supply 2,000 MW of new renewable resources by 2009, and the state is actually expected to meet this goal by the end of 2002, seven years ahead of schedule. Nine other states have signed an RPS into law: Arizona, Connecticut, Maine, Massachusetts, Nevada, New Jersey, New Mexico, Pennsylvania, and Wisconsin. Minnesota and Iowa have a minimum renewables requirement similar to RPS, and legislation that includes RPS is pending in several other states.

RPS Comp. Adv: Stable energy supply key Competitiveness

The future of American competitiveness depends on a secure and sustainable source of energy

Wince-Smith president of the Council on Competitiveness 08

(Deborah L., president of the Council on Competitiveness, “Manufacturing Magazine Features Council President and Five for the Future,” *Capacity*, May 15, 2008.)

Any perception that the country is standing at the edge of an economic cliff with one foot dangling in thin air is just not borne out by the economic data. What is undeniable is that the global economy is reshaping the competitiveness landscape in ways that few would have predicted even a decade ago. **The global economy is transforming rapidly, driven by new competitors, revolutionary technologies, new industries and growing numbers of sophisticated consumers.** The game has changed. **The policies and approaches that once ensured the United States’ economic pre-eminence during the past 20 years will not sustain our competitive edge in the decades ahead. We must adapt** and face these new challenges to ensure America’s future growth and prosperity **or risk leaving future generations a legacy of lost opportunity.** The Council on Competitiveness and its membership of corporate chief executive officers, university presidents and labor leaders have issued a new report, *Five for the Future*, in an effort to keep the national focus on innovation, especially in anticipation of the 2008 presidential and congressional elections. *Five for the Future* is a call to action for policy makers, presidential candidates and private sector leaders to move forward decisively to secure America’s future in the global economy. In 2004, we released our *Innovate America* report, which positioned innovation as the key to economic growth and success in global markets. Three years later, the president signed into law the bipartisan America COMPETES Act, which drew heavily from *Innovate America*. This was a significant victory, but it is not enough to guarantee America’s long-term economic leadership. *Five for the Future* is the next phase of the council’s unwavering call for a comprehensive national innovational agenda. The United States must seriously reassess national and global economic factors to make certain that we are on a trajectory of success. **America’s future competitiveness demands that we: Renew access to secure and sustainable energy. A secure and sustainable, environmentally prudent and balanced energy system will drive future economic prosperity for the country and companies alike.** Within the private sector, growing global energy demands and energy supply vulnerabilities will help drive a transformation in America’s energy portfolio. The private sector can play a starring role in this transformation as energy innovator, adaptor, investor and agent of change. New energy realities have already caused leading companies to address their energy competitiveness in internal operations and in the marketplace. The Council’s new Energy Security, Innovation and Sustainability program—composed of more than 40 chief executive officers, university presidents and labor leaders—is working to drive private-sector demand for sustainable energy solutions and support the creation of new industries, markets and jobs. Increased investment in 21st century energy infrastructure, private sector innovation and energy management will dramatically improve the U.S. economy, environment, national security and standard of living.

RPS Comp. Adv: Tech Leadership key to Hegemony

US technological leadership and economic competitiveness is key to hegemony

Khalilzad, fellow at RAND, 95

(Zalmay, "Losing the moment? The United States and the World after the Cold War?" Washington Quarterly Vol 18 no 2 Spring)

The United States is unlikely to preserve its military and technological dominance if the U.S. economy declines seriously. In such an environment, the domestic economic and political base for global leadership would diminish and the United States would probably incrementally withdraw from the world, become inward-looking, and abandon more and more of its external interests. As the United States weakened, others would try to fill the Vacuum.

To sustain and improve its economic strength, the United States must maintain its technological lead in the economic realm. Its success will depend on the choices it makes. In the past, developments such as the agricultural and industrial revolutions produced fundamental changes positively affecting the relative position of those who were able to take advantage of them and negatively affecting those who did not. Some argue that the world may be at the beginning of another such transformation, which will shift the sources of wealth and the relative position of classes and nations. If the United States fails to recognize the change and adapt its institutions, its relative position will necessarily worsen.

Economy, and in turn technology, are key to maintain a military that discourages any challengers

Posen, Political Science Professor at MIT, 2K3

[Barry R., Professor of Political Science at the Massachusetts Institute of Technology and a member of its Security Studies Program, "Command of the Commons", *International Security*, Vol. 28, Issue 1, Pg. 5, Summer]

What are the sources of U.S. command of the commons? One obvious source is the general U.S. superiority in economic resources. According to the Central Intelligence Agency, the United States produces 23 percent of gross world product (GWP); it has more than twice as many resources under the control of a single political authority as either of the next two most potent economic powers -- Japan with 7 percent of GWP and China with 10 percent. n14 With 3.5 percent of U.S. gross domestic product devoted to defense (nearly 1 percent of GWP), the U.S. military can undertake larger projects than any other military in the world. The specific weapons and platforms needed to secure and exploit command of the commons are expensive. They depend on a huge scientific and industrial base for their design and production. In 2001 the U.S. Department of Defense budgeted nearly as much money for military research and development as Germany and France together budgeted for their entire military efforts. n15 The military exploitation of information technology, a field where the U.S. military excels, is a key element. The systems needed to command the commons require significant skills in systems integration and the management of large-scale industrial projects, where the U.S. defense industry excels. The development of new weapons and tactics depends on decades of expensively accumulated technological and tactical experience embodied in the institutional memory of public and private military research and development organizations. n16 Finally, the military personnel needed to run these systems are among the most highly skilled and highly trained in the world. The barriers to entry to a state seeking the military capabilities to fight for the commons are very high.

RPS Comp. Adv: Heg Impact- Nuclear War

Loss of American hegemony leads to nuclear war

Khalilzad, fellow at RAND, 95

(Zalmay, "Losing the moment? The United States and the World after the Cold War?" Washington Quarterly Vol 18 no 2 Spring)

Under the third option, the United States would seek to retain **global leadership** and to preclude the rise of a global rival or a return to multipolarity for the indefinite future. On balance, this **is the best long-term guiding principle and vision**. Such a vision is desirable not as an end in itself, but because **a world in which the United States exercises leadership** would have tremendous advantages. First, the global environment would be more open and more receptive to American values -- democracy, free markets, and the rule of law. Second, such a world would **have a better chance of dealing cooperatively with the world's major problems, such as nuclear proliferation, threats of regional hegemony by renegade states, and low-level conflicts**. Finally, **U.S. leadership would help preclude the rise of another hostile global rival, enabling the United States and the world to avoid another global cold or hot war and all the attendant dangers, including a global nuclear exchange**. U.S. leadership would therefore be more conducive to global stability than a bipolar or a multipolar balance of power system.

RPS Comp. Adv: Heg Impact- Nuclear War

Collapse of US Hegemony causes multiple nuclear wars, economic depression, and turns the case with a plundering and chaotic split in China

Ferguson, Fellow, Hoover Institute, **2k4**

[Niall, Herzog professor of history at New York University's Stern School of Business and senior fellow at the Hoover Institution at Stanford University, Foreign Policy, July/August, "A World Without Power," pg.32-39]

So what is left? Waning empires. Religious revivals. Incipient anarchy. A coming retreat into fortified cities. These are the Dark Age experiences that a world without a hyperpower might quickly find itself reliving. The trouble is, of course, that this Dark Age would be an altogether more dangerous one than the Dark Age of the ninth century. For the world is much more populous--roughly 20 times more--so friction between the world's disparate "tribes" is bound to be more frequent. Technology has transformed production; now human societies depend not merely on freshwater and the harvest but also on supplies of fossil fuels that are known to be finite. Technology has upgraded destruction, too, so it is now possible not just to sack a city but to obliterate it.

For more than two decades, globalization--the integration of world markets for commodities, labor, and capital--has raised living standards throughout the world, except where countries have shut themselves off from the process through tyranny or civil war. The reversal of globalization--which a new Dark Age would produce--would certainly lead to economic stagnation and even depression. As the United States sought to protect itself after a second September 11 devastates, say, Houston or Chicago, it would inevitably become a less open society, less hospitable for foreigners seeking to work, visit, or do business. Meanwhile, as Europe's Muslim enclaves grew, Islamist extremists' infiltration of the EU would become irreversible, increasing trans-Atlantic tensions over the Middle East to the breaking point. An economic meltdown in China would plunge the Communist system into crisis, unleashing the centrifugal forces that undermined previous Chinese empires. Western investors would lose out and conclude that lower returns at home are preferable to the risks of default abroad.

The worst effects of the new Dark Age would be felt on the edges of the waning great powers. The wealthiest ports of the global economy--from New York to Rotterdam to Shanghai--would become the targets of plunderers and pirates. With ease, terrorists could disrupt the freedom of the seas, targeting oil tankers, aircraft carriers, and cruise liners, while Western nations frantically concentrated on making their airports secure. Meanwhile, limited nuclear wars could devastate numerous regions, beginning in the Korean peninsula and Kashmir, perhaps ending catastrophically in the Middle East. In Latin America, wretchedly poor citizens would seek solace in Evangelical Christianity imported by U.S. religious orders. In Africa, the great plagues of aids and malaria would continue their deadly work. The few remaining solvent airlines would simply suspend services to many cities in these continents; who would wish to leave their privately guarded safe havens to go there?

For all these reasons, the prospect of an apolar world should frighten us today a great deal more than it frightened the heirs of Charlemagne. If the United States retreats from global hegemony--its fragile self-image dented by minor setbacks on the imperial frontier--its critics at home and abroad must not pretend that they are ushering in a new era of multipolar harmony, or even a return to the good old balance of power.

Be careful what you wish for. The alternative to unipolarity would not be multipolarity at all. It would be apolarity--a global vacuum of power. And far more dangerous forces than rival great powers would benefit from such a not-so-new world disorder.

RPS Comp. Adv: Hegemony- A2: Heg = Terrorism

If the United States receded from hegemony, the hatred and resentment that spur terrorism would remain, but our capabilities to prevent such acts would be reduced

Brooks and Wohlforth, professors at Dartmouth, **2K2**

[Stephen G., Assistant Professor in the Department of Government at Dartmouth College, William C., Associate Professor in the Department of Government at Dartmouth College, *Foreign Affairs*, Vol. 81, Issue 4, Pg. 20, July/August]

Some might question the worth of being at the top of a unipolar system if that means serving as a lightning rod for the world's malcontents. When there was a Soviet Union, after all, it bore the brunt of Osama bin Laden's anger, and only after its collapse did he shift his focus to the United States (an indicator of the demise of bipolarity that was ignored at the time but looms larger in retrospect). But terrorism has been a perennial problem in history, and multipolarity did not save the leaders of several great powers from assassination by anarchists around the turn of the twentieth century. In fact, a slide back toward multipolarity would actually be the worst of all worlds for the United States. In such a scenario it would continue to lead the pack and serve as a focal point for resentment and hatred by both state and nonstate actors, but it would have fewer carrots and sticks to use in dealing with the situation. The threats would remain, but the possibility of effective and coordinated action against them would be reduced.