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## plan

#### The United States Federal Government should obtain, through Other Transactions authority, electricity from small modular reactors for its military installations in the United States.

## DOD

#### DoD bases are vulnerable to grid disruptions which destroys command infrastructure – only SMR’s can solve

Robitaille 12

(George, Department of Army Civilian, United States Army War College, “Small Modular Reactors: The Army’s Secure Source of Energy?” 21-03-2012, Strategy Research Project)

In recent years, the U.S Department of Defense (DoD) has identified a security issue at our installations related to the dependence on the civilian electrical grid. 1 The DoD depends on a steady source of electricity at military facilities to perform the functions that secure our nation. The flow of electricity into military facilities is controlled by a public grid system that is susceptible to being compromised because of the age of the infrastructure, damage from natural disasters and the potential for cyber attacks. Although most major functions at military installations employ diesel powered generators as temporary backup, the public grid may not be available to provide electricity when it is needed the most. The United States electrical infrastructure system is prone to failures and susceptible to terrorist attacks. 2 It is critical that the source of electricity for our installations is reliable and secure. In order to ensure that our military facilities possess a secure source of electricity, either the public system of electric generation and distribution is upgraded to increase its reliability as well as reducing its susceptibility to cyber attack or another source of electricity should be pursued. Although significant investments are being made to upgrade the electric grid, the current investment levels are not keeping up with the aging system. Small modular reactors (SMRs) are nuclear reactors that are about an order of magnitude smaller than traditional commercial reactor used in the United States. SMRs are capable of generating electricity and at the same time, they are not a significant contributor to global warming because of green house gas emissions. The DoD needs to look at small modular nuclear reactors (SMRs) to determine if they can provide a safe and secure source of electricity. Electrical Grid Susceptibility to Disruptions According to a recent report by the Defense Science Board, the DoD gets ninety nine percent of their electrical requirements from the civilian electric grid. 3 The electric grid, as it is currently configured and envisioned to operate for the foreseeable future, may not be reliable enough to ensure an uninterrupted flow of electricity for our critical military facilities given the influences of the aging infrastructure, its susceptibility to severe weather events, and the potential for cyber attacks. The DoD dependency on the grid is reflected in the $4.01 Billion spent on facilities energy in fiscal year 2010, the latest year which data was available. 4 The electricity used by military installations amounts to $3.76 billion. 5 As stated earlier, the DoD relies on the commercial grid to provide a secure source of energy to support the operations that ensure the security of our nation and it may not be available when we need it. The system could be taken down for extended periods of time by failure of aging components, acts of nature, or intentionally by cyber attacks. Aging Infrastructure. The U.S electric power grid is made up of independently owned power plants and transmission lines. The political and environmental resistance to building new electric generating power plants combined with the rise in consumption and aging infrastructure increases the potential for grid failure in the future. There are components in the U.S. electric grid that are over one hundred years old and some of the recent outages such as the 2006 New York blackout can be directly attributed to this out of date, aging infrastructure. 6 Many of the components of this system are at or exceeding their operational life and the general trend of the utility companies is to not replace power lines and other equipment until they fail. 7 The government led deregulation of the electric utility industry that started in the mid 1970s has contributed to a three decade long deterioration of the electric grid and an increased state of instability. Although significant investments are being made to upgrade the electric grid, the **many years of prior neglect will require a considerable amount of time and funding to bring the aging infrastructure up to date**. Furthermore, the current investment levels to upgrade the grid are not keeping up with the aging system. 8 In addition, upgrades to the digital infrastructure which were done to increase the systems efficiency and reliability, have actually made the system more susceptible to cyber attacks. 9 Because of the aging infrastructure and the impacts related to weather, the extent, as well as frequency of **failures is expected to increase in the future.** Adverse Weather. According to a 2008 grid reliability report by the Edison Electric Institute, sixty seven per cent of all power outages are related to weather. Specifically, lightning contributed six percent, while adverse weather provided thirty one percent and vegetation thirty percent (which was predominantly attributed to wind blowing vegetation into contact with utility lines) of the power outages. 10 In 1998 a falling tree limb damaged a transformer near the Bonneville Dam in Oregon, causing a cascade of related black-outs across eight western states. 11 In August of 2003 the lights went out in the biggest blackout in North America, plunging over fifty million people into darkness over eight states and two Canadian provinces. Most areas did not have power restored four or five days. In addition, drinking water had to be distributed by the National Guard when water pumping stations and/or purification processes failed. The estimated economic losses associated with this incident were about five billion dollars. Furthermore, this incident also affected the operations of twenty two nuclear plants in the United States and Canada. 12 In 2008, Hurricane Ike caused approximately seven and a half million customers to lose power in the United States from Texas to New York. 13 The electric grid suffered numerous power outages **every year** throughout the United States and the number of outages is expected to increase as the infrastructure ages without sufficient upgrades and weather-related impacts continue to become more frequent. Cyber Attacks. The civilian grid is made up of three unique electric networks which cover the East, West and Texas with approximately one hundred eighty seven thousand miles of power lines. There are several weaknesses in the electrical distribution infrastructure system that could compromise the flow of electricity to military facilities. The flow of energy in the network lines as well as the main distribution hubs has become totally dependent on computers and internet-based communications. Although the digital infrastructure makes the grid more efficient, it also makes it more susceptible to cyber attacks. Admiral Mr. Dennis C. Blair (ret.), the former Director of National Intelligence, testified before Congress that “the growing connectivity between information systems, the Internet, and other infrastructures creates opportunities for attackers to disrupt telecommunications, electrical power, energy pipelines, refineries, financial networks, and other critical infrastructures. 14 ” The Intelligence Community assesses that a number of nations already have the technical capability to conduct such attacks. 15 In the 2009 report, Annual Threat Assessment of the Intelligence Community for the Senate Armed Services Committee, Adm. Blair stated that “Threats to cyberspace pose one of the most serious economic and national security challenges of the 21st Century for the United States and our allies.”16 In addition, the report highlights a growing array of state and non-state actors that are targeting the U.S. critical infrastructure for the purpose of creating chaos that will subsequently produce detrimental effects on citizens, commerce, and government operations. These actors have the ability to compromise, steal, change, or completely destroy information through their detrimental activities on the internet. 17 In January 2008, US Central Intelligence Agency senior analyst Tom Donahue told a gathering of three hundred international security managers from electric, water, oil & gas, and other critical industry, that data was available from multiple regions outside the United States, which documents cyber intrusions into utilities. In at least one case (outside the U.S.), the disruption caused a power outage affecting multiple cities. Mr. Donahue did not specify who executed these attacks or why, but did state that all the intrusions were conducted via the Internet. 18 During the past twenty years, advances in computer technologies have permeated and advanced all aspects of our lives. Although the digital infrastructure is being increasingly merged with the power grid to make it more efficient and reliable, it also makes it more vulnerable to cyber attack. In October 2006, a foreign hacker invaded the Harrisburg, PA., water filtration system and planted malware. 19 In June 2008, the Hatch nuclear power plant in Georgia shut down for two days after an engineer loaded a software update for a business network that also rebooted the plant's power control system. In April 2009, The Wall Street Journal reported that cyber spies had infiltrated the U.S. electric grid and left behind software that could be used to disrupt the system. **The hackers came from China, Russia and other nations and were on a “fishing expedition” to map out the system**. 20 According to the secretary of Homeland Security, Janet Napolitano at an event on 28 October 2011, cyber–attacks have come close to compromising the country’s critical infrastructure on multiple occasions. 21 Furthermore, during FY11, the United States Computer Emergency Readiness Team took action on more than one hundred thousand incident reports by releasing more than five thousand actionable cyber security alerts and information products. 22 The interdependence of modern infrastructures and digital based systems makes any cyber attacks on the U.S. electric grid potentially significant. The December 2008 report by the Commission on Cyber Security for the forty fourth Presidency states the challenge plainly: “America’s failure to protect cyberspace is one of the most urgent national security problems facing the new administration”. 23 The susceptibility of the grid to being compromised has resulted in a significant amount of resources being allocated to ensuring the systems security. Although a substantial amount of resources are dedicated to protecting the nation’s infrastructure, it may not be enough to ensure the continuous flow of electricity to our critical military facilities. SMRs as they are currently envisioned may be able to provide a secure and independent alternative source of electricity in the event that the public grid is compromised. SMRs may also provide additional DoD benefit by supporting the recent government initiatives related to energy consumption and by circumventing the adverse ramifications associated with building coal or natural gas fired power plants on the environment.

#### Those communication breakdowns go nuclear

Andres and Breetz 11

Richard Andres, Professor of National Security Strategy at the National War College and a Senior Fellow and Energy and Environmental Security and Policy Chair in the Center for Strategic Research, Institute for National Strategic Studies, at the National Defense University, and Hanna Breetz, doctoral candidate in the Department of Political Science at The Massachusetts Institute of Technology, Small Nuclear Reactorsfor Military Installations:Capabilities, Costs, andTechnological Implications, [www.ndu.edu/press/lib/pdf/StrForum/SF-262.pdf](http://www.ndu.edu/press/lib/pdf/StrForum/SF-262.pdf)

The DOD interest in small reactors derives largely from problems with base and logistics vulnerability. Over the last few years, the Services have begun to reexamine virtually every aspect of how they generate and use energy with an eye toward cutting costs, decreasing carbon emissions, and reducing energy-related vulnerabilities. These actions have resulted in programs that have significantly reduced DOD energy consumption and greenhouse gas emissions at domestic bases. Despite strong efforts, however, two critical security issues have thus far proven resistant to existing solutions: bases’ vulnerability to civilian power outages, and the need to transport large quantities of fuel via convoys through hostile territory to forward locations. Each of these is explored below. Grid Vulnerability. DOD is unable to provide its bases with electricity when the civilian electrical grid is offline for an extended period of time. Currently, domestic military installations receive 99 percent of their electricity from the civilian power grid. As explained in a recent study from the Defense Science Board: DOD’s key problem with electricity is that **critical missions, such as national strategic awareness and national command authorities, are** almost **entirely dependent on the national transmission grid** . . . [which] is fragile, vulnerable, near its capacity limit, and outside of DOD control. In most cases, neither the grid nor on-base backup power provides sufficient reliability to ensure continuity of critical national priority functions and oversight of strategic missions in the face of a long term (several months) outage.7 The grid’s fragility was demonstrated during the 2003 Northeast blackout in which 50 million people in the United States and Canada lost power, some for up to a week, when one Ohio utility failed to properly trim trees. The blackout created cascading disruptions in sewage systems, gas station pumping, cellular communications, border check systems, and so forth, and demonstrated the interdependence of modern infrastructural systems.8 More recently, awareness has been growing that the grid is also vulnerable to purposive attacks. A report sponsored by the Department of Homeland Security suggests that a coordinated cyberattack on the grid could result in a third of the country losing power for a period of weeks or months.9 Cyberattacks on critical infrastructure are not well understood. It is not clear, for instance, whether existing terrorist groups might be able to develop the capability to conduct this type of attack. It is likely, however, that some nation-states either have or are working on developing the ability to take down the U.S. grid. In the event of a war with one of these states, it is possible, if not likely, that parts of the civilian grid would cease to function, taking with them military bases located in affected regions. Government and private organizations are currently working to secure the grid against attacks; however, it is not clear that they will be successful. Most military bases currently have backup power that allows them to function for a period of hours or, at most, a few days on their own. If power were not restored after this amount of time, the results could be disastrous. First, military assets taken offline by the crisis would not be available to help with disaster relief. Second, **during an extended blackout, global military operations could be seriously compromised; this disruption would be particularly serious if the blackout was induced during major combat operations**. During the Cold War, this type of event was far less likely because the United States and Soviet Union shared the common understanding that **blinding an opponent with a grid blackout** **could escalate to nuclear war**. America’s current **opponents**, however, **may not share this fear or be deterred by this possibility**. In 2008, the Defense Science Board stressed that DOD should mitigate the electrical grid’s vulnerabilities by turning military installations into “**islands**” of energy self-sufficiency. The department has made efforts to do so by promoting efficiency programs that lower power consumption on bases and by constructing renewable power generation facilities on selected bases. **Unfortunately, these programs will not come close to reaching the goal of islanding the vast majority of bases**. Even with massive investment in efficiency and renewables, most bases would not be able to function for more than a few days after the civilian grid went offline Unlike other alternative sources of energy, **small reactors have the potential to solve DOD’s vulnerability to grid outages**. Most bases have relatively light power demands when compared to civilian towns or cities. Small reactors could easily support bases’ power demands separate from the civilian grid during crises. In some cases, the reactors could be designed to produce enough power not only to supply the base, but also to provide critical services in surrounding towns during long-term outages. Strategically, islanding bases with small reactors has another benefit. One of the main reasons an enemy might be willing to risk reprisals by taking down the U.S. grid during a period of military hostilities would be to affect ongoing military operations. Without the lifeline of intelligence, communication, and logistics provided by U.S. domestic bases, American military operations would be compromised in almost any conceivable contingency. Making bases more resilient to civilian power outages would reduce the incentive for an opponent to attack the grid. An opponent might still attempt to take down the grid for the sake of disrupting civilian systems, but the powerful incentive to do so in order to win an ongoing battle or war would be greatly reduced.

#### Grid failure shuts down US military operations

Paul Stockton 11, assistant secretary of defense for Homeland Defense and Americas’ Security Affairs, “Ten Years After 9/11: Challenges for the Decade to Come”, <http://www.hsaj.org/?fullarticle=7.2.11>

The cyber threat to the DIB is only part of a much larger challenge to DoD. Potential adversaries are seeking asymmetric means to cripple our force projection, warfighting, and sustainment capabilities, by targeting the critical civilian and defense supporting assets (within the United States and abroad) on which our forces depend. This challenge is not limited to man-made threats; DoD must also execute its mission-essential functions in the face of disruptions caused by naturally occurring hazards.20 Threats and hazards to DoD mission execution include incidents such as earthquakes, naturally occurring pandemics, solar weather events, and industrial accidents, as well as kinetic or virtual attacks by state or non-state actors. Threats can also emanate from insiders with ties to foreign counterintelligence organizations, homegrown terrorists, or individuals with a malicious agenda. From a DoD perspective, this global convergence of unprecedented threats and hazards, and vulnerabilities and consequences, is a particularly problematic reality of the post-Cold War world. Successfully deploying and sustaining our military forces are increasingly a function of interdependent supply chains and privately owned infrastructure within the United States and abroad, including transportation networks, cyber systems, commercial corridors, communications pathways, and energy grids. This infrastructure largely falls outside DoD direct control. Adversary actions to destroy, disrupt, or manipulate this highly vulnerable homeland- and foreign-based infrastructure may be relatively easy to achieve and extremely tough to counter. Attacking such “soft,” diffuse infrastructure systems could significantly affect our military forces globally – potentially blinding them, neutering their command and control, degrading their mobility, and isolating them from their principal sources of logistics support. The Defense Critical Infrastructure Program (DCIP) under Mission Assurance seeks to improve execution of DoD assigned missions to make them more resilient. This is accomplished through the assessment of the supporting commercial infrastructure relied upon by key nodes during execution. By building resilience into the system and ensuring this support is well maintained, DoD aims to ensure it can "take a punch as well as deliver one."21 It also provides the department the means to prioritize investments across all DoD components and assigned missions to the most critical issues faced by the department through the use of risk decision packages (RDP).22 The commercial power supply on which DoD depends exemplifies both the novel challenges we face and the great progress we are making with other federal agencies and the private sector. Today’s commercial electric power grid has a great deal of resilience against the sort of disruptive events that have traditionally been factored into the grid’s design. Yet, the grid will increasingly confront threats beyond that traditional design basis. This complex risk environment includes: disruptive or deliberate attacks, either physical or cyber in nature; severe natural hazards such as geomagnetic storms and natural disasters with cascading regional and national impacts (as in NLE 11); long supply chain lead times for key replacement electric power equipment; transition to automated control systems and other smart grid technologies without robust security; and more frequent interruptions in fuel supplies to electricity-generating plants. These risks are magnified by globalization, urbanization, and the highly interconnected nature of people, economies, information, and infrastructure systems. The department is highly dependent on commercial power grids and energy sources. As the largest consumer of energy in the United States, DoD is dependent on commercial electricity sources outside its ownership and control for secure, uninterrupted power to support critical missions. In fact, approximately 99 percent of the electricity consumed by DoD facilities originates offsite, while approximately 85 percent of critical electricity infrastructure itself is commercially owned. This situation only underscores the importance of our partnership with DHS and its work to protect the nation’s critical infrastructure – a mission that serves not only the national defense but also the larger national purpose of sustaining our economic health and competitiveness. DoD has traditionally assumed that the commercial grid will be subject only to infrequent, weather-related, and short-term disruptions, and that available backup power is sufficient to meet critical mission needs. As noted in the February 2008 Report of the Defense Science Board Task Force on DoD Energy Strategy, “In most cases, neither the grid nor on-base backup power provides sufficient reliability to ensure continuity of critical national priority functions and oversight of strategic missions in the face of a long term (several months) outage.”23 Similarly, a 2009 GAO Report on Actions Needed to Improve the Identification and Management of Electrical Power Risks and Vulnerabilities to DoD Critical Assets stated that DoD mission-critical assets rely primarily on commercial electric power and are vulnerable to disruptions in electric power supplies.24 Moreover, these vulnerabilities may cascade into other critical infrastructure that uses the grid – communications, water, transportation, and pipelines – that, in turn, is needed for the normal operation of the grid, as well as its quick recovery in emergency situations. To remedy this situation, the Defense Science Board (DSB) Task Force recommended that DoD take a broad-based approach, including a focused analysis of critical functions and supporting assets, a more realistic assessment of electricity outage cause and duration, and an integrated approach to risk management that includes greater efficiency, renewable resources, distributed generation, and increased reliability. DoD Mission Assurance is designed to carry forward the DSB recommendations. Yet, for a variety of reasons – technical, financial, regulatory, and legal – DoD has limited ability to manage electrical power demand and supply on its installations. As noted above, DHS is the lead agency for critical infrastructure protection by law and pursuant to Homeland Security Presidential Directive 7. The Department of Energy (DOE) is the lead agency on energy matters. And within DoD, energy and energy security roles and responsibilities are distributed and shared, with different entities managing security against physical, nuclear, and cyber threats; cost and regulatory compliance; and the response to natural disasters. And of course, production and delivery of electric power to most DoD installations are controlled by commercial entities that are regulated by state and local utility commissions. The resulting paradox: DoD is dependent on a commercial power system over which it does not – and never will – exercise control.

#### Nuclear war

Brooks, Ikenberry and Wohlforth ‘13

Stephen Brooks, Associate Professor of Government at Dartmouth College, John Ikenberry, Albert G. Milbank Professor of Politics and International Affairs at Princeton University and Global Eminence Scholar at Kyung Hee University in Seoul, John Wohlforth, Daniel Webster Professor of Government at Dartmouth College, Jan/Feb 2013, Foreign Affairs, Lean Forward, EBSCO

Of course, even if it is true that the costs of deep engagement fall far below what advocates of retrenchment claim, they would not be worth bearing unless they yielded greater benefits. In fact, they do. The most obvious benefit of the current strategy is that it reduces the risk of a dangerous conflict. The United States' security commitments deter states with aspirations to regional hegemony from contemplating expansion and dissuade U.S. partners from trying to solve security problems on their own in ways that would end up threatening other states. Skeptics discount this benefit by arguing that U.S. security guarantees aren't necessary to prevent dangerous rivalries from erupting. They maintain that the high costs of territorial conquest and the many tools countries can use to signal their benign intentions are enough to prevent conflict. In other words, major powers could peacefully manage regional multipolarity without the American pacifier. But that outlook is too sanguine. If Washington got out of East Asia, Japan and South Korea would likely expand their military capabilities and go nuclear, which could provoke a destabilizing reaction from China. It's worth noting that during the Cold War, both South Korea and Taiwan tried to obtain nuclear weapons; the only thing that stopped them was the United States, which used its security commitments to restrain their nuclear temptations. Similarly, were the United States to leave the Middle East, the countries currently backed by Washington--notably, Israel, Egypt, and Saudi Arabia--might act in ways that would intensify the region's security dilemmas. There would even be reason to worry about Europe. Although it's hard to imagine the return of great-power military competition in a post-American Europe, it's not difficult to foresee governments there refusing to pay the budgetary costs of higher military outlays and the political costs of increasing EU defense cooperation. The result might be a continent incapable of securing itself from threats on its periphery, unable to join foreign interventions on which U.S. leaders might want European help, and vulnerable to the influence of outside rising powers. Given how easily a U.S. withdrawal from key regions could lead to dangerous competition, advocates of retrenchment tend to put forth another argument: that such rivalries wouldn't actually hurt the United States. To be sure, few doubt that the United States could survive the return of conflict among powers in Asia or the Middle East--but at what cost? Were states in one or both of these regions to start competing against one another, they would likely boost their military budgets, arm client states, and perhaps even start regional proxy wars, all of which should concern the United States, in part because its lead in military capabilities would narrow. Greater regional insecurity could also produce cascades of nuclear proliferation as powers such as Egypt, Saudi Arabia, Japan, South Korea, and Taiwan built nuclear forces of their own. Those countries' regional competitors might then also seek nuclear arsenals. Although nuclear deterrence can promote stability between two states with the kinds of nuclear forces that the Soviet Union and the United States possessed, things get shakier when there are multiple nuclear rivals with less robust arsenals. As the number of nuclear powers increases, the probability of illicit transfers, irrational decisions, accidents, and unforeseen crises goes up. The case for abandoning the United States' global role misses the underlying security logic of the current approach. By reassuring allies and actively managing regional relations, Washington dampens competition in the world s key areas, thereby preventing the emergence of a hothouse in which countries would grow new military capabilities. For proof that this strategy is working, one need look no further than the defense budgets of the current great powers: on average, since 1991 they have kept their military expenditures as A percentage of GDP to historic lows, and they have not attempted to match the United States' top-end military capabilities. Moreover, all of the world's most modern militaries are U.S. allies, and the United States' military lead over its potential rivals .is by many measures growing. On top of all this, the current grand strategy acts as a hedge against the emergence regional hegemons. Some supporters of retrenchment argue that the U.S. military should keep its forces over the horizon and pass the buck to local powers to do the dangerous work of counterbalancing rising regional powers. Washington, they contend, should deploy forces abroad only when a truly credible contender for regional hegemony arises, as in the cases of Germany and Japan during World War II and the Soviet Union during the Cold War. Yet there is already a potential contender for regional hegemony--China--and to balance it, the United States will need to maintain its key alliances in Asia and the military capacity to intervene there. The implication is that the United States should get out of Afghanistan and Iraq, reduce its military presence in Europe, and pivot to Asia. Yet that is exactly what the Obama administration is doing. MILITARY DOMINANCE, ECONOMIC PREEMINENCE Preoccupied with security issues, critics of the current grand strategy miss one of its most important benefits: sustaining an open global economy and a favorable place for the United States within it. To be sure, the sheer size of its output would guarantee the United States a major role in the global economy whatever grand strategy it adopted. Yet the country's military dominance undergirds its economic leadership. In addition to protecting the world economy from instability, its military commitments and naval superiority help secure the sea-lanes and other shipping corridors that allow trade to flow freely and cheaply. Were the United States to pull back from the world, the task of securing the global commons would get much harder. Washington would have less leverage with which it could convince countries to cooperate on economic matters and less access to the military bases throughout the world needed to keep the seas open. A global role also lets the United States structure the world economy in ways that serve its particular economic interests. During the Cold War, Washington used its overseas security commitments to get allies to embrace the economic policies it preferred--convincing West Germany in the 1960s, for example, to take costly steps to support the U.S. dollar as a reserve currency. U.S. defense agreements work the same way today. For example, when negotiating the 2011 free-trade agreement with South Korea, U.S. officials took advantage of Seoul's desire to use the agreement as a means of tightening its security relations with Washington. As one diplomat explained to us privately, "We asked for changes in labor and environment clauses, in auto clauses, and the Koreans took it all." Why? Because they feared a failed agreement would be "a setback to the political and security relationship." More broadly, the United States wields its security leverage to shape the overall structure of the global economy. Much of what the United States wants from the economic order is more of the same: for instance, it likes the current structure of the World Trade Organization and the International Monetary Fund and prefers that free trade continue. Washington wins when U.S. allies favor this status quo, and one reason they are inclined to support the existing system is because they value their military alliances. Japan, to name one example, has shown interest in the Trans-Pacific Partnership, the Obama administration's most important free-trade initiative in the region, less because its economic interests compel it to do so than because Prime Minister Yoshihiko Noda believes that his support will strengthen Japan's security ties with the United States. The United States' geopolitical dominance also helps keep the U.S. dollar in place as the world's reserve currency, which confers enormous benefits on the country, such as a greater ability to borrow money. This is perhaps clearest with Europe: the EU'S dependence on the United States for its security precludes the EU from having the kind of political leverage to support the euro that the United States has with the dollar. As with other aspects of the global economy, the United States does not provide its leadership for free: it extracts disproportionate gains. Shirking that responsibility would place those benefits at risk. CREATING COOPERATION What goes for the global economy goes for other forms of international cooperation. Here, too, American leadership benefits many countries but disproportionately helps the United States. In order to counter transnational threats, such as terrorism, piracy, organized crime, climate change, and pandemics, states have to work together and take collective action. But cooperation does not come about effortlessly, especially when national interests diverge. The United States' military efforts to promote stability and its broader leadership make it easier for Washington to launch joint initiatives and shape them in ways that reflect U.S. interests. After all, cooperation is hard to come by in regions where chaos reigns, and it flourishes where leaders can anticipate lasting stability. U.S. alliances are about security first, but they also provide the political framework and channels of communication for cooperation on nonmilitary issues. NATO, for example, has spawned new institutions, such as the Atlantic Council, a think tank, that make it easier for Americans and Europeans to talk to one another and do business. Likewise, consultations with allies in East Asia spill over into other policy issues; for example, when American diplomats travel to Seoul to manage the military alliance, they also end up discussing the Trans-Pacific Partnership. Thanks to conduits such as this, the United States can use bargaining chips in one issue area to make progress in others. The benefits of these communication channels are especially pronounced when it comes to fighting the kinds of threats that require new forms of cooperation, such as terrorism and pandemics. With its alliance system in place, the United States is in a stronger position than it would otherwise be to advance cooperation and share burdens. For example, the intelligence-sharing network within NATO, which was originally designed to gather information on the Soviet Union, has been adapted to deal with terrorism. Similarly, after a tsunami in the Indian Ocean devastated surrounding countries in 2004, Washington had a much easier time orchestrating a fast humanitarian response with Australia, India, and Japan, since their militaries were already comfortable working with one another. The operation did wonders for the United States' image in the region. The United States' global role also has the more direct effect of facilitating the bargains among governments that get cooperation going in the first place. As the scholar Joseph Nye has written, "The American military role in deterring threats to allies, or of assuring access to a crucial resource such as oil in the Persian Gulf, means that the provision of protective force can be used in bargaining situations. Sometimes the linkage may be direct; more often it is a factor not mentioned openly but present in the back of statesmen's minds." THE DEVIL WE KNOW Should America come home? For many prominent scholars of international relations, the answer is yes--a view that seems even wiser in the wake of the disaster in Iraq and the Great Recession. Yet their arguments simply don't hold up. There is little evidence that the United States would save much money switching to a smaller global posture. Nor is the current strategy self-defeating: it has not provoked the formation of counterbalancing coalitions or caused the country to spend itself into economic decline. Nor will it condemn the United States to foolhardy wars in the future. What the strategy does do is help prevent the outbreak of conflict in the world's most important regions, keep the global economy humming, and make international cooperation easier. Charting a different course would threaten all these benefits. This is not to say that the United States' current foreign policy can't be adapted to new circumstances and challenges. Washington does not need to retain every commitment at all costs, and there is nothing wrong with rejiggering its strategy in response to new opportunities or setbacks. That is what the Nixon administration did by winding down the Vietnam War and increasing the United States' reliance on regional partners to contain Soviet power, and it is what the Obama administration has been doing after the Iraq war by pivoting to Asia. These episodes of rebalancing belie the argument that a powerful and internationally engaged America cannot tailor its policies to a changing world. A grand strategy of actively managing global security and promoting the liberal economic order has served the United States exceptionally well for the past six decades, and there is no reason to give it up now. The country's globe-spanning posture is the devil we know, and a world with a disengaged America is the devil we don't know. Were American leaders to choose retrenchment, they would in essence be running a massive experiment to test how the world would work without an engaged and liberal leading power. The results could well be disastrous.

#### SMR’s “island” bases by providing constant reliable power

King 11

Marcus King, Ph.D., Center for Naval Analyses Project Director and Research Analyst for the Environment and Energy TeamLaVar Huntzinger, Thoi Nguyen, March 2011, Feasibility of Nuclear Power on U.S.Military Installations, www.cna.org/sites/default/files/research/Nuclear Power on Military Installations D0023932 A5.pdf

Having a reliable source of electricity is critically important for many DoD installations. Fort Meade, Maryland, which hosts the National Security Agency’s power intensive computers, is an example of where electricity is mission critical. Installations need to be more robust against interruptions caused by natural forces or intentional attack. Most installations currently rely on the commercial electricity grid and backup generators. Reliance on generators presents some limitations. A building dedicated generator only provides electricity to a specific building when there is a power outage. Typically, diesel standby generators have an availability of 85 percent when operated for more than 24 hours [38]. Most DoD installations keep less than a 5-day supply of fuel. Small nuclear power plants could contribute to electrical energy surety and survivability. Having nuclear power plants networked with the grid and other backup generating systems 5 could give DoD installations higher power availability during extended utility power outages and more days of utility-independent operation. Existing large commercial nuclear power plants have an availability of over 90 percent. When a small nuclear power plant is networked with existing backup generating systems and the grid, overall availability values could be as high as 99.6 percent [39]. Since proposed small reactors have long refueling intervals (from 4 to 30 years), if power from the commercial grid became unavailable, a small reactor could provide years of electrical power independent of the commercial grid [4]. Power assurance to DoD installations also involves three infrastructure aspects of electricity delivery: electrical power transmission, electricity distribution, and electricity control (of distribution and transmission). Electric power transmission is the bulk transfer of electrical energy from generating plants to substations located near population centers. Electricity distribution networks carry electricity from the substations to consumers. Electricity control is the management of switches and connections to control the flow of electricity through transmission and distribution networks. Typically, transmission lines transfer electricity at high voltages over long distances to minimize loss; electricity distribution systems carry medium voltages. For electrical power transmission, very little additional infrastructure is required to incorporate small nuclear power plants because they would be located on or near the DoD installation being serviced. However, redundancy in transmission lines would make the overall network more robust. Electricity control capabilities, such as self-healing 6 and optimization of assets to increase operational efficiency, could improve overall power availability; however, they are not necessary for the integration of small nuclear power plants. Key components for improving electricity control include advanced electricity meters and electricity meter data management. These tools are needed in order to establish islanding, a condition in which a portion of the utility system, which contains both load and generation, is isolated from the remainder of the utility system and continues to operate. Since the power generation capacities of small nuclear power plants are larger than required for most DoD bases, islanding could extend to adjacent communities if sufficient technical upgrades were performed to systems outside of the installation. This contributes to DoD missions because civilians and service members working on the installation often live with their families in adjacent communities. The power would ensure that critical services such as emergency response, waste water treatment, and hospitals could be maintained.

#### DoD bypasses regulatory hurdles and safety hazards

Loudermilk 11

Micah J. Loudermilk, Research Associate for the Energy & Environmental Security Policy program with the Institute for National Strategic Studies at National Defense University, 5/31/11, Small Nuclear Reactors and US Energy Security: Concepts, Capabilities, and Costs, [www.ensec.org/index.php?option=com\_content&view=article&id=314:small-nuclear-reactors-and-us-energy-security-concepts-capabilities-and-costs&catid=116:content0411&Itemid=375](http://www.ensec.org/index.php?option=com_content&view=article&id=314:small-nuclear-reactors-and-us-energy-security-concepts-capabilities-and-costs&catid=116:content0411&Itemid=375)

Path forward: Department of Defense as first-mover Problematically, despite the immense energy security benefits that would accompany the wide-scale adoption of small modular reactors in the US, with a difficult regulatory environment, anti-nuclear lobbying groups, skeptical public opinion, and of course the recent Fukushima accident, the nuclear industry faces a tough road in the battle for new reactors. While President Obama and Energy Secretary Chu have demonstrated support for nuclear advancement on the SMR front, progress will prove difficult. However, a potential route exists by which small reactors may more easily become a reality: the US military. The US Navy has successfully managed, without accident, over 500 small reactors on-board its ships and submarines throughout 50 years of nuclear operations. At the same time, serious concern exists, highlighted by the Defense Science Board Task Force in 2008, that US military bases are tied to, and almost entirely dependent upon, the fragile civilian electrical grid for 99% of its electricity consumption. To protect military bases’ power supplies and the nation’s military assets housed on these domestic installations, the Board recommended a strategy of “islanding” the energy supplies for military installations, thus ensuring their security and availability in a crisis or conflict that disrupts the nation’s grid or energy supplies. DOD has sought to achieve this through decreased energy consumption and renewable technologies placed on bases, but these endeavors will not go nearly far enough in achieving the department’s objectives. However, by placing small reactors on domestic US military bases, DOD could solve its own energy security quandary—providing assured supplies of secure and constant energy both to bases and possibly the surrounding civilian areas as well. Concerns over reactor safety and security are alleviated by the security already present on installations and the military’s long history of successfully operating nuclear reactors without incident. Unlike reactors on-board ships, small reactors housed on domestic bases would undoubtedly be subject to Nuclear Regulatory Commission (NRC) regulation and certification, however, with strong military backing, adoption of the reactors may prove significantly easier than would otherwise be possible. Additionally, as the reactors become integrated on military facilities, general fears over the use and expansion of nuclear power will ease, creating inroads for widespread adoption of the technology at the private utility level. Finally, and perhaps most importantly, action by DOD as a “first mover” on small reactor technology will preserve America’s badly struggling and nearly extinct nuclear energy industry. The US possesses a wealth of knowledge and technological expertise on SMRs and has an opportunity to take a leading role in its adoption worldwide. With the domestic nuclear industry largely dormant for three decades, the US is at risk of losing its position as the global leader in the international nuclear energy market. If the current trend continues, the US will reach a point in the future where it is forced to import nuclear technologies from other countries—a point echoed by Secretary Chu in his push for nuclear power expansion. Action by the military to install reactors on domestic bases will guarantee the short-term survival of the US nuclear industry and will work to solidify long-term support for nuclear energy. Conclusions In the end, small modular reactors present a viable path forward for both the expansion of nuclear power in the US and also for enhanced US energy security. Offering highly safe, secure, and proliferation-resistant designs, SMRs have the potential to bring carbon-free baseload distributed power across the United States. Small reactors measure up with, and even exceed, large nuclear reactors on questions of safety and possibly on the financial (cost) front as well. SMRs carry many of the benefits of both large-scale nuclear energy generation and renewable energy technologies. At the same time, they can reduce US dependence on fossil fuels for electricity production—moving the US ahead on carbon dioxide and GHG reduction goals and setting a global example. While domestic hurdles within the nuclear regulatory environment domestically have proven nearly impossible to overcome since Three Mile Island, military adoption of small reactors on its bases would provide energy security for the nation’s military forces and may create the inroads necessary to advance the technology broadly and eventually lead to their wide-scale adoption.

## leadership

#### Massive expansion of nuclear power’s inevitable worldwide – that causes cascading prolif

John P **Banks and** Charles K **Ebinger 11**, John is a fellow with the Energy Security Initiative at the Brookings Institution, Charles is senior fellow and director of the Energy Security Initiative at the Brookings Institution, “Introduction: Planning a Responsible Nuclear Future” in “Business and Nonproliferation”, googlebooks

Nuclear energy is a twentieth-century innovation but until recently has not spread beyond a relatively small number 0F industrialized nations (see maps on pages 4 5). All this is about to change. With global electricity demand increasing dramatically, greenhouse gas emissions, and energy security becoming national priorities, developed and developing countries alike are reexamining nuclear energy as a means of providing a reliable E scalable source of low-carbon power. The International Energy Agency (IEA) projects that global electricity demand will increase 2.2 percent a year to 2035, with about 80 percent of that growth occurring in emerging economies outside the Organization for Economic Cooperation £ Development (OECD).' Even if new policy initiatives are introduced to lower carbon dioxide (CO2) emissions Q combat global climate change, global energy-related CO2 emissions are expected to increase 21 percent between 2008 2035.1 Emerging market economies account For all of this projected increase in emissions. In the face of rising prices and increasing volatility in the oil market, many of these economies have shifted their attention to nuclear energy as a means of reducing dependence on oil (often a major source of their power generation), improving their balance of payments, and bolstering national energy security.’ Currently, 440 reactors with a total capacity of 375 gigawatts (G\Wc) arc in operation worlclwicle.\* As of March 2011, 65 nuclear reactor units, with a total capacity of 63 G\Ve, are under construction.5 As of April 2011, 158 projects are also on order or planned and 326 proposed." These preparations For replacing or expanding reactor ﬂeets Q For new entries to the marketplace follow a decades-long lull in construction suggest a “nuclear renaissance” has begun. \Y/hile “renaissance” implies a revival or return to a better time. the global expansion of nuclear energy in the coming decades will differ in several resects from the way civilian nuclear power developed between the late 1950s mid-19805. First, the scope and pace of this new deployment could be signiﬁcantly larger than in previous periods of expansion: some recent analyses put installed nuclear capacity up at 550—850 G\Ve by 2035. depending on assumptions about the implementation of low-carbon energy policiesf In IEA projections, a 50 per- cent cut in energy-related CO, emissions by 2050 would require global capacity to reach 1,200 G\Ve, a net addition of 30 G\Ve each year over the next forty years.“ To put this ﬁgure into perspective, during the period of nuclear p0wer’s most rapid expansion (1981-90). capacity increased by only 20 G\Ve a year, slowing to an annual average of 4 G\X/e from 1991 to 2006." To achieve large- scale reductions in energy—related CO: emissions, nuclear capacity must there- lore grow not only faster but also For several decades longer than during nuclear energy's previous “golden age." (As the preface indicates, safety concerns arising in the aftermath ofthe Fukushima accident will slow or scale back nuclear power expansion globally in the short term. At the same time, the longer-term impact of Fukushima on global nuclear power expansion will be less adverse, especially in emerging market countries.) Also different today is the number of countries seeking to build their ﬁrst nuclear power reactor. Some sixty-ﬁve countries have expressed interest in or are actively planning for nuclear power."' As the International Atomic Energy Agency (IAEA) points out, however, most of these countries are merely “con- sidering” the range of issues involved in nuclear power development. Many of them cannot realistically afford the large costs associated with civilian nuclear power programs. According to some analyses, countries with a GDP ofless than $50 billion could not spend several billion dollars building a reactor." ln addi- tion, many aspirant countries still lack the electricity grids required For nuclear power: electricity systems with a capacity below l0 G\Ve are unlikely to be able to accommodate a nuclear reactor.“ Some countries could address this issue by expanding electricity interconnections with neighboring states or developing ower export arrangements; however, these alternatives are not widely available in any case would take time to implement. At the same time, a number of countries have credible plans to become new nuclear energy states (NNES). The IAEA has indicated that ten to twenty-ﬁve countries might begin operating their ﬁrst plants by 2030, whereas since Cher- nobyl only thrce—China, Mexico, Romania—havc brought nuclear plants online for the ﬁrst time.” The following list shows the stages of progress of eleven emerging market countries in their ellorts to develop a civilian nuclear energy programz“ —Power reactors under construction: Iran.“ —Contracts signed, legal regulatory infrastructure well developed: United Arab Emirates (UAE), Turkey. —Committed plans, legal Q regulatory infrastructure developing: Vietnam, jordan. —\Well-developed plans but commitment pending: Thailand. Indonesia. Egypt, Kazakhstan. —Developing plans: Saudi Arabia, Malaysia. Emerging market nations entertaining the construction of new nuclear power capacity lace several critical issues. Domestically, each must establish strong institutions and viable regulatory frameworks addressing health, safety, prolif- eration, environmental concerns while ensuring that adequate human ﬁnancial resources are available for these tasks. Even if a state is willing to buy a nuclear reactor on a “turnkey” basis (paying For an outside operator to build Q run the system), it must still train its own nationals in these various respects Q establish a strong academic industrial culture in all aspects of commercial nuclear operations in order to achieve a sound, sustainable program. The NNES will need to build these capabilities in a sufficient timely manner. New States One of the biggest challenges in any expansion of the civilian nuclear sector is that of maintaining and strengthening the global regime for nuclear proliferation. The changing geopolitical J security environment, combined with the political instability of many regions countries that aspire to develop civilian nuclear reactor technology, has already raised proliferation concerns. Nuclear power reactors could become attractive targets for terrorists, who might also seek access to ﬁssile material for radiological dispersal devices (“dirty bombs”) or for nuclear weapons. With such materials more widely available, the proliferation risks could mount. As commercial enrichment and recycling programs multiply, countries may be tempted also to develop latent nuclear weapons capabilities, especially if they aspire to attain regional predominance, international standing, or the capabilities of regional rivals. An expansion of nuclear energy could further tax an already stressed proliferation regime. In light ofArticle IV of the Nuclear Treaty (NPT), wl1icl1 states that the treat shall not aﬁect the “inalienable right . . . to develop research, production duse of nuclear energy For peaceful purposes without discrimination . . . the right to partici ate in, the fullest possible exchange of equipment, materials H scientiﬁc ii technological information For the peaceful uses olinuclear energy, ” some nations are considering acquisition of fuel cycle capabilities as a way to avoid further dependence on foreign suppliers when they develop nuclear power.“ The NPT contains no provisions to restrict acquisition of such capabilities, although members of the Nuclear Suppliers Group (a voluntary group of nations that restricts nuclear exports) have long practiced restraint on technology transfers of sensitive components of the Fuel cycle. A sharp increase in the demand for nuclear fuel could enhance the commercial attractiveness of uranium enrichment reprocessing, enticing new entrants into the market." Nations with large uranium resources might seek to add value to their uranium exports by moving further up the chain of produc- tion or by expanding current capabilities (Australia, Canada, Kazakhstan, South Africa have all discussed this option recently). Even if the high cost of Fuel cycle activities proves to be a disincentive to their development, the NNES— especially in emerging markets—may consider Fuel supply security exercis- ing sovereign rights under Article IV of the NPT more relevant than economic drivers in their decisions about enrichment or reprocessing.“ With governments playing an increasing role in securing and meeting nuclear contracts, political motivations might also enter into assessments of the nuclear capabilities neces- sary for recipient countries. The great danger in the race to build out new capacity is that some new players may not take proliferation concerns as seriously as existing service providers. To address these issues, there has been a reinvigorated discussion of multilat- eral nuclear approaches (MN/\s). M NAs establish a framework to safeguard Arti- cle IV rights, speciﬁcally by limiting the diffusion ofsensitive nuclear materials E technologies while concurrently guaranteeing long-term supply of nuclear fuel to civilian nuclear power programs. Some steps in this direction include two recently approved fuel banks: the Russian-backed lnternational Uranium Enrich- ment Center in Angarsk the ME/\ Nuclear Threat Initiative Fuel Bank.” The institutional challenges to the regime are compounded both by the actions of rogue states such as Iran’s clandestine nuclear program and North Korea’s nuclear weapons testing Q new uranium enrichment pro- gram, Q by non-state activities such as the operations ofblack market nuclear networks arranged by Pakistani scientist A. Khan. Conﬁdence in the regime’s ability to respond to resolve proliferation threats has thus fallen. New technologies may put further stress on the system. Particularly worrying are the expansion of centrifuge technology, commercialization of the laser enrichment process, development and deployment of next-generation reprocessing techniques that require advanced safeguards, and the potential spread of fast reactors. Although the impact of these dynamics is tlifﬁcult to foresee, the proliferation regime needs to keep pace with the rapidly changing, complex nuclear market, especially those developments activities that facilitate the expansion of uranium enrichment and spent fuel reprocessing. This is a major challenge for a regime already under stress.

#### The spread of enrichment and reprocessing collapse the entire nonproliferation regime

Anatoly S. Diyakov 10, Professor of Physics and Director of the Center for Arms Control Energy and Environmental Studies at the Moscow Institute of Physics, “The nuclear “renaissance” & preventing the spread of enrichment & reprocessing technologies: a Russian view”, Dædalus Winter 2010

The anticipated growth of nuclear power around the world may lead to the spread of nuclear fuel cycle technologies as well. The expectations associated with a renewed interest in nuclear power and the rate of nuclear power growth in the world may be exaggerated; at the very least we can expect that the growth would occur not immediately, but over a long period. Nevertheless, there are definite concerns about the implications of nuclear power expansion for the nuclear nonproliferation regime. Driving these concerns is a sense that, beyond interest in nuclear power, developing countries also have an interest in retaining their right under the Nuclear Non-Proliferation Treaty (npt) to possess nuclear fuel cycle technologies. A potential spread of nuclear fuel cycle technologies, especially technologies for uranium enrichment and for reprocessing spent fuel to separate plutonium, poses a serious concern to the nuclear nonproliferation regime because enrichment and reprocessing capabilities give states the capability to produce fissile materials for weapons. This is not a new problem. Indeed, as early as 1946, the Acheson-Lillenthal report declared that proliferation risks are inherent to the nuclear fuel cycle. If nations engage in fuel cycle activities it increases the risk of: • Spread of sensitive technologies from declared facilities, resulting in their illegal transfer to other entities; • Diversion of nuclear materials from declared fuel cycle facilities; • Running a military program at undeclared fuel cycle facilities; and • Breakout–that is, withdrawal from the npt and the subsequent use of safeguarded nuclear facilities for military purposes. The reality of these dangers was recently demonstrated by North Korea and the A.Q. Khan network. International Atomic Energy Agency (iaea) Director General Mohamed ElBaradei has said that the fuel cycle is the “Achilles heel” of the nonproliferation system.8 Some countries have already declared their right to acquire enrichment and reprocessing technologies. This right is in fact secured for countries party to the npt. The npt does not restrict peaceful development and use of nuclear power; Article IV of the Treaty asserts, “Nothing in this Treaty shall be interpreted as affecting the inalienable right of all the Parties to the Treaty to develop research, production and use of nuclear energy for peaceful purposes.” However, in ensuring the right to peaceful use of nuclear energy, the npt also imposes specific obligations upon its member states. In accordance with Article II of the npt, “Each non-nuclearweapon State Party to the Treaty undertakes not to receive the transfer from any transferor whatsoever of nuclear weapons or other nuclear explosive devices or of control over such weapons or explosive devices directly, or indirectly. ” Article III requires that each Treaty participant state “undertakes to accept safeguards . . . for the exclusive purpose of veri½cation of the ful½llment of its obligations assumed under this Treaty with a view to preventing diversion of nuclear energy from peaceful uses to nuclear weapons.” The right to develop the nuclear fuel cycle, afforded by the npt, is considered by some to be a loophole in the nonproliferation regime. This loophole, and recent violations of commonly accepted obligations by certain countries, raises questions about the npt’s capacity to protect international security adequately from threats that may occur. It would be wrong to blame the authors of the npt for this loophole. Over the four decades that have passed since the npt ½rst came into effect, the world has changed dramatically. The npt to a large extent was initially intended to prevent creation of nuclear weapons by industrially advanced countries such as West Germany, Italy, Sweden, Switzerland, South Korea, Taiwan, and others, while simultaneously providing them the bene½t of peaceful nuclear use and security guarantees. When the npt was being negotiated in the 1960s, hardly anyone could have imagined that, with time, the main actors in proliferation and the dangers arising from it would come to be those countries that had recently become liberated from Europe’s colonial dominion (at the time called “developing” or “third-world” countries) and also non-state entities– namely, terrorist organizations. Considering that objective forces are compelling more and more countries to turn to nuclear energy to satisfy their energy needs, and that they have the right to develop the nuclear fuel cycle, it is necessary to search for solutions that, on the one hand, would prevent proliferation of sensitive nuclear technologies and, on the other hand, would ensure interested countries guaranteed access to external sources of nuclear fuel cycle services and products.

#### Squo nuclear power means quick breakout—asymmetric development of arsenals creates imbalances that undermine deterrent relationships

Sokolski 9

Henry Sokolski, Executive Director of the Nonproliferation Policy Education Center, 6/1/2009, Avoiding a Nuclear Crowd, http://www.hoover.org/publications/policy-review/article/5534

Finally, several new nuclear weapons contenders are also likely to emerge in the next two to three decades. Among these might be Japan, North Korea, South Korea, Taiwan, Iran, Algeria, Brazil (which is developing a nuclear submarine and the uranium to fuel it), Argentina, and possibly Saudi Arabia (courtesy of weapons leased to it by Pakistan or China), Egypt, Syria, and Turkey. All of these states have either voiced a desire to acquire nuclear weapons or tried to do so previously and have one or more of the following: A nuclear power program, a large research reactor, or plans to build a large power reactor by 2030.

With a large reactor program inevitably comes a large number of foreign nuclear experts (who are exceedingly difficult to track and identify) and extensive training, which is certain to include nuclear fuel making.19 Thus, it will be much more difficult to know when and if a state is acquiring nuclear weapons (covertly or overtly) and far more dangerous nuclear technology and materials will be available to terrorists than would otherwise. Bottom line: **As more states bring large reactors on line more will become nuclear-weapons-ready** — i.e., **they could come within months of acquiring nuclear weapons** if they chose to do so.20 As for nuclear safeguards keeping apace, neither the iaea’s nuclear inspection system (even under the most optimal conditions) nor technical trends in nuclear fuel making (e.g., silex laser enrichment, centrifuges, new South African aps enrichment techniques, filtering technology, and crude radiochemistry plants, which are making successful, small, affordable, covert fuel manufacturing even more likely)21 afford much cause for optimism.

This brave new nuclear world will stir existing security alliance relations more than it will settle them: In the case of states such as Japan, South Korea, and Turkey, it could prompt key allies to go ballistic or nuclear on their own.

Nuclear 1914

At a minimum, **such developments will be a departure from whatever stability existed during the Cold War**. After World War II, there was a clear subordination of nations to one or another of the two superpowers’ strong alliance systems — the U.S.-led free world and the Russian-Chinese led Communist Bloc. The net effect was relative peace with only small, nonindustrial wars. This alliance tension and system, however, no longer exist. Instead, we now have one superpower, the United States, that is capable of overthrowing small nations unilaterally with conventional arms alone, associated with a relatively weak alliance system ( nato) that includes two European nuclear powers (France and the uk). nato is increasingly integrating its nuclear targeting policies. The U.S. also has retained its security allies in Asia (Japan, Australia, and South Korea) but has seen the emergence of an increasing number of nuclear or nuclear-weapon-armed or -ready states.

So far, the U.S. has tried to cope with independent nuclear powers by making them “strategic partners” (e.g., India and Russia), nato nuclear allies (France and the uk), “non-nato allies” (e.g., Israel and Pakistan), and strategic stakeholders (China); or by fudging if a nation actually has attained full nuclear status (e.g., Iran or North Korea, which, we insist, will either not get nuclear weapons or will give them up). In this world, every nuclear power center (our European nuclear nato allies), the U.S., Russia, China, Israel, India, and Pakistan could have significant diplomatic security relations or ties with one another but none of these ties is viewed by Washington (and, one hopes, by no one else) as being as important as the ties between Washington and each of these nuclear-armed entities (see Figure 3).

There are limits, however, to what this approach can accomplish. Such a weak alliance system, with its expanding set of loose affiliations, risks becoming analogous to the international system that failed to contain offensive actions prior to World War I. Unlike 1914, there is no power today that can rival the projection of U.S. conventional forces anywhere on the globe. But in a world with an increasing number of nuclear-armed or nuclear-ready states, this may not matter as much as we think. In such a world, the **actions of just one or two states** or groups that might threaten to disrupt or overthrow a nuclear weapons state **could check U.S. influence or ignite a war Washington could have difficulty containing**. No amount of military science or tactics could assure that the U.S. could disarm or neutralize such threatening or unstable nuclear states.22 Nor could diplomats or our intelligence services be relied upon to keep up to date on what each of these governments would be likely to do in such a crisis (see graphic below):

Combine these proliferation trends with the others noted above and one could easily create the perfect nuclear storm: **Small differences between nuclear competitors** that would **put all actors on edge**; an overhang of nuclear materials **that could be called upon to break out** or significantly ramp up existing nuclear deployments; and a variety of potential new nuclear actors developing weapons options in the wings.

In such a setting, the military and nuclear **rivalries between** states could easily **be much more intense than before**. Certainly **each nuclear state’s military would place a**n even higher **premium** than before **on being able to weaponize** its military and **civilian surpluses quickly**, to deploy forces that are survivable, and to have forces that can get to their targets and destroy them with high levels of probability. The advanced military states will also be even more inclined to develop and deploy enhanced air and missile defenses and long-range, precision guidance munitions, and to develop a variety of preventative and preemptive war options.

Certainly, in such a world, relations between states could become far less stable. **Relatively small developments** — e.g., Russian support for sympathetic near-abroad provinces; Pakistani-inspired terrorist strikes in India, such as those experienced recently in Mumbai; new Indian flanking activities in Iran near Pakistan; Chinese weapons developments or moves regarding Taiwan; state-sponsored assassination attempts of key figures in the Middle East or South West Asia, etc. — **could easily prompt nuclear weapons deployments with “strategic” consequences** (**arms races, strategic miscues, and** even **nuclear war**). As Herman Kahn once noted, in such a world “every quarrel or difference of opinion may lead to violence of a kind quite different from what is possible today.”23 In short, we may soon see a future that neither the proponents of nuclear abolition, nor their critics, would ever want. None of this, however, is inevitable.

#### Prolif cascades cause militarization of disputes—escalates to great power war

Kroenig 9

Matt Kroenig, assistant professor of Government at Georgetown University and a Stanton Nuclear Security Fellow at the Council on Foreign Relations, November 2009, Beyond Optimism and Pessimism: The Differential Effects of Nuclear Proliferation, http://belfercenter.hks.harvard.edu/publication/19671/beyond\_optimism\_and\_pessimism.html

**Nuclear proliferation** can **embolden new nuclear states**, **triggering regional instability that could** potentially **threaten** the **interests of power-projecting states and** even **entrap them in regional disputes**. New nuclear weapon states may be more aggressive and this newfound assertiveness can result in regional instability. I define regional instability as a heightened frequency (but not necessarily the intensity) of militarized interstate disputes among states in a given geographical region. The threat that regional instability poses to power-projecting states is different from the concern about international instability expressed by the proliferation pessimists. Pessimists assume that international instability is bad in and of itself – and they may be right. But, power-projecting states have a different concern. They worry that nuclear proliferation will set off regional instability and that, because they have the ability to project power over the new nuclear weapon state, they will be compelled to intervene in a costly conflict. Power-projecting states could feel the need to act as a mediator between nuclear-armed disputants, provide conventional military assistance to one of the parties in the dispute, or because they have the ability to put boots on the ground in the new nuclear state, potentially be drawn into the fighting themselves.

There is direct evidence that nuclear weapons can contribute to regional instability. Robert Rauchhaus has demonstrated that **nuclear weapon states are more likely to engage in conflict than nonnuclear weapon states**. 46 Michael Horowitz extends this analysis to show that **aggressiveness is most pronounced in new nuclear states** **that have less experience with nuclear diplomacy**.47 These related findings are not due to the fact that dispute-prone states are more likely to acquire nuclear weapons; the scholars carefully control for a state’s selection into nuclear status. Rather, the findings demonstrate that nuclear weapons increase the frequency with which their possessors participate in militarized disputes. Qualitative studies have also provided supporting evidence of nuclear weapons’ potentially destabilizing effects. Research on internal decision-making in Pakistan reveals that Pakistani foreign policymakers may have been emboldened by the acquisition of nuclear weapons, **encouraging them to initiate militarized disputes** against India.48

Proliferation optimists counter that nuclear proliferation should increase regional stability, but the most recent empirical investigations undermine the stronger versions of the optimism argument.49 While nuclear-armed states may be less likely to experience full-scale war providing some support for the optimist position, **the preponderance of evidence suggests that nuclear-armed states are more likely to engage in** other types of **militarized disputes**.50 This is true whether only one state or all of the contentious actors in a region possess nuclear weapons.51

Furthermore, for the sake of argument, even if nuclear proliferation does have stabilizing effects as optimists argue, as long as regional conflict among nuclear-armed states is possible, the basic argument presented here still holds. This is because power-projecting states may still feel compelled to intervene in the conflicts that do occur. These are conflicts that they perhaps **could have avoided had nuclear weapons been absent**.

There is direct evidence that regional conflicts involving nuclear powers can encourage power-projecting states to become involved in nuclear disputes. Secretary of State Henry Kissinger was reluctant to aid Israel in the 1973 Yom Kippur War until Israeli Prime Minister Golda Meir threatened that, without U.S. assistance, she might be forced to use nuclear weapons against the Arab armies.52 In response, Kissinger reversed his decision and provided emergency aid to the Israeli DefenseForces.53 The Soviet Union also considered a military intervention to help its Arab proxies in the Yom Kippur War, causing the United States to go on nuclear alert, and leading leaders in both Moscow and Washington to consider the very real possibility that a conflict involving a regional nuclear power could spiral into a superpower war.54 Similarly, in 1999 and 2002, the United States became caught in diplomatic initiatives to prevent nuclear war in crises between the nuclear- armed countries of India and Pakistan.55

Indeed, the expectation that powerful states will intervene in conflicts involving a nuclear-armed state is so firmly ingrained in the strategic thinking of national leaders that small nuclear powers actually incorporate it into their strategic doctrines. South Africa’s nuclear doctrine envisioned, in the event of an imminent security threat, the detonation of a nuclear weapon, not against the threatening party, but over the Atlantic Ocean in an attempt to jolt the United States into intervening on South Africa’s behalf.56 Israel’s nuclear doctrine was also constructed along similar lines. While the Israelis are notoriously silent about the existence and purpose of their nuclear arsenal, Francis Perrin, a French official who assisted in the development of Israel’s nuclear program in the 1950s and 1960s, explained that Israel’s arsenal was originally aimed “against the Americans, not to launch against America, but to say ‘If you don’t want to help us in a critical situation, we will require you to help us. Otherwise, we will use our nuclear bombs.’”57 Similarly, Pakistan’s surprise raid on Indian-controlled Kargil in 1999 was motivated partly by the expectation that Pakistan would be able to retain any territory it was able to seize quickly, because Pakistani officials calculated that the United States would never allow an extended conflict in nuclear South Asia.58

For these reasons, power-projecting states worry about the effect of nuclear proliferation on regional stability. U.S. officials feared that nuclear proliferation in Israel could embolden Israel against its Arab enemies, or entice Arab states to launch a preventive military strike on Israel’s nuclear arsenal. In a 1963 NIE on Israel’s nascent nuclear program, the consensus view of the U.S. intelligence community was that if Israel acquired nuclear weapons, “Israel’s policy toward its neighbors would become more rather than less tough...it would seek to exploit the psychological advantage of its nuclear capability to intimidate the Arabs.”59 President Kennedy concurred. In a letter to Israeli Prime Minister David Ben-Gurion, Kennedy wrote that Israel should abandon its nuclear program because Israel’s “development of such (nuclear) weapons would dangerously threaten the stability of thearea.”60 Similarly, in the case of China’s nuclear program, U.S. officials believed that a nuclear-armed China would “be more willing to take risks in military probing operations because of an overoptimistic assessment of its psychological advantage.”61

More recently, U.S. officials have continued to fear the effect of nuclear proliferation on regional stability. In a 1986 Top Secret CIA Assessment, U.S. intelligence analysts predicted that a nuclear North Korea would have “a free hand to conduct paramilitary operations without provoking a response.”62 Similarly, a U.S. expert testified before Congress in 2006 that “A nuclear arsenal in the hands of Iran’s current theocratic regime will be a source of both regional and global instability.”63

U.S. officials assessed that regional instability set off by nuclear proliferation could compel them to intervene directly in regional conflicts. In the early 1960s, U.S. officials speculated that Israel could potentially leverage its nuclear arsenal to compel the United States to intervene on its behalf in Middle Eastern crises.64 Similarly, in 1965, Henry Rowen, an official in the Department of Defense, assessed that if India acquired nuclear weapons, it could lead to a conflict in South Asia “with a fair chance of spreading and involving the UnitedStates.”65 At the time of writing, U.S. defense strategists are planning for the possibility that the United States may be compelled to intervene in regional conflicts involving a nuclear-armed Iran or North Korea and their neighbors.66

Leaders in power-projecting states also fear that **regional instability set off by nuclear** proliferation could entrap power-projecting states in a **great power war**. Other power- projecting states, facing a mirror-image situation, may feel compelled to intervene in a crisis to secure their own interests, **entangling multiple great powers in a regional conflict**. In a 1963 NIE, U.S. intelligence analysts assessed that “the impact of (nuclear proliferation in the Middle East) will be the possibility that hostilities arising out of existing or future controversies could escalate into a confrontation involving the major powers.”67 President Johnson believed that a nuclear Israel meant increased Soviet involvement in the Middle East and perhaps superpower war.68 If historical experience provides a guide, U.S. strategists at the time of writing are undoubtedly concerned by the possibility that China may feel compelled to intervene in any conflict involving a nuclear-armed North Korea, making the Korean Peninsula another dangerous flash-point in the uncertain Sino-American strategic relationship.

#### Cold War no longer applies—nuclear war

Cimbala 8

Stephen Cimbala, Ph.D., Penn State Brandywine Political Science Distinguished Professor, 2008, Anticipatory Attacks: Nuclear Crisis Stability in Future Asia, Comparative Strategy Volume 27, Issue 2

The spread of nuclear weapons in Asia presents a complicated mosaic of possibilities in this regard. **States with nuclear forces of variable force structure, operational experience, and command-control systems** will be thrown into a **matrix of complex political, social, and cultural** **crosscurrents contributory to the possibility of war**. In addition to the existing nuclear powers in Asia, others may seek nuclear weapons if they feel threatened by regional rivals or hostile alliances. Containment of nuclear proliferation in Asia is a desirable political objective for all of the obvious reasons. Nevertheless, the present century is unlikely to see the nuclear hesitancy or **risk aversion that marked the Cold War**, in part, because the military and political discipline imposed by the Cold War superpowers no longer exists, but also because states in Asia have new aspirations for regional or global respect. 12

The spread of ballistic missiles and other nuclear-capable delivery systems in Asia, or in the Middle East with reach into Asia, is especially dangerous because **plausible adversaries live close together and are already engaged in ongoing disputes about territory** or other issues. 13 The Cold War Americans and Soviets required missiles and airborne delivery systems of intercontinental range to strike at one another's vitals. But short-range ballistic missiles or fighter-bombers suffice for India and Pakistan to launch attacks at one another with potentially “strategic” effects. China shares borders with Russia, North Korea, India, and Pakistan; Russia, with China and North Korea; India, with Pakistan and China; Pakistan, with India and China; and so on.

**The** short flight times **of ballistic missiles between** the cities or military forces of **contiguous states means that very little time will be available for warning and attack assessment** by the defender. Conventionally armed missiles could easily be mistaken for a tactical nuclear first use. Fighter-bombers appearing over the horizon could just as easily be carrying nuclear weapons as conventional ordnance. In addition to the challenges posed by shorter flight times and uncertain weapons loads, potential victims of nuclear attack in Asia may also have first strike–**vulnerable forces and command-control systems** that **increase decision pressures for rapid, and** possibly **mistaken, retaliation**.

This potpourri of possibilities challenges conventional wisdom about nuclear deterrence and proliferation on the part of policymakers and academic theorists. For policymakers in the United States and NATO, spreading nuclear and other weapons of mass destruction in Asia could profoundly shift the geopolitics of mass destruction from a European center of gravity (in the twentieth century) to an Asian and/or Middle Eastern center of gravity (in the present century). 14 This would profoundly shake up prognostications to the effect that wars of mass destruction are now passe, on account of the emergence of the “Revolution in Military Affairs” and its encouragement of information-based warfare. 15 Together with this, there has emerged the argument that large-scale war between states or coalitions of states, as opposed to varieties of unconventional warfare and failed states, are exceptional and potentially obsolete. 16 **The spread of WMD** and ballistic missiles in Asia could **overturn** these **expectations for the obsolescence** or marginalization **of major interstate warfare**.

For theorists, the argument that the spread of nuclear weapons might be fully compatible with international stability, and perhaps even supportive of international security, may be less sustainable than hitherto. 17 Theorists optimistic about the ability of the international order to accommodate the proliferation of nuclear weapons and delivery systems in the present century have made several plausible arguments based on international systems and deterrence theory. First, nuclear weapons may make states more risk averse as opposed to risk acceptant, with regard to brandishing military power in support of foreign policy objectives. Second, if states' nuclear forces are second-strike survivable, they contribute to reduced fears of surprise attack. Third, the motives of states with respect to the existing international order are crucial. Revisionists will seek to use nuclear weapons to overturn the existing balance of power; status quo–oriented states will use nuclear forces to support the existing distribution of power, and therefore, slow and peaceful change, as opposed to sudden and radical power transitions.

These arguments, for a less alarmist view of nuclear proliferation, take comfort from the history of nuclear policy in the “first nuclear age,” roughly corresponding to the Cold War. 18 Pessimists who predicted that some thirty or more states might have nuclear weapons by the end of the century were proved wrong. However, **the Cold War is a dubious precedent for the control of nuclear weapons** spread outside of Europe. The military and security agenda of the Cold War was dominated by the United States and the Soviet Union, especially with regard to nuclear weapons. Ideas about mutual deterrence based on second-strike capability and the deterrence “rationality” according to American or allied Western concepts might be inaccurate guides to the avoidance of war outside of Europe.

#### A strong SMR industry’s key to US leadership, market share, and cradle to grave

Mandel 9

(Jenny – Scientific American, Environment & Energy Publishing, LLC, “Less Is More for Designers of "Right-Sized" Nuclear Reactors” September 9, 2009, http://www.scientificamerican.com/article.cfm?id=small-nuclear-power-plant-station-mini-reactor)

Tom Sanders, president of the American Nuclear Society and manager of Sandia National Laboratories' Global Nuclear Futures Initiative, has been stumping for small rectors for more than a decade. American-made small reactors, Sanders insists, can play a central role in global nonproliferation efforts. "Our role at Sandia is the national security-driven notion that it's in the interests of the U.S. to be one of the dominant nuclear suppliers," Sanders said. While U.S. companies have been exiting the industry over the past decades as government and popular support for new construction has waned, Sanders maintains that **strong U.S. participation in the nuclear energy marketplace** would give diplomats a new tool to use with would-be nuclear powers. "It's hard to tell Iran what to do if you don't have anything Iran wants," he explained. Sanders said mini-reactors are ideal to sell to developing countries that want to boost their manufacturing might and that would otherwise look to other countries for nuclear technologies**. If the U**nited **S**tates **is not participating in that market**, he said, **it becomes hard to steer buyers away from technologies that pose greater proliferation risks.** Sanders been promoting this view since the 1990s, he said, when he realized "we were no longer selling nuclear goods and services, so we could no longer write the rules." The domestic nuclear industry had basically shut down, with no new construction in decades **and a flight of talent and ideas overseas**. There is a silver lining in that brain drain, though, he believes, in that U.S. companies getting back into the game now are less tied to the traditional, giant plants and are freer to innovate. A feature that several of the new product designs share is that the power plants could be mass-produced in a factory to minimize cost, using robots to ensure consistency. Also, with less design work for each installation, the time to complete an order would be shortened and some of the capital and other costs associated with long lead times avoided, Sanders said. Another feature he favors is building the plants with a lifetime supply of fuel sealed inside. Shipped loaded with fuel, such reactors could power a small city for 20 years without the host country ever handling it. Once depleted, the entire plant would be packed back up and shipped back to the United States, he said, with the sensitive spent fuel still sealed away inside. Sanders is working on a reactor design hatched by the lab with an undisclosed private partner. He believes it is feasible to build a prototype modular reactor -- including demonstration factory components and a mockup of the reactor itself -- as early as 2014, for less than a billion dollars. A mini-reactor could ring up at less than $200 million, he said, or at $300 million to $400 million with 20 years of fuel. At $3,000 to $4,000 per kilowatt, he said, that would amount to significant savings over estimates of $4,000 to $6,000 per kilowatt for construction alone with traditional plant designs. To get a design ready to build, Sanders is urging a partnership between the government and the private sector. "If it's totally a government research program, labs can take 20 to 30 years" to finish such projects, he said. "If it becomes a research science project, it could go on forever." New approach, old debates So far, **there is no sign that the** government's nuclear gatekeeper, **NRC, is wowed by the small-reactor designs.** NRC's Office of New Reactors warned Babcock & Wilcox in June that the agency "will need to limit interactions with the designers of small power reactors to occasional meetings or other nonresource-intensive activities" over the next two years because of a crowded schedule of work on other proposals. Meanwhile, opponents of nuclear technologies are not convinced that small reactors are an improvement over traditional designs. Arjun Makhijani, who heads the Institute for Energy and Environmental Research, a think tank that advocates against nuclear power, sees disseminating the technology as incompatible with controlling it. "A lot of the proliferation issue is not linked to having or not having plutonium or highly enriched uranium, but who has the expertise to have or make bombs," Makhijani said. "In order to spread nuclear technologies, you have to have the people who have the expertise in nuclear engineering, who know about nuclear materials and chain reactions and things like that -- the same expertise for nuclear bombs. That doesn't suffice for you to make a bomb, but then if you clandestinely acquire the materials, then you can make a bomb." Peter Wilk, acting program director for safe energy with Physicians for Social Responsibility, an anti-nuclear group, argues that expanding nuclear power use runs counter to the goal of nonproliferation. "The whole proposition presupposes an ... international economy in which more and more fuel is produced and more and more waste must be dealt with, which only makes those problems that are still unsolved larger," he said. "It may or may not do a better job of preventing the host country from literally getting their hands on it, but it doesn't reduce the amount of fuel in the world or the amount of waste in the world," Wilk added. And then there is the issue of public opinion. "Imagine that Americans would agree to take the waste that is generated in other countries and deal with it here," Makhijani said. "At the present moment, it should be confined to the level of the fantastic, or even the surreal. If [the technology's backers] could come up with a plan for the waste, then we could talk about export." Makhijani pointed to a widely touted French process for recycling nuclear waste as a red herring (ClimateWire, May 18). "It's a mythology that it ameliorates the waste problem," he said. According to Makhijani's calculations, the French recycling process generates far more radioactive waste than it cleans up. One category of highly radioactive material, which ends up stored in glass "logs" for burial, is reduced, he said. But in processing the waste, about six times the original volume of waste is produced, he said. Much of that must be buried deep underground, and the discharge of contaminated wastewater used in recycling has angered neighboring countries, he said. Operational risk, of course, is another major concern. "One has reduced the amount of unnecessary risk," Wilke said, "but it's still unnecessary risk." He added, "I get the theory that smaller, newer, ought to be safer. The question is: Why pursue this when there are so many better alternatives?" To Sandia's Sanders, Wilke is asking the wrong question. With the governments of major economies like China, Russia and Japan putting support and cash into nuclear technologies, the power plants are here to stay, he believes. "There's going to be a thousand reactors built over the next 50 years," he said. "The question is: Are we building them, or are we just importing them?"

#### Domestic nuclear expansion’s key to leadership and nonprolif

Michael Wallace and Sarah Williams 12, Michael is Senior Adviser at the U.S. Nuclear Energy Project at CSIS, Sarah is a Nuclear Policy Analyst at the Partnership for Global Security at CSIS, “Nuclear Energy in America: Preventing its Early Demise”, October, <http://csis.org/files/publication/120417_gf_wallace_williams.pdf>

America’s nuclear energy industry is in decline. Low natural gas prices, financing hurdles, new safety and security requirements, failure to resolve the waste issue and other factors are hastening the day when existing reactors become uneconomic, making it virtually impossible to build new ones. Two generations after the United States took this wholly new and highly sophisticated technology from laboratory experiment to successful commercialization, our nation is in danger of losing an industry of unique strategic importance, unique potential for misuse, and unique promise for addressing the environmental and energy security demands of the future. The pace of this decline, moreover, could be more rapid than most policymakers and stakeholders anticipate. With 104 operating reactors and the world’s largest base of installed nuclear capacity, it has been widely assumed that the United States—even without building many new plants— would continue to have a large presence in this industry for some decades to come, especially if existing units receive further license extensions. Instead, current market conditions are such that growing numbers of these units are operating on small or even negative profit margins and could be retired early. Meanwhile, China, India, Russia, and other countries are looking to significantly expand their nuclear energy commitments. By 2016, China could have 50 nuclear power plants in operation, compared with only 14 in 2011. India could add 8 new plants and Russia 10 in the same time frame. These trends are expected to accelerate out to 2030, by which time China, India, and Russia could account for nearly 40 percent of global nuclear generating capacity. Meanwhile, several smaller nations, mostly in Asia and the Middle East, are planning to get into the nuclear energy business for the first time. In all, as many as 15 new nations could have this technology within the next two decades. Meanwhile, America’s share of global nuclear generation is expected to shrink, from about 25 percent today to about 14 percent in 2030, and—if current trends continue—to less than 10 percent by mid-century. With the center of gravity for global nuclear investment shifting to a new set of players, the United States and the international community face a difficult set of challenges: stemming the spread of nuclear weapons-usable materials and know-how; preventing further catastrophic nuclear accidents; providing for safe, long-term nuclear waste management; and protecting U.S. energy security and economic competitiveness. In this context, federal action to reverse the American nuclear industry’s impending decline is a national security imperative. The United States cannot afford to become irrelevant in a new nuclear age. Our nation’s commercial nuclear industry, its military nuclear capabilities, and its strong regulatory institutions can be seen as three legs of a stool. All three legs are needed to support America’s future prosperity and security and to shape an international environment that is conducive to our long-term interests. Three specific aspects of U.S. leadership are particularly important. First, managing the national and global security risks associated with the spread of nuclear technology to countries that don’t necessarily share the same perspective on issues of nonproliferation and nuclear security or may lack the resources to implement effective safeguards in this area. An approach that relies on influence and involvement through a viable domestic industry is likely to be more effective and less expensive than trying to contain these risks militarily. Second, setting global norms and standards for safety, security, operations, and emergency response. As the world learned with past nuclear accidents and more recently with Fukushima, a major accident anywhere can have lasting repercussions everywhere. As with nonproliferation and security, America’s ability to exert leadership and influence in this area is directly linked to the strength of our domestic industry and our active involvement in the global nuclear enterprise. A strong domestic civilian industry and regulatory structure have immediate national security significance in that they help support the nuclear capabilities of the U.S. Navy, national laboratories, weapons complex, and research institutions. Third, in the past, the U.S. government could exert influence by striking export agreements with countries whose regulatory and legal frameworks reflected and were consistent with our own nonproliferation standards and commitments. At the same time, our nation set the global standard for effective, independent safety regulation (in the form of the Nuclear Regulatory Commission), led international efforts to reduce proliferation risks (through the 1970 NPT Treaty and other initiatives), and provided a model for industry self-regulation. The results were not perfect, but America’s institutional support for global nonproliferation goals and the regulatory behaviors it modeled clearly helped shape the way nuclear technology was adopted and used elsewhere around the world. This influence seems certain to wane if the United States is no longer a major supplier or user of nuclear technology. With existing nonproliferation and safety and security regimes looking increasingly inadequate in this rapidly changing global nuclear landscape, American leadership and leverage is more important and more central to our national security interests than ever. To maintain its leadership role in the development, design, and operation of a growing global nuclear energy infrastructure, the next administration, whether Democrat or Republican, must recognize the invaluable role played by the commercial U.S. nuclear industry and take action to prevent its early demise.

#### Cradle to grave solves cascades

McGoldrick 11

Fred McGoldrick, CSIS, spent 30 years at the U.S. State and Energy Departments and at the U.S. mission to the IAEA, negotiated peaceful nuclear cooperation agreements with a number of countries and helped shape the policy of the United States to prevent the spread of nuclear weapons, May 2011, Limiting Transfers of Enrichment and Reprocessing Technology: Issues, Constraints, Options, http://belfercenter.ksg.harvard.edu/files/MTA-NSG-report-color.pdf

The U.S. has been exploring the possibilities of developing offers by one or more suppliers to lease or sell power reactor fuel to consumer states, with the understanding that the resultant spent fuel would be returned to one of the supplier countries or to suitable alternative locations, such as a regional or international used fuel storage facility or waste repository, (if a host state can be found), where it would be treated, recycled or where wastes could be ultimately disposed of. 4.3.1 Offering a Broad-based Cradle-to-Grave Fuel Cycle Service. This option would involve a major diplomatic initiative to explore the possibility that one or more supplier states could offer cradle-to-grave services to all states without E&R plants as an incentive for states to forgo the development of such capabilities. Advantages If one or more suppliers could offer a “cradle-to-grave” fuel supply program, it could prove to be far more effective than some other techniques in discouraging the spread of reprocessing facilities. Because the commercial market already provides strong assurance of fresh fuel supply, while management of spent fuel is unresolved, such a service offer could create stronger incentives for countries to rely on international fuel supply than steps such as fuel banks would. Russia has already implemented such a program on a limited scale. Moscow has concluded an agreement to provide fresh nuclear fuel for the Bushehr nuclear power plant in Iran and to take back the used nuclear fuel to Russia. The Russians have also taken back some spent pow- er reactor fuel from East European countries and have indicated that they might be willing to consider taking back spent fuel of Russian-origin in the future—they have recently offered such deals to Vietnam and Turkey—but do not seem ready to accept spent fuel produced from fuel from non-Russian suppliers. If Russia were to offer a broad-based a cradle-to-grave program, **it may put pressure on its competitors in the reactor and enrichment markets to** try to **follow suit**. If a country agreed to accept spent fuel from other countries on a commercial basis, the supplier of the fresh fuel and the country to which the spent fuel was sent would not have to be the same for a cradle-to-grave service to work.

#### Plan accesses a huge export market

Rosner and Goldberg 11

Robert Rosner, Stephen Goldberg, Energy Policy Institute at Chicago, The Harris School of Public Policy Studies, November 2011, SMALL MODULAR REACTORS –KEY TO FUTURE NUCLEAR POWER GENERATION IN THE U.S., <https://epic.sites.uchicago.edu/sites/epic.uchicago.edu/files/uploads/EPICSMRWhitePaperFinalcopy.pdf>

Previous studies have documented the potential for a significant export market for U.S. SMRs, mainly in lesser developed countries that do not have the demand or infrastructure to accommodate GW-scale LWRs. Clearly, the economics of SMR deployment depends not only on the cost of SMR modules, but also on the substantial upgrades in all facets of infrastructure requirements, particularly in the safety and security areas, that would have to be made, and as exemplified by the ongoing efforts in this direction by the United Arab Emirates (and, in particular, by Abu Dhabi). This is a substantial undertaking for these less developed countries. Thus, such applications may be an attractive market opportunity for FOAK SMR plants, even if the cost of such plants may not have yet achieved all of the learning benefits.

The Department of Commerce has launched the Civil Nuclear Trade Initiative, which seeks to identify the key trade policy challenges and the most significant commercial opportunities. The Initiative encompasses all aspects of the U.S. nuclear industry, and, as part of this effort, the Department identified 27 countries as “markets of interest” for new nuclear expansion. A recent Commerce Department report identified that “SMRs can be a solution for certain markets that have smaller and less robust electricity grids and limited investment capacity.” Studies performed by Argonne National Laboratory suggest that SMRs would appear to be a feasible power option for countries that have grid capacity of 2,000-3,000 MW. **Exports of SMR technology** also **could play an important role in furthering non-proliferation policy objectives.** The design of SMR nuclear fuel management systems, such as encapsulation of the fuel, may have non-proliferation benefits that merit further assessment. Also, the development of an SMR export industry would be step toward a U.S.-centric, bundled reliable fuel services.

## solvency

#### Other Transactions authority leads to effective and quick acquisition

Dix et al 3

Nancy Dix, and Fernard Lavallee, partners in the San Diego and Washington, D.C., offices of Gray Cary, and Kimberly Welch, senior associate, specialize in specialize in government contracts, government contracts litigation, and intellectual property, Fall 2003, FEAR AND LOATHING OF FEDERAL CONTRACTING: ARE COMMERCIAL COMPANIES REALLY AFRAID TO DO BUSINESS WITH THE FEDERAL GOVERNMENT? SHOULD THEY BE?, 33 Pub. Cont. L.J. 5

DARPA has taken the position that OT authority permits tremendous flexibility in the terms and conditions that can be negotiated under such agreements, and, consequently, that there are a great variety of uses for the OT instrument. For example, DARPA has pioneered the use of OTs for research and technology development projects performed as multiparty cooperative arrangements involving cost sharing and advancing dual-use technologies. While the principal purpose of these transactions frequently is like traditional federal assistance, that is, other than to acquire goods and services for the direct benefit and use of the Government, DARPA does take the view that some OTs can be used for acquisition. n62

Proponents of OTs coined the phrase "freedom of contract" to describe the flexibility offered by OTs. Other Transactions are meant to present the Government and contractor with a "blank page" from which to begin when negotiating such instruments. Generally speaking, the terms and conditions of an OT are negotiable; however, DARPA has a well-defined "opening position." DARPA's opening position usually includes, for example, restrictions on foreign access to technology and a Bayh-Dole treatment for patents, without a requirement for the flow-down of the Bayh-Dole provisions.

The "freedom of contract" aspect also acknowledges that OTs are subject to even fewer laws and regulations than Cooperative Agreements or CRADAs. In December 1996, Under Secretary of Defense Paul Kaminski published a memorandum to the secretaries of the military departments and directors of defense agencies that identifies statutes that "are not necessarily applicable to 'other transactions.'" n63

The OT provides both the Government and contractors with unparalleled opportunities to negotiate terms and conditions designed to maintain a contractor's competitive advantage in the commercial marketplace while providing the Government with timely and affordable access to cutting-edge technologies and services. n64 In many respects, the OT is the ultimate in streamlined federal acquisition, allowing the Government to "do business the way business does business." The latitude afforded to the Government by OTs enables the sovereign to attract contractors that traditionally would not, or could not, do business with the Government.

#### Plan’s key to innovative DoD procurement and commercialization

L. Elaine Halchin, Congressional Research Service Specialist in American National Government, 7/15/2011, Other Transaction (OT) Authority, http://www.fas.org/sgp/crs/misc/RL34760.pdf

Prior to 1989, “DoD interpreted its authority to enter into R&D [research and development] agreements as limited to procurement contracts and grants,” and, according to department policy, it could use grants only for arrangements with universities and nonprofit organizations.31 The other vehicles available to DARPA—in particular, contracts—were inadequate, and some companies were reluctant to enter into a contract with the government. The following passage describes some problems DARPA encountered in using government contracts for R&D: It became apparent in the late 1980s ... that the standard government contract and standard DOD grant were inadequate for DARPA to carry out its advanced research mission. For example, DARPA missed out on opportunities to contract with some of the most innovative companies, including small start-ups and large commercial companies, that developed some of the most promising new technologies. Many of these companies lacked either the desire or the government-required systems to perform a contract under the government procurement regulations. In addition, when DARP A used a standard government procurement contract to form a consortium, it created an awkward contractual relationship.32 DARPA needed a contractual vehicle that would allow it to set up a multiparty agreement where consortium members would be equal. In 1988 DARP A concluded that it “needed additional flexibility in its approaches to support advanced R&D.” DARP A turned toward the National Aeronautics and Space Administration (NASA) for inspiration in obtaining a new statutory authority to fill the void discussed above.33 Additionally, DARPA realized that R&D contracts “often result[ed] in no deliverables, except reports, to the Government,” and the reports were of “little direct value to DoD....”34 Instead, R&D contracts benefitted the government by advancing research, or by showing whether a particular approach or line of inquiry was fruitful.35 By the late 1980s, DARPA, DOD, and a group of retired military and government officials shared an interest in providing DARPA with a new approach for R&D work. By 1988, Dr. Raymond Colladay, then director of DARPA, concluded that DARPA needed additional flexibility in its approaches to supporting advanced R&D. The House Appropriations Committee had directed that DARPA submit a report to Congress on alternative management systems by early 1989. Among other initiatives suggested in his report, Colladay advocated the creation of a new and flexible R&D agreement authority for DARPA. The report was never sent directly to Congress. However, the biennial review of Defense Agencies required by the Goldwater-Nichols Act was performed during 1989. In October 1989 the Office of the Secretary of Defense (OSD) Study Team issued its report, which recommended that DoD prepare legislation that would give DARP A authority to enter into innovative contractual agreements. About the same time, a group of retired flag officers and other former government officials lobbied Congress for additional authority for DARPA to enter into innovative contractual agreements so that DARPA could contract with the best and brightest companies in the research community. This group included individuals well known to the administration and Capitol Hill, who convinced Congress to add appropriate language to the Defense Authorization Bill for FY 1990.36 Apparently, one or more of these efforts was successful as OT authority for DARPA was included in S. 1352, which was incorporated into H.R. 2461 as an amendment on August 4, 1989. The following passage is from the Senate report that accompanied S. 1352: The [Senate Armed Services] committee recognizes that the maturation of many technologies funded by the Defense Advanced Research Projects Agency may have significant commercial application. The committee applauds the efforts of DARPA in this area and supports a broadening of this effort. Current law does not authorize DARPA to enter into “cooperative agreement” or “other transactions” as distinct from “grants” or “contracts.” Additionally, current law does not allow for any proceeds of such arrangements to be applied to a fund for the development of other advanced technologies. Accordingly, section [222] clearly establishes the legal authority of DARPA to enter into cooperative arrangements and other transactions. In granting the authority to enter into “other transactions,” the committee enjoins the Department to utilize this unique authority only in those instances in which traditional authorities are clearly not appropriate.37 Although H.R. 2461 did not include a provision similar to Section 222 of S. 1352 (prior to the incorporation of S. 1352 into H.R. 2461 by amendment), the House Committee on Armed Services noted that, of two legislative proposals “raised too late for thorough consideration by the committee” for inclusion in H.R. 2461, one of them would authorize the Director of DARPA to enter into cooperative agreements and the Secretary of Defense to provide ‘proceeds or other payments to the United States arising out of such agreements’ to a fund set up in the Treasury for such activities. Apparently, the National Aeronautics and Space Administration has such authority, and similar authority was previously granted to the Department of Defense for the semiconductor industry consortium, SEMA TECH, in sections 271-278 of the fiscal years 1988/1989 Defense Authorization Act (P.L. 100-180).38 In another section of this report, the House Armed Services Committee discussed DOD’s need for a robust technology base. Although OT authority was not mentioned in this section, which is reproduced here, in part, OTs are related to the enhancement of DOD’s technology base.39 U.S. forces rely on modern technology and industrial strength as fundamental components of our deterrent by providing superior defense systems as force multipliers against the larger number of weapons fielded by our adversaries. Therefore, it is mandatory that the Department of Defense maintain a healthy technology base that keeps pace with technology opportunity and the military’s long range plan to defeat current and potential future threats to national security. ... the United States needs new initiatives to invigorate the technology base to ensure that invention and innovation will remain in our industry, which has been a cornerstone of our free enterprise system and national strength. Distinguished scientific experts advised the committee that the component of RDT&E [research, development, test, and evaluation] with greatest opportunity to help maintain a strong defense industrial and technology base are the research ... and the exploratory development ... categories. If defense is critically dependent on the industrial technology base, then the Department of Defense cannot expect to continue to survive with the research investments of the past, but must re-invest its proportionate share in the common pool of technical knowledge and human technical talent. The committee intends both to correct trends and redirect certain efforts in the fiscal year 1990 DoD technology base program to ensure a vigorous, modern and advancing pool of technology that will be available to provide the needs of the nation’s defense in the future. Furthermore, the committee intends to foster and encourage linkages among the Department of Defense, industry and universities; and to bolster the defense industrial base and provide greater opportunity to “spin off” technology into the civilian sector.”40 The conference report accompanying H.R. 2461 noted that the House bill did not contain a provision similar to the one found in S. 1352 which provided DARPA OT authority, and stated that the House receded “with an amendment that would establish ... authority [for other transactions and cooperative agreements] on a two-year trial basis.”41 On November 29, 1989, the President signed H.R. 2461, which was enacted as P.L. 101-189, National Defense Authorization Act for FY1990 and FY1991. Section 251 of P.L. 101-189 amended Chapter 139 of Title 10 by adding a new section, Section 2371. Section 251(a) authorized the “Secretary of Defense, in carrying out advanced research projects through the Defense Advanced Research Projects Agency, [to] enter into cooperative agreements and other transactions with any person, any agency or instrumentality of the United States, any unit of State or local government, any educational institution, and any other entity.” Several years after the passage of P.L. 101-189, DOD’s Office of Inspector General (IG) summarized why DOD was given OT authority: Congress authorized the use of ‘other transactions’ to increase involvement in DoD programs by commercial firms that traditionally have not entered into contracts or agreements with the DoD. DoD officials requested the authority to stimulate or support research and development by commercial firms and consortia that were believed to be reluctant to conduct research for DoD because they would be subject to the FAR and DOD procurement regulations. Congress authorized the use of ‘other transactions’ and allowed DoD officials a considerable degree of flexibility in negotiating terms and conditions. The intent of ‘other transactions’ was to obtain research from traditionally non-DoD commercial firms and to capitalize on commercial firms’ research investments.42 In 1993, DARPA’s OT authority was expanded, through the enactment of P.L. 103-160, National Defense Authorization Act for FY1994, to include prototypes relevant to weapons or weapon systems.43 (The authority was provided in Section 845. Hence, prototype OTs are also known as “Section 845” (or “845”) projects or OTs.) Subsequent to the passage of P.L. 103-160, GAO wrote: “While the intent [of the 1994 congressional authorization for OT prototypes] is never spelled out explicitly in congressional documents, it is apparent that one major goal was to improve DoD access to technologies that were being developed for the commercial market.”44 Notable changes to DOD’s OT authority were effected by P.L. 103-355 and P.L. 108-136. Section 1301 of P.L. 103-355, Federal Acquisition Streamlining Act of 1994, provided authority to the Secretary of Defense and the service secretaries to enter into OTs for “carrying out basic, applied, and advanced research projects.”45 Under Section 1601 of P.L. 108-136,46 National Defense Authorization Act for FY2004, the Secretary may use the procedures authorized in 10 U.S.C. §2371 and Section 845 of P.L. 103-160 to procure “property or services for use ... in performing, administering, or supporting biomedical countermeasures research and development....”47 The following is a summary of selected provisions of 10 U.S.C. §2371, which governs R&D OTs: The Secretary of Defense and the Secretary of each military department may, under the authority of 10 U.S.C. §2371, enter into other transactions for the purpose carrying out basic, applied, and advanced research projects. In using OT authority, the Secretary of Defense shall act through DARPA or any other DOD element the Secretary designates.

#### SMR’s are super cost-effective and safe

Ioannis N. Kessides and Vladimir Kuznetsov 12, Ioannis is a researcher for the Development Research Group at the World Bank, Vladimir is a consultant for the World Bank, “Small Modular Reactors for Enhancing Energy Security in Developing Countries”, August 14, Sustainability 2012, 4(8), 1806-1832

SMRs offer a number of advantages that can potentially offset the overnight cost penalty that they suffer relative to large reactors. Indeed, several characteristics of their proposed designs can serve to overcome some of the key barriers that have inhibited the growth of nuclear power. These characteristics include [23,24]: \* • Reduced construction duration. The smaller size, lower power, and simpler design of SMRs allow for greater modularization, standardization, and factory fabrication of components and modules. Use of factory-fabricated modules simplifies the on-site construction activities and greatly reduces the amount of field work required to assemble the components into an operational plant. As a result, the construction duration of SMRs could be significantly shorter compared to large reactors leading to important economies in the cost of financing. \* • Investment scalability and flexibility. In contrast to conventional large-scale nuclear plants, due to their smaller size and shorter construction lead-times SMRs could be added one at a time in a cluster of modules or in dispersed and remote locations. Thus capacity expansion can be more flexible and adaptive to changing market conditions. The sizing, temporal and spatial flexibility of SMR deployment have important implications for the perceived investment risks (and hence the cost of capital) and financial costs of new nuclear build. Today’s gigawatt-plus reactors require substantial up-front investment—in excess of US$ 4 billion. Given the size of the up-front capital requirements (compared to the total capitalization of most utilities) and length of their construction time, new large-scale nuclear plants could be viewed as “bet the farm” endeavors for most utilities making these investments. SMR total capital investment costs, on the other hand, are an order of magnitude lower—in the hundreds of millions of dollars range as opposed to the billions of dollars range for larger reactors. These smaller investments can be more easily financed, especially in small countries with limited financial resources. SMR deployment with just-in-time incremental capacity additions would normally lead to a more favorable expenditure/cash flow profile relative to a single large reactor with the same aggregate capacity—even if we assume that the total time required to emplace the two alternative infrastructures is the same. This is because when several SMRs are built and deployed sequentially, the early reactors will begin operating and generating revenue while the remaining ones are being constructed. In the case of a large reactor comprising one large block of capacity addition, no revenues are generated until all of the investment expenditures are made. Thus the staggered build of SMRs could minimize the negative cash flow of deployment when compared to emplacing a single large reactor of equivalent power [25]. \* • Better power plant capacity and grid matching. In countries with small and weak grids, the addition of a large power plant (1000 MW(e) or more) can lead to grid stability problems—the general “rule of thumb” is that the unit size of a power plant should not exceed 10 percent of the overall electricity system capacity [11]. The incremental capacity expansion associated with SMR deployment, on the other hand, could help meet increasing power demand while avoiding grid instability problems. \* • Factory fabrication and mass production economies. SMR designs are engineered to be pre-fabricated and mass-produced in factories, rather than built on-site. Factory fabrication of components and modules for shipment and installation in the field with almost Lego-style assembly is generally cheaper than on-site fabrication. Relative to today’s gigawatt-plus reactors, SMRs benefit more from factory fabrication economies because they can have a greater proportion of factory made components. In fact, some SMRs could be manufactured and fully assembled at the factory, and then transported to the deployment site. Moreover, SMRs can benefit from the “economies of multiples” that accrue to mass production of components in a factory with supply-chain management. \* • Learning effects and co-siting economies. Building reactors in a series can lead to significant per-unit cost reductions. This is because the fabrication of many SMR modules on plant assembly lines facilitates the optimization of manufacturing and assembly processes. Lessons learned from the construction of each module can be passed along in the form of productivity gains or other cost savings (e.g., lower labor requirements, shorter and more efficiently organized assembly lines) in successive units (Figure 6). Moreover, additional learning effects can be realized from the construction of successive units on the same site. Thus multi-module clustering could lead to learning curve acceleration. Since more SMRs are deployed for the same amount of aggregate power as a large reactor, these learning effects can potentially play a much more important role for SMRs than for large reactors [26]. Also, sites incorporating multiple modules may require smaller operator and security staffing. \* • Design simplification. Many SMRs offer significant design simplifications relative to large-scale reactors utilizing the same technology. This is accomplished thorough the adoption of certain design features that are specific to smaller reactors. For example, fewer and simpler safety features are needed in SMRs with integral design of the primary circuit (i.e., with an in vessel location of steam generators and no large diameter piping) that effectively eliminates large break LOCA. Clearly one of the main factors negatively affecting the competitiveness of small reactors is economies of scale—SMRs can have substantially higher specific capital costs as compared to large-scale reactors. However, SMRs offer advantages that can potentially offset this size penalty. As it was noted above, SMRs may enjoy significant economic benefits due to shorter construction duration, accelerated learning effects and co-siting economies, temporal and sizing flexibility of deployment, and design simplification. When these factors are properly taken into account, then the fact that smaller reactors have higher specific capital costs due to economies of scale does not necessarily imply that the effective (per unit) capital costs (or the levelized unit electricity cost) for a combination of such reactors will be higher in comparison to a single large nuclear plant of equivalent capacity [22,25]. In a recent study, Mycoff et al. [22] provide a comparative assessment of the capital costs per unit of installed capacity of an SMR-based power station comprising of four 300 MW(e) units that are built sequentially and a single large reactor of 1200 MW(e). They employ a generic mode to quantify the impacts of: (1) economies of scale; (2) multiple units; (3) learning effects; (4) construction schedule; (5) unit timing; and (6) plant design (Figure 7). To estimate the impact of economies of scale, Mycoff et al. [22] assume a scaling factor n = 0.6 and that the two plants are comparable in design and characteristics—i.e., that the single large reactor is scaled down in its entirety to ¼ of its size. According to the standard scaling function, the hypothetical overnight cost (per unit of installed capacity) of the SMR-based power station will be 74 percent higher compared to a single large-scale reactor. Based on various studies in the literature, the authors posit that the combined impact of multiple units and learning effects is a 22 percent reduction in specific capital costs for the SMR-based station. To quantify the impact of construction schedule, the authors assume that the construction times of the large reactor and the SMR units are five and three years respectively. The shorter construction duration results in a 5 percent savings for the SMRs. Temporal flexibility (four sequentially deployed SMRs with the first going into operation at the same time as the large reactor and the rest every 9 months thereafter) and design simplification led to 5 and 15 percent reductions in specific capital costs respectively for the SMRs. When all these factors are combined, the SMR-based station suffers a specific capital cost disadvantage of only 4 percent as compared to the single large reactor of the same capacity. Thus, the economics of SMRs challenges the widely held belief that nuclear reactors are characterized by significant economies of scale [19].

#### Prefer our econ models

Dean Glenn Hubbard 11-2, Professor of Finance and Economics at Columbia Business School, “Building small: In many industries, economies of size is shifting to economies of numbers”, <http://www.laserfocusworld.com/news/2012/11/05/building-small-in-many-industries-economies-of-size-is-shifting-to-economies-of-numbers.html>

For decades, bigger is better has been the conventional path to efficiency in industries ranging from transportation to power generation. Food once grown on small family plots now comes overwhelmingly from factory farms. Vessels that carried 2,000 tons of cargo have been replaced by modern container ships that routinely move 150,000 tons.

But now, new research shows, we are on the cusp of a radical shift from building big to building small-a change that has profound implications for both established and emerging industries. Many industry sectors are nearing or have reached a tipping point in which efficiency of unit size is being replaced by efficiency of numbers, according to a recent study by Garrett van Ryzin, the Paul M. Montrone Professor of Private Enterprise at Columbia Business School, Caner Gmen, Ph.D. candidate at Columbia Business School, and Eric Dahlgren and Klaus S. Lackner of Columbia Universitys School of Engineering and Applied Science. Rather than relying on custom-built, large-scale units of production - e.g. massive thermal power plants - industries can benefit from a shift to small, modular, mass-produced units that can be deployed in a single location or distributed across many locations - e.g. photovoltaic (PV) panels mounted on utility poles. Conventional wisdom holds that capital cost per unit of capacity decline with increasing unit size. Other efficiencies of unit size arise from manufacturers ability to spread out the fixed-costs components of production, as well as factors such as operator labor and design costs. This alternative approach to infrastructure design offers new possibilities for reducing costs and improving service, the researchers found. The authors identify three driving forces underlying this shift. First, new computing, sensor, and communication technologies make high degrees of automation possible at a very low cost, largely eliminating the labor savings from large units. Second, mass production of many small, standardized units can achieve capital cost savings comparable to or even greater than those achievable through large unit scale. And third, small-unit scale technology provides significant flexibility-a benefit that has been largely ignored in the race toward ever-increasing scale and one which can significantly reduce both investment and operating costs. This trend-observable in nascent form in several industries ranging from small, modular nuclear reactors, chlorine plants, and biomass energy systems to data centers-is resulting in a switch from large to small optimal unit scale, the authors found. The shift mirrors a similar revolution that began thirty years ago in the supercomputer industry. The traditional approach to producing higher capacity and greater speed in computing was to build increasingly powerful, specialized machines with ever-increasing processing power. This came to a halt in the mid-1990s, when it became cheaper to employ mass-produced processors and high-capacity memory from the burgeoning personal computer industry. Soon, the researchers conclude, many more industries will learn to think small and thereby reap the benefits of this new paradigm in production.

#### Sufficient to overcome natural gas prices

Joseph Somsel 10-13, degreed nuclear engineer holding an MBA from California Polytechnic University, “Obama's War on Nuclear Power”, <http://www.americanthinker.com/2012/10/obamas_war_on_nuclear_power.html>

Yet as of this writing, only four reactors have just begun physical construction, with permit approval in the spring of 2012. The rest have been either abandoned or suspended. Of course, the drop in natural gas prices had something to do with it, but investing in nuclear electricity-generation is a long-term bet against fossil fuel volatility. In other words, don't expect natural gas prices to stay this low for long. With the rapid spread of fracking and horizontal drilling technologies, a bubble of natural gas supply has hit the market, driving prices down. Current prices do not appear to support the long-term average cost of natural gas production causing financial difficulties for large producers like Chesapeake Energy. With an eventual normalization of costs to prices and the opening of export markets for America's gas, we can expect prices to show an upward climb over time. Nuclear, on the other hand, once built, is little troubled by uranium cost swings and can produce electricity at relatively stable rates. And stable electric rates have a intrinsic value to the customers by reducing the volatility of electric bills.

#### DoD installations are key – market pull

Jeffrey **Marqusee 12**, Executive Director of the Strategic Environmental Research and Development Program (SERDP) and the Environmental Security Technology Certification Program (ESTCP) at the Department of Defense, “Military Installations and Energy Technology Innovation”, March, <http://bipartisanpolicy.org/sites/default/files/Energy%20Innovation%20at%20DoD.pdf>

The key reason that DoD cannot passively rely on the private sector to provide a suite of new, cost-effective energy technologies is the difficulty of the transition from research and development to full deployment. Many have noted this challenge; it is often described as the “Valley of Death,” a term widely used in the early and mid-1990s to describe the obstacles to commercialization and deployment of environmental technologies. DoD’s environmental technology demonstration program, the Environmental Security Technology Certification Program (ESTCP), was created to overcome that hurdle. Why can’t DoD rely on the Department of Energy (DOE) to solve the commercialization and deployment problem? DOE has a mixed record in this area. Reasons for past failures at DOE are: 1) the lack of a market within DOE for the technologies; 2) overly optimistic engineering estimates; 3) lack of attention to potential economic or market failures; 4) a disconnect between business practices at DOE and commercial practices, which leads to demonstration results that are not credible in the private sector; and 5) programs completely driven by a technology “push,” rather than a mix of technology push and market-driven pull.81 Many of these issues can be viewed as arising from the first: the lack of a market within DOE. Since DOE is neither the ultimate supplier nor buyer of these technologies at the deployment scale, it is not surprising that there are challenges in creating a system that can bring technologies across the Valley of Death. DoD’s market size allows it to play a critical role in overcoming this challenge for the energy technologies the department’s installations require, as it has for environmental technologies. In addressing the barriers energy technologies face, and understanding the role DoD installations can play, it is important to understand the type and character of technologies that DoD installations need. Energy technologies span a wide spectrum in costs, complexities, size, and market forces. Installation energy technologies are just a subset of the field, but one that is critical in meeting the nation’s and DoD’s energy challenges. DOE, in its recent strategic plans and quadrennial technology review, has laid out the following taxonomy (figure 3.5): It is useful to divide these energy technologies into two rough classes based on the nature of the market and the characteristics of deployment decisions. There are technologies whose capital costs at full scale are very high, for which a modest number of players will play a key role in implementation decisions. Examples include utility-scale energy generation, large-scale carbon sequestration, commercial production of alternative fuels, nextgeneration utility-grid-level technologies, and manufacturing of new transportation platforms. Some of these technologies produce products (e.g., fuel and power from the local utility) that DoD installations buy as commodities, but DoD does not expect to buy the underlying technology. A second but no less important class of energy technologies are those that will be widely distributed upon implementation, and the decisions to deploy them at scale will be made by thousands, if not millions, of decision makers. These include: 1) Technologies to support improved energy efficiency and conservation in buildings; 2) Local renewable or distributed energy generation; and 3) Local energy control and management technologies. Decisions on implementing these technologies will be made in a distributed sense and involve tens of thousands of individual decision makers if they are ever to reach large-scale deployment. These are the energy technologies that DoD installations will be buying, either directly through appropriated funds or in partnership with third-party financing through mechanisms such as Energy Saving Performance Contracts (ESPCs) or Power Purchase Agreements (PPAs). In the DOE taxonomy shown above, these distributed installation energy technologies cover the demand space on building and industrial efficiency, portions of the supply space for clean electricity when restricted to distributed generation scale, and a critical portion in the middle where microgrids and their relationship to energy storage and electric vehicles reside.

## link uq

#### Incentives inevitable

Jeffrey Tomich 11-2, energy reporter for the St Louis Dispatch, “Ameren, Westinghouse still waiting for decision on nuclear grant”, <http://www.stltoday.com/business/local/ameren-westinghouse-still-waiting-for-decision-on-nuclear-grant/article_1b46d35b-eda4-5c15-9b08-b0ed80caf2bf.html>

It was six months ago that Ameren Missouri and Westinghouse officials joined Gov. Jay Nixon on the lawn of the governor’s mansion to announce plans to pursue a first-of-its-kind mini nuclear reactor that would be built next to the utility’s Callaway plant.

The effort had bipartisan political support. Other Missouri electricity suppliers were on board, as well as the state’s university system. Everything seemed in place — almost.

The whole plan hinged on getting at least a share of a $452 million federal grant to advance commercialization of next-generation nuclear technology.

Today, a month after the Department of Energy was supposed to announce who would share the federal money, Ameren and Westinghouse are still waiting. And with the presidential election just days away, heightened scrutiny of energy technology subsidies, a growing budget deficit and a potential change in administrations are looming.

An Energy Department spokeswoman said applications are still under review. She didn’t say when a decision would be made.

The companies have reason to be anxious. The government has laid out an ambitious timetable for those who share the award. The winning teams are expected to have the next-generation reactors running by 2022, leaving a decade to design, license and build a new breed of nuclear plant.

“The team is kind of counting on that (grant) right now,” Joe Zwetolitz, president of Westinghouse Americas, said Tuesday at a conference for potential suppliers at the Renaissance Grand Hotel in downtown St. Louis. “It’s really necessary to help spur development.”

President Barack Obama announced the availability of grant funding for so-called small nuclear reactors in March during a stop in Columbus, Ohio, as part of his all-of-the-above energy strategy. Two projects will share the $452 million over a five-year span.

The small-scale reactors, generally less than a third the size of today’s plants, have been touted by the nuclear industry as carbon-free sources of around-the-clock electric generation that offer safety benefits and would be easier for utilities to finance and deploy.

That’s only part of the reason the federal government is willing to throw almost half a billion dollars at developing the technology. The Obama administration also sees modular nuclear plants as another piece of an American manufacturing revival — one with potential to generate thousands of jobs building components that can be shipped overseas.

The possibility for jobs is also a big draw for Nixon and other local politicians, especially because Westinghouse has said it would build a manufacturing plant in Missouri if it wins the grant and a market for the mini reactors develops.

The Ameren-Westinghouse team is one of four that applied for the federal grant in May. Other competing ventures include established names, such as Babcock & Wilcox Co., as well as NuScale Power LLC and Holtec International Inc., both relative newcomers.

Nick Cunningham, a policy analyst for the American Security Project, a nonprofit research group, believes the upcoming election may have temporarily derailed an announcement, but he believes it will come eventually since both candidates are on record as supporting advances of nuclear power.

“I think it will move forward next year,” he said.

Westinghouse officials say they’re ready to submit design certification for the small reactor to the Nuclear Regulatory Commission next year. And while Ameren’s timing is less certain, the utility could apply for a construction and operating license as early as 2014.

#### But it’s not enough

DoD Energy Blog, 2/16/11, Good Things in Small Packages:Small Reactors for Military Power Good Things in Small Packages:Small Reactors for Military Power, dodenergy.blogspot.com/2011/02/good-things-in-small-packagessmall.html

They conclude that DOD should lead the charge for small reactors to meet their own needs as well as to make sure that the US leads that industry’s development. When first written the paper mentioned that most of the technology was stymied somewhere between the drawing board and production. But there is good news in the President’s 2011 Budget for nukes. The New York Times reported that the budget contains $500 million over five years for DOE to complete two designs and secure National Regulatory Commission (NRC) approval. The reactors will be built entirely in a factory and trucked to the site, like “modular homes”. Sounds just like what Dr. Andres ordered. **Only problem is that $500 million is only about half of the cost to get to NRC approval. Actual production is in the $2 billion neighborhood**, and that is a pricey neighborhood. Enter Amory Lovins. Amory has often derided the cost for nuclear power as an unnecessary expenditure. His argument is that micropower is the way of the future, not big honking gigawatt nuclear power plants. Although there has been a resurgence in the interest in nuclear power, **it is still difficult to find private investments willing to underwrite the expense**. Maybe the development of small nukes for national security reasons will lead to cost effective small nukes for distributed micropower nationwide. Small reactors for FOBs are more problematic. Even Bagram only needs about 25 MW with other FOBS being smaller. Security will be the first concern. If someone tries a smash and grab at Fort Hood they have to go through a couple of armored divisions and have a long way to got to get away. Kabul to Peshawar is only 128 miles. Cost shouldn’t be an overriding factor in considering secure power, but even at a 75% cost reduction in production, half a billion for 25MW is a bit much. Of course if you could produce a 300MW system, Bagram could air condition Kabul! The real soft power. My buddy, T.C. the fighter pilot, would tell you that DOD's mission is to fight and win the Nation's wars, not spark business recovery. DOD needs to focus on conserving energy. “Reducing the consumption at Miramar by 50% might save a lot of fuel and money, but I'd rather reduce consumption by 50% at PB Jugroom even though the savings in gallons and dollars are tiny.” Reducing demand reduces risk. All that being said, it may well be worth DOE and DOD efforts to explore the potential. It is something that may be beyond the means of commercial entities, but not government (See China). If there is going to be a market here, let us not be left behind as we have been with other alternative energy production means.

# 2AC

## dod

#### Grid failure takes out drones

Rogers 12

(Will, BA in IR from UCSD, currently MA candidate @ Georgetown -- Bacevich Fellow at the Center for a New American Security (CNAS). At CNAS, Mr. Rogers’ research focus is on science, technology and national security policy. He has authored or co-authored a range of publications on energy, climate change, environmental cooperation in Asia and cybersecurity. “DOD-Interior Renewable Energy Projects Could Help Mitigate Grid Vulnerability” August 8, 2012, http://www.cnas.org/blogs/naturalsecurity/archive/201208)

The DOD-Interior MOU comes on the heels of a warning by a top U.S. government official about the vulnerability of the U.S. electric grid. Last month at the Aspen Security Forum, Paul Stockton, Assistant Secretary of Defense for Homeland Defense and Americas’ Security Affairs, cautioned that the U.S. electric grid is vulnerable to disruption, particularly from a terrorists attack that could cause a “long term, large scale outage.” Defense officials are acutely aware of this vulnerability and the implications for DOD’s readiness. The Department of Defense relies on many domestic installations to serve as command and control centers for critical operations abroad, such as drone missions in Afghanistan. “And to make those operations function, we depend on the electric grid,” Stockton said. Developing renewable energy projects on DOD facilities can help mitigate this vulnerability by helping the military rely less on the civilian electric grid. The effort – known as “islanding” – is intended to insulate DOD facilities from a disruption to the civilian electric grid by generating enough power on base to sustain critical functions for an indefinite period of time.

#### Solves terrorism

Daniel L. **Byman 11**, Director of Research at the Saban Center for Middle East Policy at Brookings, “Denying Terrorist Safe Havens: Homeland Security Efforts to Counter Threats from Pakistan, Yemen and Somalia”, June 3, <http://www.brookings.edu/testimony/2011/0603_terrorism_byman.aspx>

The U.S. drone campaign against al Qaeda, begun under Bush and put on steroids under Obama, has taken out dozens of al Qaeda figures, primarily in Pakistan. In 2010, the United States launched over 100 drone attacks in Pakistan, according to the New America Foundation.[11] Those killed were far less prominent than bin Laden, but in many cases their skills were in short supply and difficult to replace. Al Qaeda struggles to find seasoned and skilled new leaders, and even when it can it takes time to integrate them into the organization. Even more important, but even harder to see, al Qaeda lieutenants must limit communications to stop U.S. eavesdropping that could lead to airstrikes, reduce their circle of associates to avoid spies, and avoid public exposure, all of which make them far less effective as leaders. This makes it harder, though not impossible, for them to pull off sophisticated attacks that require long-term planning. Although innocent civilians do die in these attacks, the number of non-combatant deaths is often exaggerated and has been declining. According to Peter Bergen and Katherine Tiedemann, “According to our estimates, the nonmilitant fatality rate since 2004 is approximately 25 percent, and in 2010, the figure has been more like 6 percent -- an improvement that is likely the result of increased numbers of U.S. spies in Pakistan's tribal areas, better targeting, more intelligence cooperation with the Pakistani military, and smaller missiles.”[12] Such innocent deaths are still considerable, and errant strikes have the potential to worsen U.S.-Pakistan relations, but drone strikes are often far less bloody than alternatives such as Pakistani military attacks or U.S. attacks by manned fixed-wing aircraft. In addition, drone strikes involve no risk of U.S. personnel. Killing terrorist group lieutenants on a large scale can devastate a group. There may still be thousands of people who hate the United States and want to take up arms, but without bomb-makers, passport-forgers, and leaders to direct their actions they are often reduced to menacing bumblers, easier to disrupt and often more a danger to themselves than to their enemies.

#### Extinction

**Ayson 10**, Robert Ayson, Professor of Strategic Studies and Director of the Centre for Strategic Studies: New Zealand at the Victoria University of Wellington, 2010 (“After a Terrorist Nuclear Attack: Envisaging Catalytic Effects,” Studies in Conflict & Terrorism, Volume 33, Issue 7, July, Available Online to Subscribing Institutions via InformaWorld)

But these two nuclear worlds—a non-state actor nuclear attack and a catastrophic interstate nuclear exchange—are not necessarily separable. It is just possible that some sort of terrorist attack, and especially an act of nuclear terrorism, could precipitate a chain of events leading to a massive exchange of nuclear weapons between two or more of the states that possess them. In this context, today’s and tomorrow’s terrorist groups might assume the place allotted during the early Cold War years to new state possessors of small nuclear arsenals who were seen as raising the risks of a catalytic nuclear war between the superpowers started by third parties. These risks were considered in the late 1950s and early 1960s as concerns grew about nuclear proliferation, the so-called n+1 problem. It may require a considerable amount of imagination to depict an especially plausible situation where an act of nuclear terrorism could lead to such a massive inter-state nuclear war. For example, in the event of a terrorist nuclear attack on the United States, it might well be wondered just how Russia and/or China could plausibly be brought into the picture, not least because they seem unlikely to be fingered as the most obvious state sponsors or encouragers of terrorist groups. They would seem far too responsible to be involved in supporting that sort of terrorist behavior that could just as easily threaten them as well. Some possibilities, however remote, do suggest themselves. For example, how might the United States react if it was thought or discovered that the fissile material used in the act of nuclear terrorism had come from Russian stocks,40 and if for some reason Moscow denied any responsibility for nuclear laxity? The correct attribution of that nuclear material to a particular country might not be a case of science fiction given the observation by Michael May et al. that while the debris resulting from a nuclear explosion would be “spread over a wide area in tiny fragments, its radioactivity makes it detectable, identifiable and collectable, and a wealth of information can be obtained from its analysis: the efficiency of the explosion, the materials used and, most important … some indication of where the nuclear material came from.”41 Alternatively, if the act of nuclear terrorism came as a complete surprise, and American officials refused to believe that a terrorist group was fully responsible (or responsible at all) suspicion would shift immediately to state possessors. Ruling out Western ally countries like the United Kingdom and France, and probably Israel and India as well, authorities in Washington would be left with a very short list consisting of North Korea, perhaps Iran if its program continues, and possibly Pakistan. But at what stage would Russia and China be definitely ruled out in this high stakes game of nuclear Cluedo? In particular, if the act of nuclear terrorism occurred against a backdrop of existing tension in Washington’s relations with Russia and/or China, and at a time when threats had already been traded between these major powers, would officials and political leaders not be tempted to assume the worst? Of course, the chances of this occurring would only seem to increase if the United States was already involved in some sort of limited armed conflict with Russia and/or China, or if they were confronting each other from a distance in a proxy war, as unlikely as these developments may seem at the present time. The reverse might well apply too: should a nuclear terrorist attack occur in Russia or China during a period of heightened tension or even limited conflict with the United States, could Moscow and Beijing resist the pressures that might rise domestically to consider the United States as a possible perpetrator or encourager of the attack? Washington’s early response to a terrorist nuclear attack on its own soil might also raise the possibility of an unwanted (and nuclear aided) confrontation with Russia and/or China. For example, in the noise and confusion during the immediate aftermath of the terrorist nuclear attack, the U.S. president might be expected to place the country’s armed forces, including its nuclear arsenal, on a higher stage of alert. In such a tense environment, when careful planning runs up against the friction of reality, it is just possible that Moscow and/or China might mistakenly read this as a sign of U.S. intentions to use force (and possibly nuclear force) against them. In that situation, the temptations to preempt such actions might grow, although it must be admitted that any preemption would probably still meet with a devastating response.

## prolif

#### No impact

Rod **Adams 12**, Former submarine Engineer Officer, Founder, Adams Atomic Engines, Inc., “Has Apocalyptic Portrayal of Climate Change Risk Backfired?”, May 2, <http://atomicinsights.com/2012/05/has-apocalyptic-portrayal-of-climate-change-risk-backfired.html?utm_source=feedburner&utm_medium=feed&utm_campaign=Feed%3A+AtomicInsights+%28Atomic+Insights%29>

Not only was the discussion enlightening about the reasons why different people end up with different opinions about climate change responses when presented with essentially the same body of information, but it also got me thinking about a possible way to fight back against the Gundersens, Caldicotts, Riccios, Grossmans and Wassermans of the world. That group of five tend to use apocalyptic rhetoric to describe what will happen to the world if we do not immediately start turning our collective backs on all of the benefits that abundant atomic energy can provide. They spin tall tales of deformed children, massive numbers of cancers as a result of minor radioactive material releases, swaths of land made “uninhabitable” for thousands of years, countries “cut in half”, and clouds of “hot particles” raining death and destruction ten thousand miles from the release point. Every one of those clowns have been repeating similar stories for at least two solid decades, and continue to repeat their stories even after supposedly catastrophic failures at Fukushima have not resulted in a single radiation related injury or death. According to eminent scientists – like Dr. Robert Gale – Fukushima is unlikely to EVER result in any measurable increase in radiation related illness. One important element that we have to consider to assess cancer risks associated with an accident like Fukushima is our baseline risk for developing cancer. All of us, unfortunately, have a substantial risk of developing cancer in our lifetime. For example, a 50-year-old male has a 42% risk of developing cancer during his remaining life; it’s almost the same for a 10-year-old. This risk only decreases when we get much older and only because we are dying of other causes. It’s true that excess radiation exposure can increase our cancer risk above baseline levels; it’s clear from studies of the survivors of the 1945 atomic bombings of Hiroshima and Nagasaki, of people exposed to radiation in medical and occupational settings, and of people exposed to radon decay products in mines and home basements. When it comes to exposures like that of Fukushima, the question is: What is the relative magnitude of the increased risk from Fukushima compared to our baseline cancer risk? Despite our fears, it is quite small. If the nuclear industry – as small and unfocused as it is – really wanted to take action to isolate the apocalyptic antinuclear activists, it could take a page from the effective campaign of the fossil fuel lobby. It could start an integrated campaign to help the rest of us to remember that, despite the dire predictions, the sky never fell, the predicted unnatural deaths never occurred, the deformations were figments of imagination, and the land is not really irreversibly uninhabitable for generations. The industry would effectively share the story of Ukraine’s recent decision to begin repopulating the vast majority of the “dead zone” that was forcibly evacuated after the Chernobyl accident. It would put some context into the discussion about radiation health effects; even if leaders shy away from directly challenging the Linear No Threshold (LNT) dose assumption, they can still show that even that pessimistic model says that a tiny dose leads to a tiny risk. Aside: My personal opinion is that the LNT is scientifically unsupportable and should be replaced with a much better model. We deserve far less onerous regulations; there is evidence that existing regulations actually cause harm. I hear a rumor that there is a group of mostly retired, but solidly credentialed professionals who are organizing a special session at the annual ANS meeting to talk about effective ways to influence policy changes. End Aside. Most of us recognize that there is no such thing as a zero risk; repeated assertions of “there is no safe level” should be addressed by accepting “close enough” to zero so that even the most fearful person can stop worrying. The sky has not fallen, even though we have experienced complete core meltdowns and secondary explosions that did some visible damage. Nuclear plants are not perfect, there will be accidents and there will be radioactive material releases. History is telling me that the risks are acceptable, especially in the context of the real world where there is always some potential for harm. The benefits of accepting a little nuclear risk are immense and must not be marginalized by the people who market fear and trembling.

## t – incentives

#### Financial incentives induce production using cash – that includes power purchasing

Webb 93 – lecturer in the Faculty of Law at the University of Ottawa (Kernaghan, “Thumbs, Fingers, and Pushing on String: Legal Accountability in the Use of Federal Financial Incentives”, 31 Alta. L. Rev. 501 (1993) Hein Online)

In this paper, "financial incentives" are taken to mean disbursements 18 of public funds or contingent commitments to individuals and organizations, intended to encourage, support or induce certain behaviours in accordance with express public policy objectives. They take the form of grants, contributions, repayable contributions, loans, loan guarantees and insurance, subsidies, procurement contracts and tax expenditures.19 Needless to say, the ability of government to achieve desired behaviour may vary with the type of incentive in use: up-front disbursements of funds (such as with contributions and procurement contracts) may put government in a better position to dictate the terms upon which assistance is provided than contingent disbursements such as loan guarantees and insurance. In some cases, the incentive aspects of the funding come from the conditions attached to use of the monies.20 In others, the mere existence of a program providing financial assistance for a particular activity (eg. low interest loans for a nuclear power plant, or a pulp mill) may be taken as government approval of that activity, and in that sense, an incentive to encourage that type of activity has been created.21 Given the wide variety of incentive types, it will not be possible in a paper of this length to provide anything more than a cursory discussion of some of the main incentives used.22 And, needless to say, the comments made herein concerning accountability apply to differing degrees depending upon the type of incentive under consideration.

By limiting the definition of financial incentives to initiatives where *public funds are either disbursed or contingently committed*, a large number of regulatory programs with incentive *effects* which exist, but in which no money is forthcoming,23 are excluded from direct examination in this paper. Such programs might be referred to as *indirect* incentives. Through elimination of indirect incentives from the scope of discussion, thedefinition of the incentive instrument becomes both more manageable and more particular. Nevertheless, it is possible that much of the approach taken here may be usefully applied to these types of indirect incentives as well.24 Also excluded from discussion here are social assistance programs such as welfare and *ad hoc* industry bailout initiatives because such programs are not designed primarily to *encourage* behaviours in furtherance of specific public policy objectives. In effect, these programs are assistance, but they are not incentives.

#### Precision – our definition’s from the DoE

Waxman 98 **–** Solicitor General of the US (Seth, Brief for the United States in Opposition for the US Supreme Court case HARBERT/LUMMUS AGRIFUELS PROJECTS, ET AL., PETITIONERS v. UNITED STATES OF AMERICA, http://www.justice.gov/osg/briefs/1998/0responses/98-0697.resp.opp.pdf)

2 On November 15, 1986, Keefe was delegated “the authority, with respect to actions valued at $50 million or less, to approve, execute, enter into, modify, administer, closeout, terminate and take any other necessary and appropriate action (collectively, ‘Actions’) with respect to Financial Incentive awards.” Pet. App. 68, 111-112. Citing DOE Order No. 5700.5 (Jan. 12, 1981), the delegation defines “Financial Incentives” as the authorized financial incentive programs of DOE, “including direct loans, loan guarantees, purchase agreements, price supports, guaranteed market agreements and any others which may evolve.” The delegation proceeds to state, “[h]owever, a separate prior written approval of any such action must be given by or concurred in by Keefe to accompany the action.” The delegation also states that its exercise “shall be governed by the rules and regulations of [DOE] and policies and procedures prescribed by the Secretary or his delegate(s).” Pet. App. 111-113.

## neolib

#### Nuclear technocracy’s key to solve

Nordhaus 11, chairman – Breakthrough Instiute, and Shellenberger, president – Breakthrough Insitute, MA cultural anthropology – University of California, Santa Cruz, 2/25/‘11

(Ted and Michael, <http://thebreakthrough.org/archive/the_long_death_of_environmenta>)

Tenth, we are going to have to get over our suspicion of technology, especially nuclear power. There is **no credible path** to reducing global carbon emissions without an enormous expansion of nuclear power. It is the only low carbon technology we have today with the demonstrated capability to generate large quantities of centrally generated electrtic power. It is the low carbon of technology of choice for much of the rest of the world. Even uber-green nations, like Germany and Sweden, have reversed plans to phase out nuclear power as they have begun to reconcile their energy needs with their climate commitments. Eleventh, we will need to embrace again the role of the state as a direct provider of public goods. The modern environmental movement, borne of the new left rejection of social authority of all sorts, has embraced the notion of state regulation and even creation of private markets while largely rejecting the generative role of the state. In the modern environmental imagination, government promotion of technology - whether nuclear power, the green revolution, synfuels, or ethanol - almost always ends badly. Never mind that virtually the entire history of American industrialization and technological innovation is the story of government investments in the development and commercialization of new technologies. Think of a transformative technology over the last century - computers, the Internet, pharmaceutical drugs, jet turbines, cellular telephones, nuclear power - and what you will find is government investing in those technologies at a scale that private firms simply cannot replicate. Twelveth, big is beautiful. The rising economies of the developing world will continue to develop whether we want them to or not. The solution to the ecological crises wrought by modernity, technology, and progress will be more modernity, technology, and progress. The solutions to the ecological challenges faced by a planet of 6 billion going on 9 billion will not be decentralized energy technologies like solar panels, small scale organic agriculture, and a drawing of unenforceable boundaries around what remains of our ecological inheritance, be it the rainforests of the Amazon or the chemical composition of the atmosphere. Rather, these solutions will be: large central station power technologies that can meet the energy needs of billions of people increasingly living in the dense mega-cities of the global south without emitting carbon dioxide, further intensification of industrial scale agriculture to meet the nutritional needs of a population that is not only growing but eating higher up the food chain, and a whole suite of new agricultural, desalinization and other technologies for gardening planet Earth that might allow us not only to pull back from forests and other threatened ecosystems but also to create new ones. The New Ecological Politics The great ecological challenges that our generation faces demands an ecological politics that is **generative, not restrictive.** An ecological politics capable of addressing global warming will require us to reexamine virtually every prominent strand of post-war green ideology. From Paul Erlich's warnings of a population bomb to The Club of Rome's "Limits to Growth," contemporary ecological politics have consistently embraced green Malthusianism despite the fact that the Malthusian premise has persistently failed for the better part of three centuries. Indeed, the green revolution was exponentially increasing agricultural yields at the very moment that Erlich was predicting mass starvation and the serial predictions of peak oil and various others resource collapses that have followed have continue to fail. This does not mean that Malthusian outcomes are impossible, but neither are they inevitable. **We do have a choice** in the matter, but it is not the choice that greens have long imagined. The choice that humanity faces is not whether to constrain our growth, development, and aspirations or die. It is whether we will continue to innovate and accelerate technological progress in order to thrive. Human technology and ingenuity have repeatedly confounded Malthusian predictions yet green ideology continues to cast a suspect eye towards the very technologies that have allowed us to avoid resource and ecological catastrophes. But such solutions will require environmentalists to abandon the "small is beautiful" ethic that has also characterized environmental thought since the 1960's. We, the most secure, affluent, and thoroughly modern human beings to have ever lived upon the planet, must abandon both the dark, zero-sum Malthusian visions and the idealized and nostalgic fantasies for a simpler, more bucolic past in which humans lived in harmony with Nature.

**The status quo is structurally improving**

Indur **Goklany 10**, policy analyst for the Department of the Interior – phd from MSU, “Population, Consumption, Carbon Emissions, and Human Well-Being in the Age of Industrialization (Part III — Have Higher US Population, Consumption, and Newer Technologies Reduced Well-Being?)”, April 24, <http://www.masterresource.org/2010/04/population-consumption-carbon-emissions-and-human-well-being-in-the-age-of-industrialization-part-iii-have-higher-us-population-consumption-and-newer-technologies-reduced-well-being/#more-9194>

In my previous post I showed that, notwithstanding the Neo-Malthusian worldview, human well-being has advanced globally since the start of industrialization more than two centuries ago, despite massive increases in population, consumption, affluence, and carbon dioxide emissions. In this post, I will focus on long-term trends in the U.S. for these and other indicators. Figure 1 shows that despite several-fold increases in the use of metals and synthetic organic chemicals, and emissions of CO2 stoked by increasing populations and affluence, life expectancy, the single best measure of human well-being, increased from 1900 to 2006 for the US. Figure 1 reiterates this point with respect to materials use. These figures indicate that since 1900, U.S. population has quadrupled, affluence has septupled, their product (GDP) has increased 30-fold, synthetic organic chemical use has increased 85-fold, metals use 14-fold, material use 25-fold, and CO2 emissions 8-fold. Yet life expectancy advanced from 47 to 78 years. Figure 2 shows that during the same period, 1900–2006, emissions of air pollution, represented by sulfur dioxide, waxed and waned. Food and water got safer, as indicated by the virtual elimination of deaths from gastrointestinal (GI) diseases between 1900 and 1970. Cropland, a measure of habitat converted to human uses — the single most important pressure on species, ecosystems, and biodiversity — was more or less unchanged from 1910 onward despite the increase in food demand. For the most part, life expectancy grew more or less steadily for the U.S., except for a brief plunge at the end of the First World War accentuated by the 1918-20 Spanish flu epidemic. As in the rest of the world, today’s U.S. population not only lives longer, it is also healthier. The disability rate for seniors declined 28 percent between 1982 and 2004/2005 and, despite quantum improvements in diagnostic tools, major diseases (e.g., cancer, and heart and respiratory diseases) now occur 8–11 years later than a century ago. Consistent with this, data for New York City indicate that — despite a population increase from 80,000 in 1800 to 3.4 million in 1900 and 8.0 million in 2000 and any associated increases in economic product, and chemical, fossil fuel and material use that, no doubt, occurred —crude mortality rates have declined more or less steadily since the 1860s (again except for the flu epidemic). Figures 3 and 4 show, once again, that whatever health-related problems accompanied economic development, technological change, material, chemical and fossil fuel consumption, and population growth, they were overwhelmed by the health-related benefits associated with industrialization and modern economic growth. This does not mean that fossil fuel, chemical and material consumption have zero impact, but it means that overall benefits have markedly outweighed costs. The reductions in rates of deaths and diseases since at least 1900 in the US, despite increased population, energy, and material and chemical use, belie the Neo-Malthusian worldview. The improvements in the human condition can be ascribed to broad dissemination (through education, public health systems, trade and commerce) of numerous new and improved technologies in agriculture, health and medicine supplemented through various ingenious advances in communications, information technology and other energy powered technologies (see here for additional details). The continual increase in life expectancy accompanied by the decline in disease during this period (as shown by Figure 2) indicates that the new technologies reduced risks by a greater amount than any risks that they may have created or exacerbated due to pollutants associated with greater consumption of materials, chemicals and energy, And this is one reason why the Neo-Malthusian vision comes up short. It dwells on the increases in risk that new technologies may create or aggravate but overlooks the larger — and usually more certain — risks that they would also eliminate or reduce. In other words, it focuses on the pixels, but misses the larger picture, despite pretensions to a holistic worldview.

**Perm do both**

**The system’s sustainable**

Ann F. **Wolfgram 5**, junior fellow at Massey College – Phd in history from Toronto, “Population, Resources & Environment: A Survey of the Debate”, January 1, <http://www.voxfux.com/features/malthusian_theory/malthusian_theory.htm>

The resource category of minerals is, by nature, varied and broad, encompassing minerals such as copper and coal. In recent years, the mineral that has drawn the most public attention has been petroleum, particularly in reference to consumption and perceived scarcity. Because it is such a well-known mineral, let us take petroleum as a case-in-point for minerals as related to the population-resources question. Neo-Malthusian approach: In years past, the main concern coming from this sector was fear of total mineral resource depletion. In an on-going public debate between Lester Brown, of the Neo-Malthusian school, and Julian Simon, Simon wagered that mineral resources were not being depleted, because price, which reflects scarcity, did not rise but declined in the long-term. Simon won the wager. (Simon’s position will be discussed later in this section.) In recent years, the neo-Malthusian argument, especially with regard to petroleum has shifted from concern over resource depletion to effects of mining and mineral usage on the environment. Fears over land degradation due to mining, air pollution due to burning petroleum, water pollution due to oil spills and industry waste, among other things, are now the main thrust of the neo-Malthusian argument with regard to minerals resources, petroleum in particular. These will be discussed in a later section devoted to population and environment. Scientific evidence: According to the U.S. Department of Energy (DOE), domestic oil reserves have declined over the past decade. However, **this should not naively be thought to be a sign that the world is rapidly running out of oil**. Rather, it means that less oil was being produced by oil companies. The DOE pointed to several economic and industry trends that impacted domestic reserves, such as the sharp decrease in drilling due to the collapse of crude oil prices in 1986, the shift within the petroleum industry to drilling for natural gas, and restrictions on oil exploration in oil-prone places in the United States. (32) Domestic and world oil resources are difficult to quantify in that, in addition to known high-grade resources, there are lower-grade oil reserves which can be tapped using new technologies, as well as oil fields that have yet to be discovered. In 1995, the Department of Interior’s estimate for undiscovered recoverable oil plus inferred resources of domestic crude oil was 132 billion barrels, which was six times larger than the 1995 proven reserves. (33) It must also be remembered that the most oil reserves lie outside of the United States. People-as-Problem-Solvers: Predictably, one of the responses of the human creativity/ technological advancement proponents is that technological development will allow for a greater efficiency in the use of minerals resources. However, there is a second dimension to technological development that they point to: technological advancements may also mean less dependence on a given resource. For instance, historically, wood and steam were the primary sources of energy prior to oil. With the advent of the internal combustion engine, petroleum became the primary energy resource. Thus, the development of new technologies caused a shift in the demand for certain resources. In the future, our sources of energy may be nuclear power, solar power or wind power. As Julian Simon, a self-described optimist in these matters, argues, # trends in energy costs and scarcity have been downward over the entire period for which we have data. **And such trends are usually the most reliable bases for forecasts**. From these data we may conclude with considerable confidence that energy will be less costly and more available in the future than in the past. The reason that the cost of energy has declined in the long-run is the fundamental process of (1) increased demand due to growth of population and income, which raises prices and hence constitutes opportunity to entrepreneurs and inventors; (2) the search for new ways of supplying the demand for energy; (3) the eventual discovery of methods which leave us better off than if the original problem had not appeared. (34) Thus, according to Simon theory based on historical data, either new technologies will develop, thereby lessening the need for more petroleum, or scarcity will eventually arise, thus spurring invention and development of new technologies.

Only we solve warming

Palley ‘11

(Reese, New School for Social Research, London School of Economics, *The Answer: Why Only Inherently Safe, Mini Nuclear Power Plans Can Save Our World, p. 186-90*)

The central investigation of this book has been directed at the scale of the nuclear industry. The book has argued that **all anthropogenic challenges that put in question continued human existence on Earth are a matter of scale.** It was nature’s unanticipated success with her human experiment, the evolutionary choice of brains over brawn, setting in motion the underlying scale problems that opened our Pandora’s box of calamities. The history of man on Earth can best be viewed as a race between population and resources in which, for some millennia, population expansion leads and the Earth’s resources have been straining to catch up. When population bloomed from 100 million brainy humans to a billion, the problems of scale emerged as the price we had to pay for success as a species. The conversion of forests to agriculture, responding to the need to feed a burgeoning population, initiated the emerging problem of scale. The elimination of oxygen-emitting forests was mitigated to a large measure in the beginning of our population growth by the slow rate of change of the deforestation, which allowed an absorbable increase of CO2 in the atmosphere. Natural processes, such as the ability of the oceans to take up CO2, tamped down global warming. But as the scale of the release of warming gases exploded a few hundred years ago, our remaining forests and our seas, our first line of defense against CO2 imbalance, could not cope and the level of CO2 has risen alarmingly each year since 1800. When human population climbed from a billion to six billion and these six billion reveled in the enormous energy content of coal, the scenario for **disaster on a global scale** came into play. The impact of the loss of forest paled in comparison to the havoc that the use of fossil fuels represented. In a world that was hungry for energy and, not incidentally, living on a Malthusian edge of food supply, coal burst upon us as manna from heaven. Coal was everywhere, easy to mine, and in enormous, almost unending supply It generated the cheap heat needed to run the engines of early industrialization. An unintended Faustian bargain was struck. The immediate cost of coal in the cities, dirt and pollution, were not out of sync with what urban man had lived with for centuries. It was beyond the science and the understanding of the time that burning vast millennial coal deposits would do little more than discommode the proximate few and benefit many. Again it was not the burning, **it was the scale** of the burning that dumped billions of tons of CO2 into the atmosphere. **We are now presented with a horrendous invoice that must be paid if we are to survive** in anywhere near the comfort to which we have become accustomed. It has been the intent of this book to argue that the **scale of the warming catastrophe must be viewed** primarily **in terms of the continuing flow of CO2** into the atmosphere. Every possible source of CO2, no matter how small, must be identified and interdicted, since every fourth molecule of the gas will remain with us as a climate moderator for thousands of years. What we find is that all of the sources of energy including so-called green energy are CO2-culpable and that each, in spite of claims to the contrary, adds its tiny mite or enormous mass to the climate changes looming in man’s future. The book argues that the scale of the consumption of fossil fuels is clearly unsustainable and, more to the point, that the feeble attempts to restrict CO2 production are little more than a glossing over of the problem. Capping but not ending production of greenhouse gases only magnifies the unthinkable future costs of bringing the level of CO2 and other greenhouse gases back into balance. Logic dictates that merely limiting greenhouse gases pushes possible solutions farther and farther into the future and does little to mitigate the difficulties that will arise in the near future. Logic dictates that our reasonably comfortable survival depends on the immediate and total cessation of increases to parts per million of CO2 in the air. Logic dictates that if we are to continue to enjoy the level of comfort, wealth, and ease afforded us since the beginning of the twentieth century we must not only halt the increase but commence the actual decrease of warming gases at work in the atmosphere. **That conclusion brings** the book to the problems and the **solutions inherent in nuclear power, the only energy source that can guarantee** us **a reasonable future that might be resistant to CO2 warming**. Here the argument returns once again to **the** problem of **scale of nuclear reactors**, especially as the size of these reactors **is related to the** brief **time left to us to get a grip on calamitous climate changes.** The beginnings of nuclear energy lay in the demands of war. The battle between good and evil characterized by the Second World War gave hurried birth to a discovery that had the inherent power to both destroy and salvage. The power to destroy required plutonium on an enormous scale, which was projected forward into the postwar development of civilian reactors. The demand for scarce plutonium for the bombs of the cold war defined the type of reactors that were being developed. These were the breeder reactors, which spewed out plutonium measured in tons that had previously been available only in ounces, and would continue to do so when the wartime need was far behind us. What was once precious, rare, and desirable has become dangerous nuclear waste, and the imperfectly perceived scale of the waste problem has seriously inhibited the logical growth and development of nuclear power. By some unthinkable universal coincidence, nuclear power became available to man for war at the same time that it could prove to be the solution to man’s greatest peacetime challenge. But the gigawatt nuclear power plants that emerged from the war had within them the seeds of their own severe limitation. The scale of the risks, real and imagined, grew exponentially as the scale of energy output grew only linearly. These risks, some merely perceived, some dangerously real and some financial, have conspired to restrict the enormous expansion of nuclear power that is needed to quickly replace our present consumption of energy from fossil fuels. The present rate of replacement of fossil with nuclear sources is at a pace that will have little impact on ultimately dealing with the CO2 imbalance. This slow rate of change is compounded of public fears, bureaucratic regulatory mechanisms resistant to novel solutions, and a private capital market that is unable to conjure with the imagined and real risks of the huge gigawatt reactors that dominate the industry. It is a Gordian knot that cannot be unraveled but which can only be cut by a political sword that, alas, still lacks the edge to do the job. By another rare act of cosmic fortuity, there is a parallel existing nuclear technology that, barring political interference, is capable of addressing the scale problems inherent in gigawatt reactors. From the beginning of the nuclear era, researchers such as Weinberg and Wigner and Teller developed small, inherently safe nuclear reactors that did not breed plutonium. This was reason enough for the military, balancing urgent demands on research and development budgets, to consign the concept of “smaller and safer is better” to dusty shelves in our national science attic. This book has argued that **small reactors**, that produce a tenth of the energy of the giants also generate inordinately less of the risk that inhibits growth of the industry. Construction of small reactors is a fraction of the cost of construction of gigawatt reactors. Thus the number of years that scarce capital is tied up and at risk is substantially reduced. The book argues that a 100 MWe reactor88 is a much bigger hardware bargain than a gigawatt reactor, which, from start to output, can cost $15 billion. It is not only the hardware costs that contribute to the devilish details of risk. The problem is the inability of the market to accurately or even approximately estimate the real cost of the capital that would be tied up for over a decade in a project that, through technological advancements, could be obsolete before it ever joins the grid.

## counterplan

#### DoD can specify in the contracts

L. Elaine Halchin, Congressional Research Service Specialist in American National Government, 7/15/2011, Other Transaction (OT) Authority, http://www.fas.org/sgp/crs/misc/RL34760.pdf

An other transaction (OT) is a special vehicle used by federal agencies for obtaining or advancing research and development (R&D) or prototypes. An OT is not a contract, grant, or cooperative agreement, and there is no statutory or regulatory definition of “other transaction.” Only those agencies that have been provided OT authority may engage in other transactions.

OT authority originated with the National Aeronautics and Space Administration (NASA) when the National Aeronautics and Space Act of 1958 was enacted. Subsequently, seven other specific agencies have been given OT authority: the Department of Defense (DOD), Federal Aviation Administration (FAA), Department of Transportation (DOT), Department of Homeland Security (DHS), Transportation Security Administration, Department of Health and Human Services, and Department of Energy. Other federal agencies may use OT authority under certain circumstances and if authorized by the Director of the Office of Management and Budget (OMB).

Generally, the reason for creating OT authority is that the government needs to obtain leading- edge R&D (and prototypes) from commercial sources, but some companies (and other entities) are unwilling or unable to comply with the government’s procurement regulations. The government’s procurement regulations and certain procurement statutes do not apply to OTs, and, accordingly, other transaction authority gives agencies the flexibility necessary to develop agreements tailored to a particular transaction. The Competition in Contracting Act (CICA), Contract Disputes Act, and Procurement Integrity Act are examples of three statues that do not apply to OTs.

Thorium SMRs are impossible

McMahon, energy contributor – Forbes, 5/23/’12

(Jeff, <http://www.forbes.com/sites/jeffmcmahon/2012/05/23/small-modular-reactors-by-2022-but-no-market-for-them/>)

“Like Mr. Moor, Mr. Genoa also sees the economic feasibility of SMRs as the final challenge. With inexpensive natural gas prices and no carbon tax, **the economics don’t work** in the favor of SMRs,” according to the summary.

The SMRs most likely to succeed are designs that use the same fuels and water cooling systems as the large reactors in operation in the U.S. today, according to Gail Marcus, an independent consultant in nuclear technology and policy and a former deputy director of the Department of Energy Office of Nuclear Energy, simply because the NRC is accustomed to regulating those reactors.

“Those SMR designs that use light water cooling have a **major advantage** in licensing and development [and] those new designs based on existing larger reactor designs, like Westinghouse’s scaled‐down 200 MW version of the AP‐1000 reactor, would have particular advantage.”

This is bad news for some innovative reactor designs such as thorium reactors that rely on different, some say safer, fuels and cooling systems.

Companies will choose proven tech to get NRC approval

Hylko, contributing editor – POWER Magazine, 5/1/’12

(James M., “Vogtle Gets Green Light,” POWERnews)

The COL is a one-step licensing process that was designed to reduce NRC regulatory red tape by simultaneously issuing a license to construct and to operate a new nuclear plant; it replaced the delay-prone two-step process used in the 1970s and 80s (see “Second Set of COLs Approved”). In the past, it was common for licensing requirements to change in the middle of construction, resulting in costly redesigns and delays, thus dramatically escalating construction costs. NRC records indicate that the last construction permit issued using the old two-step process was in 1978 for the Shearon Harris 1 nuclear plant in North Carolina.

In addition to the one-step COL process, companies are selecting preapproved NRC standardized reactor designs, such as the Westinghouse AP1000 PWR, that incorporate vendor-designed skids, equipment packages, and modular construction techniques that are expected to prevent the rampant construction cost escalation experienced in the past. The AP1000 is a modular design that uses passive safety systems that rely on gravity, natural circulation, and convection to maintain safe operation and to shut the plant down safely during an off-normal event. These features increase reliability and reduce maintenance and operating costs.

#### no one will adopt it

Eifion **Rees 11**, The Guardian, “Don't believe the spin on thorium being a greener nuclear option”, June 23, <http://www.guardian.co.uk/environment/2011/jun/23/thorium-nuclear-uranium>

There is a significant sticking point to the promotion of thorium as the 'great green hope' of clean energy production: it remains unproven on a commercial scale. While it has been around since the 1950s (and an experimental 10MW LFTR did run for five years during the 1960s at Oak Ridge National Laboratory in the US, though using uranium and plutonium as fuel) it is still a next generation nuclear technology – theoretical. China did announce this year that it intended to develop a thorium MSR, but nuclear radiologist Peter Karamoskos, of the International Campaign to Abolish Nuclear Weapons (ICAN), says the world shouldn't hold its breath. 'Without exception, [thorium reactors] have never been commercially viable, nor do any of the intended new designs even remotely seem to be viable. Like all nuclear power production they rely on extensive taxpayer subsidies; the only difference is that with thorium and other breeder reactors these are of an order of magnitude greater, which is why no government has ever continued their funding.' China's development will persist until it experiences the ongoing major technical hurdles the rest of the nuclear club have discovered, he says. Others see thorium as a smokescreen to perpetuate the status quo: the world's only operating thorium reactor – India's Kakrapar-1 – is actually a converted PWR, for example. 'This could be seen to excuse the continued use of PWRs until thorium is [widely] available,' points out Peter Rowberry of No Money for Nuclear (NM4N) and Communities Against Nuclear Expansion (CANE). In his reading, thorium is merely a way of deflecting attention and criticism from the dangers of the uranium fuel cycle and excusing the pumping of more money into the industry. And yet the nuclear industry itself is also sceptical, with none of the big players backing what should be – in PR terms and in a post-Fukushima world – its radioactive holy grail: safe reactors producing more energy for less and cheaper fuel. In fact, a 2010 National Nuclear Laboratory (NNL) report (PDF)concluded the thorium fuel cycle 'does not currently have a role to play in the UK context [and] is likely to have only a limited role internationally for some years ahead' – in short, it concluded, the claims for thorium were 'overstated'. Proponents counter that the NNL paper fails to address the question of MSR technology, evidence of its bias towards an industry wedded to PWRs. Reliant on diverse uranium/plutonium revenue streams – fuel packages and fuel reprocessing, for example – the nuclear energy giants will never give thorium a fair hearing, they say. But even were its commercial viability established, given 2010's soaring greenhouse gas levels, thorium is one magic bullet that is years off target. Those who support renewables say they will have come so far in cost and efficiency terms by the time the technology is perfected and upscaled that thorium reactors will already be uneconomic. Indeed, if renewables had a fraction of nuclear's current subsidies they could already be light years ahead. All other issues aside, thorium is still nuclear energy, say environmentalists, its reactors disgorging the same toxic byproducts and fissile waste with the same millennial half-lives. Oliver Tickell, author of Kyoto2, says the fission materials produced from thorium are of a different spectrum to those from uranium-235, but 'include many dangerous-to-health alpha and beta emitters'. Tickell says thorium reactors would not reduce the volume of waste from uranium reactors. 'It will create a whole new volume of radioactive waste from previously radio-inert thorium, on top of the waste from uranium reactors. Looked at in these terms, it's a way of multiplying the volume of radioactive waste humanity can create several times over.' Putative waste benefits – such as the impressive claims made by former Nasa scientist Kirk Sorensen, one of thorium's staunchest advocates – have the potential to be outweighed by a proliferating number of MSRs. There are already 442 traditional reactors already in operation globally, according to the International Atomic Energy Agency. The by-products of thousands of smaller, ostensibly less wasteful reactors would soon add up. Anti-nuclear campaigner Peter Karamoskos goes further, dismissing a 'dishonest fantasy' perpetuated by the pro-nuclear lobby. Thorium cannot in itself power a reactor; unlike natural uranium, it does not contain enough fissile material to initiate a nuclear chain reaction. As a result it must first be bombarded with neutrons to produce the highly radioactive isotope uranium-233 – 'so these are really U-233 reactors,' says Karamoskos. This isotope is more hazardous than the U-235 used in conventional reactors, he adds, because it produces U-232 as a side effect (half life: 160,000 years), on top of familiar fission by-products such as technetium-99 (half life: up to 300,000 years) and iodine-129 (half life: 15.7 million years).Add in actinides such as protactinium-231 (half life: 33,000 years) and it soon becomes apparent that thorium's superficial cleanliness will still depend on digging some pretty deep holes to bury the highly radioactive waste. With billions of pounds already spent on nuclear research, reactor construction and decommissioning costs – dwarfing commitments to renewables – and proposed reform of the UK electricity markets apparently hiding subsidies to the nuclear industry, the thorium dream is considered by many to be a dangerous diversion. Energy consultant and former Friends of the Earth anti-nuclear campaigner Neil Crumpton says the government would be better deferring all decisions about its new nuclear building plans and fuel reprocessing until the early 2020s: 'By that time much more will be known about Generation IV technologies including LFTRs and their waste-consuming capability.' In the meantime, says Jean McSorley, senior consultant for Greenpeace's nuclear campaign, the pressing issue is to reduce energy demand and implement a major renewables programme in the UK and internationally – after all, even conventional nuclear reactors will not deliver what the world needs in terms of safe, affordable electricity, let alone a whole raft of new ones. 'Even if thorium technology does progress to the point where it might be commercially viable, it will face the same problems as conventional nuclear: it is not renewable or sustainable and cannot effectively connect to smart grids. The technology is not tried and tested, and none of the main players is interested. Thorium reactors are no more than a distraction.'

#### No escalation

Collins, prof poli sci – Notre Dame, and Wohlforth, prof govt – Dartmouth, ‘4

(Kathleen and William, <http://www.dartmouth.edu/~govt/docs/15-Central%20Asia-press.pdf>)

While cautious realism must remain the watchword concerning an impoverished and potentially unstable region comprised of fragile and authoritarian states, our analysis yields at least conditional and relative optimism. Given the confluence of their chief strategic interests, the major powers are in a better position to serve as a stabilizing force than analogies to the Great Game or the Cold War would suggest. It is important to stress that the region’s response to the profoundly destabilizing shock of coordinated terror attacks was increased cooperation between local governments and China and Russia, and—multipolar rhetoric notwithstanding—between both of them and the United States. If this trend is nurtured and if the initial signals about potential SCO-CSTO-NATO cooperation are pursued, another destabilizing shock might generate more rather than less cooperation among the major powers.

Uzbekistan, Kyrgyzstan, Tajikistan, and Kazakhstan are clearly on a trajectory that portends longer-term cooperation with each of the great powers. As military and economic security interests become more entwined, there are sound reasons to conclude that “great game” politics will not shape Central Asia’s future in the same competitive and destabilizing way as they have controlled its past. To the contrary, mutual interests in Central Asia may reinforce the broader positive developments in the great powers’ relations that have taken place since September 11, as well as reinforce regional and domestic stability in Central Asia.

## immigration

#### Grid collapse destroys the economy

Lieutenant Colonel Anton H. Nerad II 7, United States Marine Corps, Masters in Security Studies from the War College, “Distributed Generation to Counter Grid Vulnerability”, March 27, <http://www.hsdl.org/?view&did=10493>

The U.S. electric power system is a tempting target because electric energy is a large part of the U. S. economy and an important ingredient for our culture and way of life.7 Although our electric energy production, storage, and transportation facilities are dispersed across the United States, the interconnectedness, openness, and centralized locations make our system vulnerable to various forms of terrorist attack. During electrical power outages of any length of time, homes and businesses currently stand to lose not only idle time, but money as well. Today people and businesses have built their worlds around, and are in need of, reliable and uninterruptible sources of electrical energy. In 1978 explosives left by an unknown source left a hole in the Trans Alaskan pipeline which caused a spill of approximately 670,000 gallons of oil. In 2001 Al Qaeda operatives destroyed the World Trade Center and have designs for more attacks against the U. S. economy. As the World Trade Center was a central, large, local target, our nation’s electrical power generation network presents many of the same vulnerabilities. In 2001 a man with a high powered rifle shot a hole in the Trans Alaskan pipeline, causing a spill of over 285,600 gallons and $8 million dollars in lost royalty revenue and taxes and $20 million dollars in clean up costs.8 In 2003 a single downed power line caused 21 electric power plants to shut down leaving approximately 50 million people in the Northeastern United States without electricity for over 30 hours.9 In 2006 Hewlett-Packard estimated that a 15-minute electricity outage at only one of their chip manufacturing plants would cost the company $30 million in lost production and recovery services, all while costing the electrical power company little at all.10 These kinds of losses can devastate a region, not just the company. The 2003 U. S. blackout lucidly demonstrates the vulnerability to our electrical power grid and the rapidly ensuing negative effects of electrical power loss. It demonstrates that a tightly interconnected electric grid, as in our current system, can be not only its greatest strength but also its biggest weakness. When there is a problem with even a seemingly minor subsystem, in this case a broken power line, the interconnected grid itself becomes a very large vulnerability.11 “The Great Blackout of 2003 will go down in history as one more wake-up call for a nation grown weary of them, a vivid demonstration that the most critical technology of modern life – the electricity that powers virtually every aspect of it – is vulnerable to severe disruption, and growing more so by the day.”12 The loss of any major electrical power plant could leave large regions of the country without electricity.13 Even an imbalance of electrical power on the grid can cause the “fail safe” system to fail, resulting in the loss of electricity to tens of millions of people at once or, even more disrupting, an electrical power plant could burn out.

#### No state collapse

Richard **Weitz**, Senior Fellow and Director, Center for Political-Military Analysis, Hudson Institute. “Where are Latin America’s Terrorists?” 11-9-**11**

http://www.project-syndicate.org/commentary/where-are-latin-america-s-terrorists-

 The Colombian army’s killing of Alfonso Cano, head of the Revolutionary Armed Forces of Colombia (FARC), will not eliminate that country’s largest guerrilla group anytime soon. But it does partly illustrate why international terrorism has not established a major presence in Latin America. Local security forces, bolstered by generous American assistance, have made the region a difficult place for foreign terrorists to set up operational cells – and other conditions also help to make Latin America less vulnerable. One reason why the FARC has survived repeated blows to its leadership is the support that it receives from various groups, perhaps including government officials, in neighboring Ecuador and Venezuela. Fortunately, this backing appears to have declined in the last year or so, following improvement in Colombia’s relations with these countries. Another factor contributing to the FARC’s survival has been its transformation over the years from a revolutionary organization into a narco-terrorist group that uses violence to support its criminal operations. Many former terrorist and insurgent groups in the region have undergone similar transformations over the last two decades. These groups, some with transnational reach, mostly engage in narcotics trafficking, arms smuggling, and kidnapping. At worst, they sometimes employ terrorist tactics (commonly defined as violence that deliberately targets civilians). In Colombia, the FARC and the National Liberation Army (ELN) finance their operations through drug trafficking, kidnapping, and extortion. These groups might kill civilians, but their main targets are the police and security personnel who threaten their activities. Latin America is distinctive in the recurring and broad overlap of mass movements professing revolutionary goals with transnational criminal operations. The Internet and modern social media are allowing these mass criminal movements to expand their activities beyond kidnapping, extortion, and trafficking in drugs, arms, and people, to include fraud, piracy, information theft, hacking, and sabotage. Violent mass movements remain in some Latin American countries, but, like the FARC, they are typically heavily engaged in organized crime. Drug cartels and gang warfare may ruin the lives of thousands of innocent people, but they should not be seen as equivalent to the ideological revolutionaries who used to wreak havoc in the region, or to contemporary mass terrorists. Extra-regional terrorist movements such as al-Qaeda have minimal presence in South America, with little independent operational activity and few ties to local violent movements. At most, the two types of groups might share operational insights and revenue from transnational criminal operations. Hezbollah has not conducted an attack in Latin America in almost two decades. Indigenous organized criminal movements are responsible for the most serious sources of local violence. Latin American countries generally are not a conducive environment for major terrorist groups. They lack large Muslim communities that could provide a bridgehead for Islamist extremist movements based in Africa and the Middle East. The demise of military dictatorships and the spread of democratic regimes throughout Latin America (except for Cuba) means that even severe economic, class, ethnic, and other tensions now more often manifest themselves politically, in struggles for votes and influence. No Latin American government appears to remain an active state sponsor of foreign terrorist movements. At worst, certain public officials may tolerate some foreign terrorists’ activities and neglect to act vigorously against them. More often, governments misapply anti-terrorist laws against their non-violent opponents. For example, despite significant improvement in its human-rights policies, the Chilean government has at times applied harsh anti-terrorism laws against indigenous Mapuche protesters. Indeed, Latin American terrorism is sometimes exaggerated, because governments have incentives to cite local terrorist threats to secure foreign support, such as US capacity-building funding. Just as during the Cold War, when Latin American leaders were lavished with aid for fighting communist subversion, governments seek to fight “terrorist” threats at America’s expense. Ironically, the strength of transnational criminal organizations in Latin America may act as a barrier to external terrorist groups. Extra-regional terrorists certainly have incentives to penetrate the region. Entering the US, a high-value target for some violent extremist groups, from Latin America is not difficult for skilled operatives. Extra-regional terrorist groups could also raise funds and collaborate operationally with local militants. But Latin America’s powerful transnational criminal movements, such as the gangs in Mexico that control much of the drug trafficking into the US, do not want to jeopardize their profits by associating themselves with al-Qaeda and its affiliates. Supporting terrorism would merely divert time and other resources from profit-making activities, while focusing unsought US and other international attention on their criminal operations.

#### Won’t pass—other issues kill passage, or disprove the link

Daniel Gonzalez, The Republic, 1/4/13, ‘Cliff’ fight, gun control pushing immigration reform out of spotlight, www.azcentral.com/news/politics/articles/20130103immigration-reform-at-crossroads.html

Immigration reform jumped to the top of President Barack Obama’s second-term agenda after he won re-election with more than 70 percent of the Latino vote.

But the already-difficult challenge of passing comprehensive immigration reform this year, as Obama hopes, has been exacerbated by the drawn-out battle over the “fiscal cliff” and emergence of gun control as a major issue following the December shooting of 20 first-graders and six adults at an elementary school in Newtown, Conn.

In an interview Sunday on NBC’s “Meet the Press,” Obama reiterated that “fixing our broken immigration system is a top priority.”

“We’ve talked about it long enough,” he said.

The overwhelming support Obama received from Latino voters in November also prompted many Republicans to call for immigration reform in a bid to rehabilitate their party’s negative image with Latinos.

But immigration reform has a long history of being sidetracked by other issues. Health-care reform and fixing the economy knocked immigration reform off the table in 2009 and 2010. Now, spending cuts and gun control are threatening to derail immigration reform again.

That’s because the window to pass immigration legislation is short, analysts and immigration-reform advocates say.

If nothing happens this year, immigration reform may become too politically radioactive to tackle leading up to the 2014 congressional midterm election and then the 2016 presidential election.

#### It’s posturing—no bill or vote for months

Josh Voorhees, Slate, 1/3/13, White House (Quietly) Promises Immigration Push, www.slate.com/blogs/the\_slatest/2013/01/03/obama\_s\_immigration\_plans\_white\_house\_officials\_suggest\_early\_2013\_won\_t.html

However, just because the administration is declaring that an unofficial launch to the immigration push is imminent doesn't mean anyone should expect major action anytime soon. The aides who laid out the plans to HuffPo cautioned that it would probably take about two months to cobble together a bipartisan bill, and then another few before either chamber votes on it. That would mean that if all goes as planned (something that is far from certain) it would likely be early or mid-summer before any concrete actions are taken.

#### No link—if it passes it’s because Republicans have to vote for it, not b/c Obama capital

David Nakamura, 12/22/12, Advocates fear gun control agenda will divert Obama from immigration reform, www.washingtonpost.com/politics/advocates-fear-gun-control-agenda-will-divert-obama-from-immigration-reform/2012/12/22/2725d3d0-4acc-11e2-b709-667035ff9029\_story.html

“As we line up a path to gun control and the response to Connecticut, everybody expects Congress, just like the rest of the American people, will be able to take on more than one thing,” said Clarissa Martinez de Castro, director of civic engagement and immigration for the National Council of La Raza. “There is a real premium for Republicans moving forward on immigration. It’s less about their position with Democrats than with making inroads with a section of the electorate that they will not see the inside of the White House without. That’s their biggest motivation.”

#### Hagel nomination triggers the DA

Stirewalt, writer for Fox News, 1/7/2013

(Chris, “Obama Antagonizes with Hagel Pick,” http://www.foxnews.com/politics/2013/01/07/obama-antagonizes-with-hagel-pick/#ixzz2HIw1d0GW)

With Republicans still resentful of Hagel’s ostentatious opposition of Bush-era policies and support for Obama’s two presidential runs, confirmation would have been tricky enough. But the queasy feelings of pro-Israel Democrats on the tough-talking Vietnam vet will make it so much worse. Maryland Sen. Ben Cardin, a dutiful Democrat if ever there was one, told the soon-to-be-former cable news network Current TV on Sunday that there are “some statements that [Hagel] needs to clarify” and called the nomination “controversial.” Coming from Cardin, ranked in the 10 most liberal senators by National Journal, that’s the equivalent of a cannon shot across Obama’s bow. **It will take lots of time and effort to drag Hagel**, **opinionated and confrontational**, **across the finish line**. **The president can get it done**, **but the ordeal will be frightful and expend plenty of political capital**. The president is already staring down a double-barreled battle over government spending on the debt ceiling and the expiry of the law funding the government in lieu of a budget. Plus, Obama’s pick to lead the CIA, counterterrorism chief John Brennan, will face plenty of thorny questions from the left about his role in “enhanced interrogation techniques” and from the right about the Islamist raid on the U.S. consulate in Benghazi, Libya.

#### SMRs are popular

Nelson and Northey ‘12

Gabriel and Northey, energy and environment reports for Greenwire, “DOE funding for small reactors languishes as parties clash on debt,” <http://www.eenews.net/public/Greenwire/2012/09/24/3>, AM

It's not just wind and solar projects that are waiting for federal help as Congress duels over the importance of putting taxpayer dollars on the line for cutting-edge energy projects. Some of the nation's largest nuclear power companies are anxious to hear whether they will get a share of a $452 million pot from the Department of Energy for a new breed of reactors that the industry has labeled as a way to lessen the safety risks and construction costs of new nuclear power plants. The grant program for these "small modular reactors," which was announced in January, would mark the official start of a major U.S. foray into the technology even as rising construction costs -- especially when compared to natural-gas-burning plants -- cause many power companies to shy away from nuclear plants. DOE received four bids before the May 21 deadline from veteran reactor designers Westinghouse Electric Co. and Babcock & Wilcox Co., as well as relative newcomers Holtec International Inc. and NuScale Power LLC. Now the summer has ended with no announcement from DOE, even though the agency said it would name the winners two months ago. As the self-imposed deadline passed, companies started hearing murmurs that a decision could come in September, or perhaps at the end of the year. To observers within the industry, it seems that election-year calculations may have sidelined the contest. "The rumors are a'flying," said Paul Genoa, director of policy development at the Nuclear Energy Institute, in an interview last week. "All we can imagine is that this is now caught up in politics, and the campaign has to decide whether these things are good for them to announce, and how." Small modular reactors do not seem to be lacking in political support. The nuclear lobby has historically courted both Democrats and Republicans and still sees itself as being in a strong position with key appropriators on both sides of the aisle. Likewise, top energy officials in the Obama administration have hailed the promise of the new reactors, and they haven't shown any signs of a change of heart. DOE spokeswoman Jen Stutsman said last week that the department is still reviewing applications, but she did not say when a decision will be made.

#### DoD shields

Davenport 12

Coral Davenport, energy and environment correspondent for National Journal. Prior to joining National Journal in 2010, Davenport covered energy and environment for Politico, and before that, for Congressional Quarterly. In 2010, she was a fellow with the Metcalf Institute for Marine and Environmental Reporting. From 2001 to 2004, Davenport worked in Athens, Greece, as a correspondent for numerous publications, including the Christian Science Monitor and USA Today, covering politics, economics, international relations and terrorism in southeastern Europe. She also covered the 2004 Olympic Games in Athens, and was a contributing writer to the Fodor’s, Time Out, Eyewitness and Funseekers’ guidebook series. Davenport started her journalism career at the Daily Hampshire Gazette in Northampton, Massachusetts, after graduating from Smith College with a degree in English literature. National Journal, 2/10/12, White House Budget to Expand Clean-Energy Programs Through Pentagon, ProQuest

The White House believes it has figured out how to get more money for clean-energy programs touted by President Obama without having it become political roadkill in the wake of the Solyndra controversy: **Put it in the Pentagon**. While details are thin on the ground, lawmakers who work on both energy- and defense-spending policy believe the fiscal 2013 budget request to be delivered to Congress on Monday probably won't include big increases for wind and solar power through the Energy Department, a major target for Republicans since solar-panel maker Solyndra defaulted last year on a $535 million loan guarantee. But they do expect to see increases in spending on alternative energy in the Defense Department, such as programs to replace traditional jet fuel with biofuels, supply troops on the front lines with solar-powered electronic equipment, build hybrid-engine tanks and aircraft carriers, and increase renewable-energy use on military bases. While Republicans will instantly shoot down requests for fresh spending on Energy Department programs that could be likened to the one that funded Solyndra, many support alternative-energy programs for the military. "I do expect to see the spending," said Rep. Jack Kingston, R-Ga., a member of the House Defense Appropriations Subcommittee, when asked about increased investment in alternative-energy programs at the Pentagon. "I think in the past three to five years this has been going on, but that it has grown as a culture and a practice - and it's a good thing." "If Israel attacks Iran, and we have to go to war - and the Straits of Hormuz are closed for a week or a month and the price of fuel is going to be high," Kingston said, "the question is, in the military, what do you replace it with? It's not something you just do for the ozone. It's strategic." Sen. Lindsey Graham, R-S.C., who sits on both the Senate Armed Services Committee and the Defense Appropriations Subcommittee, said, "I don't see what they're doing in DOD as being Solyndra." "We're not talking about putting $500 million into a goofy idea," Graham told National Journal . "We're talking about taking applications of technologies that work and expanding them. I wouldn't be for DOD having a bunch of money to play around with renewable technologies that have no hope. But from what I understand, there are renewables out there that already work." A senior House Democrat noted that this wouldn't be the first time that the **Pentagon has been utilized to advance policies that wouldn't otherwise be supported**. "They did it in the '90s with medical research," said Rep. Henry Waxman, D-Calif., ranking member of the House Energy and Commerce Committee. In 1993, when funding was frozen for breast-cancer research programs in the National Institutes of Health, Congress boosted the Pentagon's budget for breast-cancer research - to more than double that of the health agency's funding in that area. **Politically, the strategy makes sense**. Republicans are ready to fire at the first sign of any pet Obama program, and renewable programs at the Energy Department are an exceptionally ripe target. That's because of Solyndra, but also because, in the last two years, the Energy Department received a massive $40 billion infusion in funding for clean-energy programs from the stimulus law, a signature Obama policy. When that money runs out this year, a request for more on top of it would be met with flat-out derision from most congressional Republicans. Increasing renewable-energy initiatives at the Pentagon can also help Obama advance his broader, national goals for transitioning the U.S. economy from fossil fuels to alternative sources. As the largest industrial consumer of energy in the world, the U.S. military can have a significant impact on energy markets - if it demands significant amounts of energy from alternative sources, it could help scale up production and ramp down prices for clean energy on the commercial market. Obama acknowledged those impacts in a speech last month at the Buckley Air Force Base in Colorado. "The Navy is going to purchase enough clean-energy capacity to power a quarter of a million homes a year. And it won't cost taxpayers a dime," Obama said. "What does it mean? It means that the world's largest consumer of energy - the Department of Defense - is making one of the largest commitments to clean energy in history," the president added. "That will grow this market, it will strengthen our energy security." Experts also hope that Pentagon engagement in clean-energy technology could help yield breakthroughs with commercial applications. Kingston acknowledged that the upfront costs for alternative fuels are higher than for conventional oil and gasoline. For example, the Air Force has pursued contracts to purchase biofuels made from algae and camelina, a grass-like plant, but those fuels can cost up to $150 a barrel, compared to oil, which is lately going for around $100 a barrel. Fuel-efficient hybrid tanks can cost $1 million more than conventional tanks - although in the long run they can help lessen the military's oil dependence, Kingston said Republicans recognize that the up-front cost can yield a payoff later. "It wouldn't be dead on arrival. But we'd need to see a two- to three-year payoff on the investment," Kingston said. Military officials - particularly Navy Secretary Ray Mabus, who has made alternative energy a cornerstone of his tenure - have been telling Congress for years that the military's dependence on fossil fuels puts the troops - and the nation's security - at risk. Mabus has focused on meeting an ambitious mandate from a 2007 law to supply 25 percent of the military's electricity from renewable power sources by 2025. (Obama has tried and failed to pass a similar national mandate.) Last June, the DOD rolled out its first department-wide energy policy to coalesce alternative and energy-efficient initiatives across the military services. In January, the department announced that a study of military installations in the western United States found four California desert bases suitable to produce enough solar energy - 7,000 megawatts - to match seven nuclear power plants. And so far, those **moves have met with approval from congressional Republicans**. Even so, any request for new Pentagon spending will be met with greater scrutiny this year. The Pentagon's budget is already under a microscope, due to $500 billion in automatic cuts to defense spending slated to take effect in 2013. But even with those challenges, clean-energy spending probably won't stand out as much in the military budget as it would in the Energy Department budget. Despite its name, the Energy Department has traditionally had little to do with energy policy - its chief portfolio is maintaining the nation's nuclear weapons arsenal. Without the stimulus money, last year only $1.9 billion of Energy's $32 billion budget went to clean-energy programs. A spending increase of just $1 billion would make a big difference in the agency's bottom line. But it would probably be easier to tuck another $1 billion or $2 billion on clean-energy spending into the Pentagon's $518 billion budget. Last year, the Pentagon spent about $1 billion on renewable energy and energy-efficiency programs across its departments.

#### Presidential leadership’s irrelevant

**Jacobs and King 10**, University of Minnesota, Nuffield College, (Lawrence and Desmond, “Varieties of Obamaism: Structure, Agency, and the Obama Presidency,” Perspectives on Politics (2010), 8: 793-802)

 But personality is not a solid foundation for a persuasive explanation of presidential impact and the shortfalls or accomplishments of Obama's presidency. Modern presidents have brought divergent individual traits to their jobs and yet they have routinely failed to enact much of their agendas. Preeminent policy goals of Bill Clinton (health reform) and George W. Bush (Social Security privatization) met the same fate, though these presidents' personalities vary widely. And presidents like Jimmy Carter—whose personality traits have been criticized as ill-suited for effective leadership—enjoyed comparable or stronger success in Congress than presidents lauded for their personal knack for leadership—from Lyndon Johnson to Ronald Reagan.7 Indeed, a personalistic account provides little leverage for explaining the disparities in Obama's record—for example why he succeeded legislatively in restructuring health care and higher education, failed in other areas, and often accommodated stakeholders. Decades of rigorous research find that impersonal, structural forces offer the most compelling explanations for presidential impact.8 Quantitative research that compares legislative success and presidential personality finds no overall relationship.9 In his magisterial qualitative and historical study, Stephen Skowronek reveals that institutional dynamics and ideological commitments structure presidential choice and success in ways that trump the personal predilections of individual presidents.10 Findings point to the predominant influence on presidential legislative success of the ideological and partisan composition of Congress, entrenched interests, identities, and institutional design, and a constitutional order that invites multiple and competing lines of authority. The widespread presumption, then, that Obama's personal traits or leadership style account for the obstacles to his policy proposals is called into question by a generation of scholarship on the presidency. Indeed, the presumption is not simply problematic analytically, but practically as well. For the misdiagnosis of the source of presidential weakness may, paradoxically, induce failure by distracting the White House from strategies and tactics where presidents can make a difference. Following a meeting with Obama shortly after Brown's win, one Democratic senator lamented the White House's delusion that a presidential sales pitch will pass health reform—“Just declaring that he's still for it doesn't mean that it comes off life support.”11 Although Obama's re-engagement after the Brown victory did contribute to restarting reform, the senator's comment points to the importance of ideological and partisan coalitions in Congress, organizational combat, institutional roadblocks, and anticipated voter reactions. Presidential sales pitches go only so far.

#### Winners win

Jan Ting, 1/5/13, Obama should make Chuck Hagel our Secretary of Defense, www.newsworks.org/index.php/blogs/brandywine-to-broad/item/49218

President Obama can't afford the political cost of backing down again in the face of partisan criticism of his favored nominee, as he did with Susan Rice, whom he had planned to name successor to Hillary Clinton for Secretary of State. Having failed thus far to achieve any sort of grand bargain on the budget deficit, and with the prospects for gun control he promised after the Sandy Hook massacre uncertain at best, the President needs to take a stand on something that he should and can win.

#### Upcoming fights sufficient to trigger the link

Daniel Gonzalez, The Republic, 1/4/13, ‘Cliff’ fight, gun control pushing immigration reform out of spotlight, www.azcentral.com/news/politics/articles/20130103immigration-reform-at-crossroads.html

Meanwhile, the clock is ticking on immigration reform.

Although Obama says he wants to jump right into immigration reform, he and Congress will have to focus their attention for months on several unresolved issues left over from the New Year’s Day deal to avert the “fiscal cliff,” including a March1 deadline to avoid billions of dollars in across-the-board spending cuts and a late February/early March deadline to raise the debt ceiling.

“That is problem Number 1 for immigration reform. That will dominate the agenda for the time being,” said Louis DeSipio, a political-science professor at the University of California-Irvine.

Immigration reform also will have to compete with gun-control legislation. After the shooting in Newtown, Obama appointed Vice President Joe Biden to head an anti-violence commission to come up with new gun-control measures by the end of this month.

“That is going to put more pressure on Congress,” DeSipio said.

Gun control, plus the divisive atmosphere demonstrated by the Republican-controlled House and the Democrat-run Senate during the fiscal-cliff debate, “makes it more and more unlikely that Congress will actually be able to debate a comprehensive immigration-reform bill,” he said.

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#### Expansion now

Westenhaus 9/30/12

Brian, editor of the popular energy technology site New Energy and Fuel, “Confidence in Nuclear Power is on the Rise Again,” <http://oilprice.com/Alternative-Energy/Nuclear-Power/Confidence-in-Nuclear-Power-is-on-the-Rise-Again.html>, AM

The U.S. is not alone. New nuclear plants are coming in Asia and even in Europe. Nuclear generating capacity is projected to grow 38% in the next eight years. These kinds of numbers wake up the uranium commodities speculators – even while the market is in the doldrums.

#### Hypocrisy irrelevant

Frank Procida 9, National Intelligence Fellow at CFR, “Unclear Nuclear Logic?”, Foreign Affairs, March/April, http://www.foreignaffairs.com/articles/64662/frank-procida-peter-huessy/unclear-nuclear-logic

The shift in U.S. nuclear policy advocated by Ivo Daalder and Jan Lodal ("The Logic of Zero," November/December 2008) might make sense for a number of important reasons -- not least among them safety, cost, and reducing the risk of annihilation through miscalculation. But it would be naive to expect any of the authors' recommendations to alter the decision-making of the rogue states that are currently pursuing nuclear technology. Assuming it were feasible, even the complete elimination of the United States' nuclear arsenal would almost certainly have little positive effect on Tehran's or Pyongyang's proliferation, as the same complex set of internal and external factors now driving their policies would persist, as would their perceived vulnerability to U.S. conventional superiority. The less drastic measures the authors call for, such as Washington's accepting international oversight over its own fissile material, far from enhancing the likelihood of reaching agreements with rogue states, would probably barely register in negotiations.

## no thorium

#### Plan process doesn’t cause thorium

CNA 10, non-profit research organization that operates the Center for Naval Analyses and the Institute for Public Research, “Powering America’s Economy: Energy Innovation at the Crossroads of National Security Challenges”, July, <http://www.cna.org/sites/default/files/research/WEB%2007%2027%2010%20MAB%20Powering%20America%27s%20Economy.pdf>

In our final discussion, we consider the end of the innovation pipeline—deployment—and we look at how fine-tuning the incentives might help pull more innovative, new energy technologies through the pipeline. Energy use at installations is governed under a stricter rubric than operational energy: a variety of regulatory and legislative mandates have steered DOD toward lowering energy consumption, increasing use of renewables, and promoting conservation and energy efficiency. However, the adoption of new clean energy technologies is still hampered in key installation acquisition programs. To help achieve its energy goals, DOD often employs two mechanisms: the Energy Conservation Investment Program (ECIP) and Energy Savings Performance Contracts (ESPCs). The ECIP program is backed by Congressional appropriations (through military construction funding), and it is designed to allow installations to purchase technologies that save money through conserving energy [55]. The program is viewed widely as being successful, cited as saving more than two dollars for each dollar invested. ESPCs are contracting vehicles that allow DOD to invest in energy-related improvements without expending funds appropriated by Congress. Through ESPCs, DOD partners with private firms that make the energy improvements; in return, the firms’ investments are paid back through the energy savings. While these programs have improved installation energy use, as they are currently structured, they favor older technologies that are well-established on the commercial market. This is especially the case for ESPCs, which are inherently risk averse. The private sector firms that enter into these contracts only do so if they are guaranteed to make a profit; as such, the energy improvements are done so with tried-and-tested technologies whose payback schedules and energy savings are well-defined. Many of these investments are also made with small profit margins. As such, companies are not willing to take risks on these contracts by using new and perhaps unproven technologies. Altering these programs to reduce the advantages provided to already commercialized products will encourage the acquisition of more innovative technologies on installations. One change could include a guaranteed return on investment (similar to that given on older technologies) for those developers proposing cutting-edge technologies. Another change could include giving first preference to innovations that come from public/private partnerships (incubators, energy hubs, etc.). Given DOD’s size and the fact that installations mirror U.S. infrastructure, the use of innovative technologies on its installations provides a clear demand signal to the developer.

## AT: Russia – US War

No escalation – disagreements remain limited

Weitz 11 (Richard, senior fellow at the Hudson Institute and a World Politics Review senior editor 9/27/2011, “Global Insights: Putin not a Game-Changer for U.S.-Russia Ties,” <http://www.scribd.com/doc/66579517/Global-Insights-Putin-not-a-Game-Changer-for-U-S-Russia-Ties>)

Fifth, there will inevitably be areas of conflict between Russia and the United States regardless of who is in the Kremlin. Putin and his entourage can never be happy with having NATO be Europe's most powerful security institution, since Moscow is not a member and cannot become one. Similarly, the Russians will always object to NATO's missile defense efforts since they can neither match them nor join them in any meaningful way. In the case of Iran, Russian officials genuinely perceive less of a threat from Tehran than do most Americans, and Russia has more to lose from a cessation of economic ties with Iran -- as well as from an Iranian-Western reconciliation. On the other hand, these conflicts can be managed, since they will likely **remain limited and compartmentalized**. Russia and the West **do not have fundamentally conflicting vital interests of the kind countries would go to war over**. And as the Cold War demonstrated, nuclear weapons are a great pacifier under such conditions. Another novel development is that Russia is much more integrated into the international economy and global society than the Soviet Union was, and Putin's popularity depends heavily on his economic track record. Beyond that, there are objective criteria, such as the smaller size of the Russian population and economy as well as the difficulty of controlling modern means of social communication, that will constrain whoever is in charge of Russia.

## impact

#### Venezuela is fine

Brands 9

Hal, “DEALING WITH POLITICAL FERMENT IN LATIN AMERICA: THE POPULIST REVIVAL, THE EMERGENCE OF THE CENTER, AND IMPLICATIONS FOR U.S. POLICY” PhD History from Yale

http://www.strategicstudiesinstitute.army.mil/pdffiles/PUB943.pdf

 The first trend is radical populism. Leaders like Hugo Chávez, Evo Morales, Rafael Correa, and others angrily condemn the shortcomings of capitalism and democracy, and frame politics as a struggle between the “people” and the “oligarchy.” They promote prolific social spending, centralize power in the presidency, and lash out at Washington. This program is, in some ways, strategically problematic for the United States. Populist policies ultimately lead to authoritarianism, polarization, and economic collapse, and certain populist leaders have openly challenged U.S. influence and interests in Latin America. Yet it would be a mistake to overestimate the dangers posed by radical populism. There are limits to the more threatening aspects of populist diplomacy, and, despite their anti-American rhetoric, populist leaders in Ecuador, Nicaragua, and Argentina have continued to cooperate with Washington on a number of issues. More importantly, taking too dire a view of the current situation risks ignoring the effects of the second essential trend in Latin American politics: the rise of the center. vi On both center-left and center-right, leaders in countries like Chile, Brazil, Uruguay, Mexico, and Colombia have responded to the present crisis in Latin America by emphasizing moderation rather than radicalism. They mix market-oriented economic policies with creative social reforms, protect democratic practices, and confront the long-standing shortcomings of the Latin American state. They pursue pragmatic foreign policies, stressing cooperation rather than confrontation with the United States.

## 1ar u

#### New fights kill compromise on immigration reform

Daniel Gonzalez, The Republic, 1/4/13, ‘Cliff’ fight, gun control pushing immigration reform out of spotlight, www.azcentral.com/news/politics/articles/20130103immigration-reform-at-crossroads.html

However, Rep. Ed Pastor, D-Ariz., warned that the coming “economic tsunami” could swamp efforts to enact immigration reform.

Pastor said upcoming battles in the next few months will be over the federal debt ceiling, spending cuts and the continuing resolution to keep the government funded. Partisan tensions already are high, and the continued bitter fighting over fiscal issues could bruise more feelings and egos on Capitol Hill, which would make bipartisan cooperation less likely on other big issues, he said.

#### No immigration reform—the budget overwhelms or disprove the link

Ryu Spaeth, 1/3/13, Will Congress' budget battles kill immigration reform and gun control? , theweek.com/article/index/238367/will-congress-budget-battles-kill-immigration-reform-and-gun-control

Amidst the eleventh-hour drama surrounding the fiscal cliff, every other issue facing the country was shunted to the side. The deal to allow tax rates to rise on the wealthiest Americans was so bruising that Speaker John Boehner (R-Ohio) tabled a bill that would have asked the House GOP to sign off on $60 billion in federal aid to victims of Hurricane Sandy, earning Boehner a humiliating dressing-down from his fellow Republicans in New Jersey and New York. And Sandy wasn't the only issue to get lost in the mix. As Slate's Dave Weigel put it:

@daveweigel

Hey, remember when we were talking about new gun control legislation? That was a wild six minutes.

Congress' budget battles are only expected to get gorier over the next couple of months, as Republicans and Democrats try to reach a deal that would prevent $1.2 trillion in crippling spending cuts, a U.S. debt default, and a government shutdown. However, the White House insists that President Obama "is planning to move full steam ahead with the rest of his domestic policy agenda," say Elise Foley and Sam Stein at The Huffington Post. Immigration reform and gun control are at the top of the list, but the chances of their quick passage seem slim given the heated atmosphere in Congress. "The negative effect of this fiscal cliff fiasco is that every time we become engaged in one of these fights, there's no oxygen for anything else," an unidentified Senate Democratic aide told HuffPo. "It's not like you can be multi-tasking — with something like this, Congress just comes to a complete standstill."

The key to congressional action is to strike when the iron is hot. In the case of immigration reform, the GOP has to feel the sting of Mitt Romney's defeat as if it were yesterday. Supporters of gun control, an issue that had been all but abandoned before the school shooting in Connecticut, say Obama must act while public opinion is on their side. As time passes, it's only logical to assume that a sense of urgency will give way to the gravitational pull of preserving the status quo.

## 1ar – hagel pounder

#### Derails debt negotiations

Spetalnick, writer for Reuters, 1/7/2013

(Matt, “Obama to tap Hagel for Pentagon, Brennan for CIA,” http://www.chicagotribune.com/news/sns-rt-us-obama-nominationsbre9060cp-20130107,0,6361684,full.story)

Obama is backing Hagel for the Pentagon post despite the fact that the former Nebraska lawmaker, even before being nominated, **had become a lightning rod for criticism from the left and the right**.

Former Republican colleagues have joined pro-Israel groups and neoconservatives in questioning his commitment to Israel's security and slamming disparaging remarks about what he once called a "Jewish lobby" in Washington.

He has also come under fire for saying in 1998 that a nominee for an ambassadorial post was not qualified because he was "openly, aggressively gay" - a remark for which he has since apologized.

Obama's nomination of Hagel suggests that the president did not want to appear weak by seeming to bow to political opposition and being forced to pick someone other than his favorite contender for a top Cabinet post.

He backed down last month from a tough Senate confirmation battle over Susan Rice, the U.S. ambassador to the United Nations, his first pick to replace Hillary Clinton as secretary of state, and instead settled on Kerry.

But the risk for Obama is that **pushing Hagel's nomination could force him to expend political capital he needs more for his next round of fiscal showdowns with congressional Republicans**.

#### Hagel confirmation will be a bruising fight – GOP opposition will cost political capital

Gorman, writer for the Wall Street Journal, 1/6/2013

(Siobhan, “White House to Go on Offense for Hagel Pick,” http://online.wsj.com/article/SB10001424127887323482504578225532918927080.html)

President Barack Obama plans to announce Monday that he is nominating former Republican Sen. Chuck Hagel to be his next defense secretary in the face of intensifying opposition from Republican lawmakers, administration officials said Sunday. Those officials acknowledge **they have a bruising confirmation fight ahead**. They also say they are confident they will prevail because Republicans ultimately won't be able to topple a former colleague, a Vietnam veteran and a two-term GOP senator from Nebraska who served on the foreign relations and intelligence committees. Mr. Obama also may announce his nominee to head the Central Intelligence Agency, a position left vacant when David Petraeus resigned last year after admitting to an affair. The two leading candidates for the post are White House counterterrorism chief John Brennan and acting CIA Director Michael Morell. Republican lawmakers on Sunday stepped up their opposition to Mr. Hagel, who initially voted for the Iraq war but grew to oppose it and who supported Mr. Obama for president in 2008. Critics also have cited Mr. Hagel's past criticisms of Israel as a basis for their opposition. Sen. Lindsay Graham (R., S.C.) said Sunday on CNN that it would "probably be a bridge too far" for him to support Mr. Hagel. Mr. Hagel's foreign policy views, he said, are "outside the mainstream," and he would be "the most antagonistic secretary of defense towards the state of Israel in our nation's history." Other Republicans, such as Sen. Ted Cruz (R., Texas), cited what they see as a leniency on Iran **and** a past reluctance to impose sanctions on Tehran as reasons for their opposition. "He has consistently advocated weakness with respect to our enemies, with respect to the nation of Iran," Mr. Cruz said on Fox. "Weakness in a secretary of defense invites conflict, because bullies don't respect weakness." Mr. Hagel's backers say he will respond to charges he isn't sufficiently supportive of Israel by pointing to votes he made in the Senate for a total of $38 billion in aid for the Jewish state, along with multiple trips to meet with leaders there. Mr. Hagel, said a person close to the decision-making process, believes in America's "special relationship" with Israel, but also believes that relationship enables officials from both governments to "speak frankly" with each other. Regarding Iran, Mr. Hagel voted at least three times for sanctions and is a supporter of multilateral sanctions, the person said, adding that Mr. Hagel has opposed some sanctioning based on specific details, not a broader opposition to sanctions. Mr. Hagel believes that military action should always be an option but, based on his war experience, believes it should only be seriously considered after diplomatic options are exhausted, this person said. The monthlong lag between the initial floating of Mr. Hagel's name for the post and Monday's expected announcement has provided opponents with **ample oxygen for a strong fight**. While a number of former high-ranking national-security officials have voiced support, backers on Capitol Hill were reluctant to campaign hard for someone who had yet to be nominated, said one person close to the process. The Republican National Committee also joined the fray Sunday, firing its initial shots against Mr. Hagel and indicating the opposition is increasingly organized. Mr. Hagel already has been openly criticized on the airwaves by the Emergency Committee for Israel, an issue-advocacy group that criticized Democrats during the 2012 campaign. Opponents also have been quick to circulate additional ammunition for their cause, such as an Iranian PressTV report Sunday headlined, "Obama expected to nominate anti-Israel Hagel as secretary of defense." One of the chief reasons Mr. Obama chose Mr. Hagel is his willingness to buck his own party in opposing the Iraq war, a senior administration official said. The position plays well to Democrats, some of whom have been critical of his potential nomination. Mr. Hagel's views on Afghanistan and the drawdown of troops there also dovetail with Mr. Obama's, and overseeing the final phases of the war may be the most important task the next secretary of defense faces. It was vital to Mr. Obama that he have someone in that position whose views are aligned with his own on Afghanistan. Another key reason Mr. **Obama is willing to spend political capital on** Mr. **Hagel** is the president wants a Republican in his cabinet, said the person familiar with the process, and there are few open positions to fulfill that goal. Defense has been a problematic area for Democratic presidents, and the White House feels Mr. Obama benefited from initially having Robert Gates, a Republican, in the slot because it gave him some political cover with GOP critics. Mr. Obama is less likely to back down in the face of opposition to Mr. Hagel after losing the nomination of U.N. Ambassador Susan Rice, who withdrew from consideration for secretary of state in the wake of GOP criticism. **The White House plans to push back** by casting Mr. Hagel as a decorated war hero with two Purple Hearts and underscoring that he would be the first enlisted military member to run the Defense Department. Crucial for Mr. Hagel's nomination will be the extent to which Democrats back him to offset Republican criticism. The White House intends to make clear Mr. Hagel apologized for a comment he made opposing an openly gay ambassador nominee about a decade ago.

#### Hagel confirmation will cost political capital – Obama is fighting alone

Todd, reporter for MSNBC, 1/7/2013

(Chuck, “First Thoughts: Hagel -- a man without a party,” http://firstread.nbcnews.com/\_news/2013/01/07/16394159-first-thoughts-hagel-a-man-without-a-party?lite)

\*\*\* Hagel -- a man without a party: This afternoon, President Obama will tap former GOP Sen. Chuck Hagel to be his nominee to lead the Defense Department. Hagel’s biggest obstacle to confirmation isn’t his controversial comments about Iran and Israel or his “overly aggressive gay” remark. Rather, it’s that he’s a man without a party. If Hagel were a Democrat, for instance, you would have seen someone like Sen. Chuck Schumer (D) embrace his potential nomination on “Meet the Press” recently instead of being tepid about it. And if Hagel were a true-blue Republican -- having campaigned for Mitt Romney and other GOP candidates last fall -- you wouldn’t have seen folks like Sen. Lindsey Graham (R) speak so critically of him. But Hagel’s in no-man’s-land territory, the place where the public says it wants many public officials to be, but where Washington can eat folks like this alive. He’s a Republican who later opposed the Iraq war, whose wife endorsed Obama in ’08, and who campaigned for Democrat Bob Kerrey in 2012. In recent times, every cabinet nominee from the opposition party (Bill Cohen, Norm Mineta, Bob Gates, Ray LaHood) has sailed through easily. But since we started covering politics, Hagel might be the first cabinet nominee from the opposition party who doesn't have the backing from that party. It’s amazing how things can change: Republicans universally support John Kerry for Secretary of State, but oppose Chuck Hagel for Defense. \*\*\* And **a tough fight ahead**: That said, **Hagel does have a constituency of one** -- **and that’s the president of the United States**. But it’s not going to be an easy fight. In fact, we’ve heard that as many as 10 DEMOCRATIC senators might be “no” votes on Hagel, or they at least start out as “no” on Hagel. So Hagel will have a lot of work to do, especially in his individual meetings with Democrats. Yet we hear that Senate Armed Services Chairman Jack Reed (D) will campaign heavily for Hagel, and that could flip Dem votes; Reed is very close to Hagel and very well respected on both sides of the aisle. Here’s something to chew on: What message would it send if Hagel -- a decorated war hero, a Vietnam vet, a two-term senator who served in office without scandal -- doesn’t get confirmed? As administration official told the New York Times, “At the end of the day, Republicans will support a decorated war hero who was their colleague for 12 years and has critical experience on veterans’ issues.” But as we argue above, Hagel’s bigger problem might be with Democrats, not Republicans. And don’t be surprised if you start hearing this complaint from Democrats: “Why does our party continue to pick Republicans (like Cohen, Bob Gates, and now Hagel) to head up the Defense Department?” \*\*\* The nut of Hagel fight: There are two basic lines of attack against Hagel. One has to do with whether he’s a true ally of Israel. Detractors point to some votes Hagel made when it came to Hamas and Hezbollah, as well as some votes on Iran sanctions. But supporters of Hagel note he always voted in favor of full funding of Israel aid and did sign on to key pieces of legislation that did target Iran’s nuclear program and did target Hamas. Then, of course, is the quote attributed to Hagel where he referred to pro-Israel groups as “the Jewish lobby,” which is offensive to both pro-Israel supporters and Jews who do not like to be lumped in with the AIPAC’s of the world. Gay rights groups are not excited at all about Hagel because of comments the Nebraska Republican made against a gay ambassador nominee from the Clinton years, when he referred to James Hormel as “openly aggressively gay.” Former Congressman and (and potential TEMPORARY Massachusetts senator) Barney Frank has been highly critical. So there is a lot of “cover,” if you will, for someone on the left or right who WANTS to oppose Hagel to find a political reason to oppose him. But realize, some of the real reasons for folks to be against Hagel won’t be the issues we discussed above. For some Republican senators, it will simply be the fact that many of Hagel’s former Republican colleagues have not gotten over Hagel’s high-profile flip on the Iraq war. And for some Democrats, it’s the frustration that the president is turning to his SECOND Republican to run the Defense Department. \*\*\* Why Obama is sticking with Hagel: So **with all this potential political controversy surrounding Hagel**, one might ask, “Why is Obama sticking by him?” There are two big reasons. One, he likes the idea of a man who wore the uniform who will NOT be intimidated by the generals at the Pentagon. And two, with the budget fights dominating the next few years in Washington and the issue of downsizing the Pentagon on the table, what better person to have leading the downsizing argument than a former Republican senator.

#### Saps political capital

Gopal Ratnam, Bloomberg News, 12/30/12, Obama’s political, policy and Pentagon dilemma, www.bendbulletin.com/article/20121230/NEWS0107/212300381/

President Barack Obama faces a growing dilemma in his choice of a new defense secretary to succeed Leon Panetta.

Having dropped U.N. Ambassador Susan Rice and named Massachusetts Democratic Sen. John Kerry to replace Hillary Clinton as secretary of state, Obama runs the risk of appearing weak if he bows to political opposition again and chooses someone other than former Nebraska Republican senator Chuck Hagel to lead the Pentagon.

Picking another candidate would show for a second time “that the president’s important choices for personnel can be vetoed by two or three senators," said Sean Kay, a professor of politics and government at Ohio Wesleyan University in Delaware, Ohio, who specializes in U.S. foreign and defense policy. “The White House will come out of this significantly weakened."

If Obama sticks with Hagel in the face of opposition from an ad hoc coalition of Republican advocates of muscular defense policies, Democratic supporters of Israel and gay rights activists, though, Obama might be forced to spend political capital he needs for the bigger battle over the federal budget and deficit reduction.

## 1ar – dod shields

#### Green DoD is popular – your ev’s outdated

Lehner 12, executive director – National Resources Defense Council, 11/28/’12

(Paul, “Senate Biofuels Vote Supports Military, Economy and Environment,” Switchboard, NRDC Blog)

The fossil fuel industry tried to turn clean energy into something dirty during the political campaign season.

But **in a hopeful sign** from Washington, the Senate on Wednesday showed that there’s strong bipartisan support for a huge clean energy initiative that could be key to reducing our country’s dependence on oil.

By a margin of 62-37, the Senate voted against a proposal in the National Defense Authorization Act that would have prevented the Department of Defense from buying advanced biofuels to meet its energy needs. The proposal by Sen. James Inhofe, the climate-change denier from the oil patch state of Oklahoma, would have derailed plans that are well underway for the Air Force and Navy to get 50 percent of its fuels from biofuels by 2020.

The DoD wants to reduce its dependence on fossil fuels for both national security and budgetary reasons. Each time the price of a barrel of oil goes up $1, the military– and taxpayers – must come up with $130 million in funds that could otherwise go to support our troops.

To be sure, there are still some hurdles facing the military’s biofuel initiatives. Sen. John McCain of Arizona, for instance, has proposed that the military be banned from participating in building any biofuel refinery, which could be key to producing enough biofuel to meet the military’s needs.

But with 11 Republicans joining Democrats, Wednesday’s Senate vote shows that our lawmakers can agree on the fact that Washington shouldn’t stop efforts by the Department of Defense to diversify its fuel sources and decrease its dependence on oil – initiatives that could help the private sector as well.

As mentioned previously, if the military meets its biofuel goals, it could create more than 14,000 jobs and generate more than $10 billion in economic activity, according to a recent report from Environmental Entrepreneurs (E2) an NRDC affiliate.

And since our Defense Department is the world’s biggest user of oil, shifting to biofuels could also make a noticeable dent in carbon emissions. If produced properly, some advanced biofuels--unlike conventional corn ethanol--can dramatically reduce emissions from planes, trucks, tanks and other vehicles that cause climate change. And some advanced biofuels can also avoid food competition and reduce harmful impacts on soil, water and wildlife if they are carefully managed and sustainably harvested.

It’s the national security implications that matter most to the military, of course.

Defense Secretary Leon Panetta told members of the Senate earlier this year that derailing the military’s biofuels plans “…could deprive commanders of the flexibility they need to meet tactical and operational needs and make us more exposed to potential supply disruptions and future price volatility of petroleum products.”

**Thirty-eight senators** recently wrote Senate leadership noting that banning the military from buying biofuels “could cause harm to our national security and military readiness while hindering national efforts to develop viable domestic alternative fuels.”

And numerous active and retired military leaders who have served on the front lines note that the military’s biofuel efforts are **essential** to improving national security, protecting troops and stimulating our economy - most recently in pieces such as this one from a retired Air Force general and this one from a retired Navy SEAL. Both veterans are members of E2.

Ewbank 11

Leigh Ewbank, Americans for energy leadership, 1/11/11, ‘Buy American’ Solar Provision Highlights the Role of Military Procurement, leadenergy.org/2011/01/‘buy-american’-provision-highlights-the-role-of-military-procurement/

Military procurement serves an important purpose in the domestic political environment beyond its ability to circumvent WTO rules. Key Republicans serving on defense-related committees—Rep. Todd Akin (R-MO), Buck McKeon (R-CA), and Rep. Randy Forbes (R-VA)—have all shown an unwillingness to cut the national defense budget, even marginally. Defense purchases allow the US government to invest in the nascent clean tech sector and escape the wrath of the deficit-obsessed conservatives. The ‘buy American’ provision taps the US military’s good track record of bringing down the costs of new technologies. As the Breakthrough Institute points out in “Where Good Technologies Come From”, the Department of Defense’s sustained demand for microchips resulted in dramatic cost reductions.

# 2AR

## 2ar

#### Global thorium is actually accelerating—their Katusa evidence misinterprets the facts

Westenhaus, editor – New Energy and Fuel, 7/2/’12

(Brian, “U.S. & China Collaborate on Thorium Nuclear Power Research,” <http://oilprice.com/Latest-Energy-News/World-News/U.S.-China-Collaborate-on-Thorium-Nuclear-Power-Research.html>)

China is said to be developing at least two thorium reactors, and is looking at molten salt technology as well as at another approach that triggers a thorium reaction by using a particle accelerator – a technique pioneered by Nobel Prize winning physicist and former CERN director Carlo Rubbia.

The deal with the DOE is an effort to better understand the workings of the molten salt variety, which the U.S. has already build, run, and tested – over 40 years ago. No industrial espionage needed – the information and technical advice seems to be part of the deal.

What isn’t known is what the U.S. gets from the deal. So much for an open and accountable government – again. Oddly, the U.S. could have chosen to commercialize thorium-fuelled reactors and by now would be a massive leading exporter of reactors.

It looks like a one-way technical flow for now. At least China can get going and offer the world a better reactor than uranium fuelled light water designs. When that happens weapons proliferation worries could be reduced.

Meanwhile in India, at about the same time, came the announcement India is planning to establish a nuclear power plant that uses thorium. Atomic Energy Commission (AEC) chairman R K Sinha said, “It is natural for India to go for thorium reactors given the abundance in its supply in the country. We are in the process of selecting an appropriate site for establishing one.” Sinha said the country already has the technological know-how to use thorium. However, for large-scale use of thorium, the country will need two decades adding, “We have to assess the thorium-powered reactor on various aspects in the long-term before replicating similar models in bigger ways.”

India may seem to be going much slower than the Chinese. Since the international embargo after the 1974 Indian nuclear test, India has developed almost 100% indigenous technology for their nuclear program, making India self-reliant on nuclear energy.

India could very well choose to accelerate their effort, most of the U.S. materials are available either though a government deal or from private concerns looking for a partner. They could catch up and surge ahead very quickly.

Both China and India are energy hungry and have capital to allocate. The U.S. has debt and intellectual property. But there is little hope the current U.S. government realizes what a boon they offer.

There is also competition. Russia has also run its early research and could offer their intellectual property, too. However getting paid might be a very difficult proposition.