# 1

#### Comprehensive immigration reform is a top priority --- Obama will make an aggressive push to get it passed

Volsky, 12/30 (Igor, 12/30/2012, “Obama To Introduce Immigration Reform Bill In 2013,” <http://thinkprogress.org/justice/2012/12/30/1379841/obama-to-introduce-immigration-reform-bill-in-2013/>)

President Obama reiterated his call for comprehensive immigration reform during an interview on Meet The Press, claiming that the effort will be a top goal in his second term. “Fixing our broken immigration is a top priority. I will introduce legislation in the first year to get that done,” Obama said. Administration officials have hinted that Obama will “begin an all-out drive for comprehensive immigration reform, including seeking a path to citizenship” for 11 million undocumented immigrants, after Congress addresses the fiscal cliff. The Obama administration’s “social media blitz” will start in January and is expected “to tap the same organizations and unions that helped get a record number of Latino voters to reelect the president.” Cabinet secretaries and lawmakers from both parties are already holding initial meetings to iron out the details of the proposal and Obama will to push for a broad bill.

#### Obama’s capital and bipartisan cooperation are key to effective reform

DMN, 1/2 (Dallas Morning News, “Editorial: Actions must match Obama’s immigration pledge,” 1/2/2013, <http://www.dallasnews.com/opinion/editorials/20130102-editorial-actions-must-match-obamas-immigration-pledge.ece>)

President Barack Obama said all the right things Sunday about immigration reform. The president told NBC’s Meet the Press that he is serious about getting Congress to overhaul the laws governing immigrants. He even declared that he will introduce an immigration bill this year. This newspaper welcomes that announcement. Texans particularly understand the unique challenges that an outdated immigration system presents. Even though the flow of illegal immigrants into the U.S. has subsided in the last few years, the many holes in the system leave families, schools, businesses and law enforcement struggling. And those are just some of the constituents challenged by flawed immigration laws. The president’s words to NBC’s David Gregory are only that — words. What will really matter is whether he puts his muscle into the task this year. We suggest that Obama start by looking at the example of former President George W. Bush. Back in 2006 and 2007, the Republican and his administration constantly worked Capitol Hill to pass a comprehensive plan. They failed, largely because Senate Republicans balked. But the opposition didn’t stop the Bush White House from fully engaging Congress, including recalcitrant Republicans. Obama may have a similar problem with his own party. The dirty little secret in the 2006 and 2007 immigration battles was that some Democrats were content to let Senate Republicans kill the effort. Labor-friendly Democrats didn’t want a bill, either. And they may not want one this year. That reluctance is a major reason the president needs to invest in this fight. He must figure out how to bring enough Democrats along, while also reaching out to Republicans. In short, the nation doesn’t need a repeat of the process through which the 2010 health care legislation was passed. Very few Republicans bought into the president’s plan, leaving the Affordable Care Act open to partisan sniping throughout last year’s election. If the nation is going to create a saner immigration system, both parties need to support substantial parts of an answer. The new system must include a guest worker program for future immigrants and a way for illegal immigrants already living here to legalize their status over time. Some House Republicans will object to one or both of those reforms, so Speaker John Boehner must be persuasive about the need for a wholesale change. But the leadership that matters most will come from the White House. The president has staked out the right position. Now he needs to present a bill and fight this year for a comprehensive solution. Nothing but action will count.

#### The plan empirically gets sucked into larger debates about energy spending --- unpopular in this economic context

Greenwire, 9/24 (Gabriel Nelson and Hannah Northey, E&E reporters, 9/24/2012, “DOE funding for small reactors languishes as parties clash on debt,” http://www.eenews.net/public/Greenwire/2012/09/24/3)

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. "This is an important multiyear research and development effort, and we want to make sure we take the time during the review process to get the decision right," she wrote in an email. That the grants haven't been given out during a taut campaign season, even as President Obama announces agency actions ranging from trade cases to creating new national monuments to make the case for his re-election, may be a sign that the reactors are ensnared in a broader feud over energy spending.Grant recipients would develop reactor designs with an eye toward eventually turning those into pilot projects -- and the loan guarantees that these first-of-a-kind nuclear plants are using today to get financing would be blocked under the "No More Solyndras" bill that passed the House last week (Greenwire, Sept. 14). Congress has given the grant program $67 million for fiscal 2012, shy of the amount that would be needed annually to reach full funding. If the "sequester" kicks in at year's end and slashes DOE funding or the balance of power changes in Washington, the amount of money available could dwindle yet again. Even the staunchest supporters of the federal nuclear program are acknowledging it is a tough time to promise a $452 million check. Former Sen. Pete Domenici, a New Mexico Republican who pushed for new reactors as chairman of both the Senate Energy and Natural Resources Committee and the Energy and Water Appropriations Subcommittee, said during a brief interview Tuesday that well-designed loan guarantees won't cost too much because they get repaid over time. The cost could be borne by a "tiny little tax" on the nuclear industry, he said. But when it comes to straight-up spending, like the grants that would support getting these cutting-edge reactors ready for their first demonstrations, the solution may not be so clear. While some Republicans remain staunch supporters of funding for the nuclear power industry, there are others who label the government subsidies as a waste of taxpayer dollars. "It's awful hard, with the needs that are out there and the debt that haunts us, to figure out how you're going to establish priorities," said Domenici, who has advocated for the deployment of new nuclear reactors as a fellow at the Bipartisan Policy Center. "I can't stand here and tell you that I know how to do that."

#### Reform is key to US competitiveness

Bush, McLarty & Alden, 09 – co-chairmen and director of a Council on Foreign Relations-sponsored Independent Task Force on U.S. Immigration Policy (7/21/09, Former Florida Gov. Jeb Bush and former White House Chief of Staff Thomas F. McLarty and Edward Alden, “Nation needs comprehensive, flexible immigration reform,” http://www.ajc.com/opinion/nation-needs-comprehensive-flexible-97393.html)

Our immigration system has been broken for too long, and the costs of that failure are growing. Getting immigration policy right is fundamental to our national interests — our economic vitality, our diplomacy and our national security. In the report of the bipartisan Council on Foreign Relations’ Independent Task Force on U.S. Immigration Policy, we lay out what is at stake for the United States. President Barack Obama has made it clear that reform is one of his top priorities, and that is an encouraging and welcome signal. Immigration has long been America’s secret weapon. The U.S. has attracted an inordinate share of talented and hardworking immigrants who are enticed here by the world’s best universities, the most innovative companies, a vibrant labor market and a welcoming culture. Many leaders in allied nations were educated in the U.S., a diplomatic asset that no other country can match. And the contributions of immigrants — 40 percent of the science and engineering Ph.D.s in the U.S. are foreign-born, for example — have helped maintain the scientific and technological leadership that is the foundation of our national security. But the U.S. has been making life much tougher for many immigrants. Long processing delays and arbitrary quota backlogs keep out many would-be immigrants, or leave them in an uncertain temporary status for years. Background and other security checks are taking far too long in many cases. Other countries are taking advantage of these mistakes, competing for immigrants by opening their universities to foreign students and providing a faster track to permanent residency and citizenship.

#### Competiveness key to economy and hegemony

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(Adam, Foreign Affairs, “Is America Losing Its Edge?” November / December 2004, http://www.foreignaffairs.org/20041101facomment83601/adam-segal/is-america-losing-its-edge.html)

The United States' global primacy depends in large part on its ability to develop new technologies and industries faster than anyone else. For the last five decades, U.S. scientific innovation and technological entrepreneurship have ensured the country's economic prosperity and military power. It was Americans who invented and commercialized the semiconductor, the personal computer, and the Internet; other countries merely followed the U.S. lead. Today, however, this technological edge-so long taken for granted-may be slipping, and the most serious challenge is coming from Asia. Through competitive tax policies, increased investment in research and development (R&D), and preferential policies for science and technology (S&T) personnel, Asian governments are improving the quality of their science and ensuring the exploitation of future innovations. The percentage of patents issued to and science journal articles published by scientists in China, Singapore, South Korea, and Taiwan is rising. Indian companies are quickly becoming the second-largest producers of application services in the world, developing, supplying, and managing database and other types of software for clients around the world. South Korea has rapidly eaten away at the U.S. advantage in the manufacture of computer chips and telecommunications software. And even China has made impressive gains in advanced technologies such as lasers, biotechnology, and advanced materials used in semiconductors, aerospace, and many other types of manufacturing. Although the United States' technical dominance remains solid, the globalization of research and development is exerting considerable pressures on the American system. Indeed, as the United States is learning, globalization cuts both ways: it is both a potent catalyst of U.S. technological innovation and a significant threat to it. The United States will never be able to prevent rivals from developing new technologies; it can remain dominant only by continuing to innovate faster than everyone else. But this won't be easy; to keep its privileged position in the world, the United States must get better at fostering technological entrepreneurship at home.

#### Hegemonic decline causes great power wars – 1930’s prove

Zhang & Shi, Researcher @ The Carnegie Endowment, ’11

[Yuhan Zhang, Researcher at the Carnegie Endowment for International Peace, Lin Shi, Columbia University, Independent consultant for the Eurasia Group, Consultant for the World Bank, “[America’s decline: A harbinger of conflict and rivalry](http://www.eastasiaforum.org/2011/01/22/americas-decline-a-harbinger-of-conflict-and-rivalry/),” January 22nd 2011, <http://www.eastasiaforum.org/2011/01/22/americas-decline-a-harbinger-of-conflict-and-rivalry/>]

Over the past two decades, no other state has had the ability to seriously challenge the US military. Under these circumstances, motivated by both opportunity and fear, many actors have bandwagoned with US hegemony and accepted a subordinate role. Canada, most of Western Europe, India, Japan, South Korea, Australia, Singapore and the Philippines have all joined the US, creating a status quo that has tended to mute great power conflicts. However, [as the hegemony that drew these powers together withers](http://www.cfr.org/publication/23537/belttightening_for_us_foreign_policy.html), so will the pulling power behind the US alliance. The result will be an international order where power is more diffuse, American interests and influence can be more readily challenged, and conflicts or wars may be harder to avoid. As history attests, power decline and redistribution result in military confrontation. For example, in the late 19th century America’s emergence as a regional power saw it launch its first overseas war of conquest towards Spain. By the turn of the 20th century, accompanying the increase in US power and waning of British power, the American Navy had begun to challenge the notion that Britain ‘rules the waves.’ Such a notion would eventually see the US attain the status of sole guardians of the Western Hemisphere’s security to become the order-creating Leviathan shaping the international system with democracy and rule of law. Defining this US-centred system are three key characteristics: enforcement of property rights, constraints on the actions of powerful individuals and groups and some degree of equal opportunities for broad segments of society. As a result of such political stability, free markets, liberal trade and flexible financial mechanisms have appeared. And, with this, many countries have sought opportunities to enter this system, proliferating stable and cooperative relations. However, what will happen to these advances as America’s influence declines? Given that America’s authority, although sullied at times, has benefited people across much of Latin America, Central and Eastern Europe, the Balkans, as well as parts of Africa and, quite extensively, Asia, the answer to this question could affect global society in a profoundly detrimental way. Public imagination and academia have anticipated that a post-hegemonic world would return to the problems of the 1930s: regional blocs, trade conflicts and strategic rivalry. Furthermore, multilateral institutions such as the IMF, the World Bank or the WTO might give way to regional organisations. For example, Europe and East Asia would each step forward to fill the vacuum left by Washington’s withering leadership to pursue their own visions of regional political and economic orders. Free markets would become more politicised — and, well, less free — and major powers would compete for supremacy. Additionally, such power plays have historically possessed a zero-sum element. In the late 1960s and 1970s, US economic power declined relative to the rise of the Japanese and Western European economies, with the US dollar also becoming less attractive. And, as American power eroded, so did international regimes (such as the Bretton Woods System in 1973). A world without American hegemony is one where great power wars re-emerge, the liberal international system is supplanted by an authoritarian one, and trade protectionism devolves into restrictive, anti-globalisation barriers. This, at least, is one possibility we can forecast in a future that will inevitably be devoid of unrivalled US primacy.

# 2

#### Effective NNSA workforce is critical to maintaining the reliability of the nuclear deterrent – it’s on the brink and not easily replaced

GAO – April 12, MODERNIZING THE NUCLEAR SECURITY ENTERPRISE, http://www.gao.gov/assets/600/590488.pdf

The National Nuclear Security Administration (NNSA)—a separately organized agency within the Department of Energy (DOE)—has primary responsibility for ensuring the safety, security, and reliability of the nation’s nuclear weapons stockpile.1 NNSA carries out these activities at eight government-owned, contractor-operated sites, which include three national laboratories, four production plants, and one test site. Collectively, these sites are referred to as the nuclear security enterprise. The enterprise, formerly known as the nuclear weapons complex, has been a significant component of U.S. national security since the 1940s. Contractors operate sites within the enterprise under management and operations (M&O) contracts.2 These contracts provide the contractor with broad discretion in carrying out the mission of the particular contract but grant the government the option to become much more directly involved in day-to-day management and operations. Historically, confidence in the safety and reliability of the nuclear stockpile was derived through a continuous process of designing, testing, and deploying new weapons to replace older weapons. In 1992, at the end of the Cold War, and in response to a congressionally imposed U.S. nuclear test moratorium,3 the United States ceased underground testing of nuclear weapons, and adopted the Stockpile Stewardship Program as an alternative to testing and producing new weapons. The Stockpile Stewardship Program primarily relies on analytical simulations and computer modeling to make expert judgments about the safety, security, and reliability of the nation’s nuclear weapons. In addition, NNSA refurbishes weapons in the stockpile to extend their operational lives. Under current national policy, NNSA may also be called upon to resume underground nuclear testing at the Nevada National Security Site within a 3-year time frame under certain circumstances, including the accumulation of uncertainties about the reliability of the nuclear stockpile. Currently, NNSA’s workforce is made up of about 34,000 M&O contractor employees that span the enterprise, and about 2,400 federal employees directly employed by NNSA in its Washington headquarters, at site offices located at each of the eight enterprise sites, and at its Albuquerque, New Mexico, complex. NNSA’s staff provide leadership and program management for the nuclear security enterprise and support and oversee its M&O contractors by providing business, technical, financial, legal, and management advice, including support for contractor workforce planning and restructuring, compensation, benefits, oversight of labor-management relations, and the quality of contractor deliverables such as nuclear weapons components. Many workers in the enterprise––both NNSA’s staff and its M&O contractors––possess certain critical skills not readily available in the job market. These workers often have advanced degrees in scientific or engineering fields or experience in high-skill, advanced manufacturing techniques. In addition, certain critical skills are unique to the enterprise and, according to NNSA officials, can only be developed within its secure, classified environment. According to these officials, it generally takes a minimum of 3 years of on-the-job training to achieve the skills necessary to succeed in most critical skills positions. Some nuclear weapons expertise can take even longer to develop and must be gained through several years of mentoring, training, and on-the-job experience. For example, according to officials at Los Alamos National Laboratory, it takes 5 to10 years to train a scientist or engineer with an advanced degree to be a fully qualified nuclear weaponeer. Over the last 20 years, in an effort to operate more efficiently and at reduced cost, DOE has sharply reduced its enterprise contractor workforce––from approximately 52,000 in 1992 to its current level of about 34,000. This decrease raised concerns about preserving critical skills in the enterprise. In 1999, a report from a congressionally mandated commission warned that unless DOE acted quickly to recruit and retain its critically skilled staff and M&O contractor employees—and sharpen the expertise already available—the department could have difficulty ensuring the safety, security, and reliability of the nation’s nuclear weapons.4 DOE, and later NNSA, took steps to correct these problems, and in February 2005, we reported that these efforts had been generally effective.5 However, in February 2011, in a report assessing the extent to which NNSA has the data necessary to make informed, enterprisewide decisions,6 we found that NNSA did not have comprehensive information on the status of its M&O contractor workforce. In particular, we reported that NNSA did not have data on the critical skills needed to maintain the Stockpile Stewardship Program’s capabilities. As a result, we recommended that NNSA establish a plan with time frames and milestones for the development of a comprehensive contractor workforce baseline that includes the identification of critical human capital skills, competencies, and levels needed to maintain the nation’s nuclear weapons strategy. NNSA stated that it understood all of our recommendations in that report and believed that it could implement them. As of March 2012, NNSA had completed a draft plan and was incorporating stakeholders’ comments. NNSA officials said that they expect to complete the final contractor workforce baseline plan by May 2012. NNSA expressed concerns in its FY 2012 Stockpile Stewardship Management Plan about the state of both its federal and contractor workforces, stating that there was an urgent need to “refresh” both. In particular, NNSA noted that many employees have retired or are expected to retire soon. At the same time, NNSA’s mission has become even more dependent on high-level science, computer science, technology, and engineering skills as it has moved from underground testing as a means for assessing the safety and reliability of nuclear weapons to one dependent on advanced computer simulations, analyses, and nonnuclear tests. These changes make it even more important that NNSA and its M&O contractors preserve critical skills in their workforces. Additional concerns about human capital in the enterprise have been raised by the debate over––and eventual ratification of––the New Start Treaty,7 which commits the United States to reduce the size of its strategic nuclear weapon stockpile from a maximum of 2,200 to 1,550 nuclear weapons. Reductions in the number of nuclear weapons make it all the more important that NNSA and contractor staff have the requisite critical skills to maintain the safety, security, and reliability of the remaining weapons. However, as the enterprise has contracted, NNSA officials note that training opportunities have been limited, leaving little or no redundancy in certain critical skills within the contractor workforce.

#### Aff causes brain drain – there’s a limited pool of scientists who can do nuclear simulations and monitoring

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State University, fmr. Director of Educational Partnerships at the Idaho National Laboratory - February 2012, Required Infrastructure for the Future of Nuclear Energy, http://www.fas.org/pubs/\_docs/Nuclear\_Energy\_Report-lowres.pdf

One potential limiting capability will be the development of the people who are educated and trained to operate these new small reactor systems. The leading concepts being considered are evolutionary developments from current light water based nuclear reactors and the skills needed to operate these systems may not be far from those needed to operate current technologies. However, testing facilities will be needed for these new concepts, in both integral and separate-effects forms, to provide validation and verification of the computer codes used to predict their performance during both normal and accident conditions. A few special technologies and materials are important to the new nuclear energy industry and may need special attention to ensure their availability when they are needed. Specialty materials, such as zirconium, hafnium, gadolinium, beryllium, and others, will need suppliers to provide processing, manufacturing, and recycling technologies that are cost-effective to the manufacturers and utilities building new nuclear power plants. Some, but not all, of these specialty materials have other uses in the economy but their availability to the nuclear industry needs to be ensured. Today’s nuclear R&D infrastructure in the nation’s national laboratories is rather aged. Many of the nuclear R&D facilities across the complex of national laboratories were originally developed in the 1960s and 1970s. However, while they may be old, many critical facilities have seen reasonable maintenance and upgrades over the years so that a basic capability remains available. DOE continues to review its infrastructure needs on a regular basis, including updates to the ten-year site plans at each national laboratory and facility reviews conducted by the National Academies of Science and Engineering, the DOE Nuclear Energy Advisory Committee and others. These reports periodically give the government and the public insight into the capabilities and needs of the nuclear energy R&D community and are used by DOE to guide their annual budget requests to Congress. All of the facilities that researchers might want may not readily be available, but a basic infrastructure has been maintained for R&D activities and a process for their maintenance and expansion is available annually to DOE. A few skilled technical areas related to construction of new nuclear power plants have not been used over the past 20 years in the United States. Since very few new plants have come on-line, there has been little need for people trained in nuclear plant construction and plant startup/test engineering. These highly specialized skills previously were available while new plant projects were being brought on-line during the 1970s and 1980s; however, new education and training programs will be needed to make sure that people are ready when the new plants begin to load fuel and contemplate full operation. Also, should the recycling and reuse of nuclear fuel reach a mature stage of development over the next 30 years, there will be a significant need for radiochemists and radiochemistry technicians, and the development of education and training programs for recycling facility engineers, technicians and operators. Competing interests for a top quality workforce will come from various sectors, both inside and outside of the nuclear industry. The electric utility industry, including all means of production and distribution of electricity will look for similarly educated and trained personnel. The defense, telecommunications, oil and natural gas industries will also be searching for highly educated and trained workers. However, utility careers are sometimes viewed by students to be low-technology career paths of lesser excitement when compared to other high-technology options, and thus the electric utilities must offer competitive compensation packages in order to recruit the best personnel into the nuclear industry. One important aspect of the nuclear energy pipeline for both personnel and equipment is the long design lifetimes for nuclear power plants relative to the length of time that is typical for any one individual. Current nuclear power plants have initial design and license lifetimes of 40 years. Most, if not nearly all, currently operating nuclear power plants in the United States will receive a 20-year license extension from the NRC. Some of these plants may be able to gain an additional 20-year license extension, if current research and development activities show that they can clearly be operated in a safe manner. The new power plant designs all have initial design lifetimes of 60 years, and conceivably their licensed lifetimes could extend to 80 or 100 years. If five to 10 years are required to construct a plant and then another five to 10 years to decommission it, the plant’s total product lifetime approaches 110 to 120 years from conception to dismantlement. This is considerably longer than the product lifetime for any other industrial product. Compare this to the roughly 40-year productive career that is typical for most workers. This difference emphasizes the need for continuous education and training of the nuclear workforce.

#### NNSA workforce is essential for deterrence – also turns prolif

D’Anne E. Spence, Major, USAF - Fall 2011, Zero Nuclear Weapons and Nuclear Security Enterprise Modernization, Strategic Studies Quarterly, http://www.au.af.mil/au/ssq/2011/fall/spence.pdf

Every president since Franklin D. Roosevelt has authorized the production of nuclear weapons, requiring that the US government both understand the nuclear weapons program and establish policy for nuclear weapons employment.1 Each of these presidents also has reiterated a desire to eliminate or reduce the role of nuclear weapons, only to confront the reality that as long as other countries possess them the United States must maintain a credible nuclear capability to deter adversaries and protect itself and its allies. Maintaining a credible nuclear deterrent is essential to US national security. Any degradation of its nuclear enterprise will impact negatively on its nuclear deterrent capability; an even greater impact could result if deterrence fails. Therefore, the United States must maintain its focus on nuclear weapons and the supporting infrastructure through modernization of the entire nuclear security enterprise (the enterprise), even while it pursues a world without nuclear weapons. To understand the current and future status of the nuclear enterprise, one must first consider its role in history and that of the National Nuclear Security Administration (NNSA). Historic Roles Nuclear deterrence has been a critical component of national security since World War II. During the Cold War, the nuclear weapons complex was a massive operation focused on an arms race with the Soviet Union and mass production of nuclear weapons.2 As the Cold War endured, the average age of stockpiled weapons increased, reaching a plateau at approximately 12 years (see fig. 1). Weapons designers were focused on maximizing yield-to-weight ratios rather than increasing the longevity of the weapons. At the end of the weapons’ life expectancy, they were dismantled and replaced with new ones designed to address the current perceived threat and to incorporate technological improvements. This high turnover created a solid base of expertise in weapons design. Between 1945 and 1992, these designers created innovative new designs and ultimately produced more than 65 different types of weapons, including air-dropped bombs, intercontinental ballistic missiles (ICBM), submarine launched ballistic missiles (SLBM), and artillery devices.3 Due to the evolutionary nature of the weapons, designers did not anticipate stockpiling them more than 12 years and therefore paid limited attention to designing components that would not corrode or fail over an extended life cycle.4 The end of the Cold War in 1990, the ratification of the first Strategic Arms Reduction Treaty (START) in 1991, and the subsequent US moratorium on underground nuclear testing dramatically changed the landscape of nuclear weapons in US national security strategy. For the first time since the Manhattan Project, the United States was no longer building nuclear weapons and was in fact downsizing its nuclear arsenal. In 2000, the NNSA was established by congressional mandate as a semiautonomous agency under the Department of Energy with the mission to provide management and “security to the nation’s nuclear weapons, nuclear non proliferation, and naval reactors programs.”5 The NNSA maintains the US nuclear weapons stockpile and is tasked, in tandem with the Department of Defense, to ensure the US nuclear deterrent is safe, secure, and effective to meet national security requirements. This joint task has become increasingly difficult over the past two decades, in part because various treaties and agreements have significantly restricted the development and testing of nuclear weapons. Nuclear weapons that were originally designed for a 10-year lifespan have been in the stockpile for 30-plus years. Each new treaty works to reduce the role of nuclear weapons in the US national security strategy and further restrict what the United States can possess in its active nuclear stockpile. Self-imposed limitations on modernization also thwart efforts to extend the life of the aging nuclear weapons. Over time, the huge nuclear security enterprise managed by the NNSA has shrunk from 15 to eight sites. Using a government-owned, contractor-operated model, the NNSA provides high-level oversight and requirements coordination. Its sites design, produce, and apply science and engineering to maintain and safeguard the nation’s nuclear weapons. The enterprise, depicted in table 1, consists of three national laboratories, four engineering and production plants, and the Nevada National Security Site (until recently called the Nevada Test Site). While the size and structure of the enterprise may have changed since the Cold War, lingering elements of that era still affect the present-day mission of the NNSA, not the least of which is the drastic change in political perspective on acceptable weapons longevity. Current Status The average age of a weapon in the US nuclear stockpile today is over 25 years, well past its intended life. Meanwhile, funding from recent presidents and Congress for the stockpile and supporting infrastructure has reached historic lows due to the perceived reduced role of nuclear weapons in the US national security strategy. In fact, in the last five years the NNSA has lost 20 percent of its buying power although the vital mission to maintain a safe, secure, and effective stockpile has not changed.6 Collectively, these events have reduced the nation’s focus on nuclear weapons as a supporting pillar of US national security policy. This lack of focus has put the NNSA on a path to failure, because insufficient funding makes it more difficult to assess weapon reliability.7 This means the NNSA must maintain an increasingly dilapidated weapons complex and stockpile with maintenance funds that decrease significantly each year. The aging weapons problem is further complicated by an unprecedented presidential commitment to achieve a world without nuclear weapons. In an April 2009 speech in Prague, Pres. Barack Obama created a paradox when, first, he said that the United States, as a world leader, would actively pursue a world without nuclear weapons and, second, promised that as long as other countries had nuclear weapons, the United States would maintain an effective nuclear deterrent.8 Since Prague, the United States has negotiated the “New START” treaty with Russia to reduce the number of nuclear weapons in both countries. Keeping with the Prague promises, the lower weapon levels negotiated in the New START translate into a critical need that the remaining weapons be highly credible and effective. To maintain US nuclear weapons as a credible deterrent, significant funding must go into the entire enterprise to reverse years of atrophy and neglect. In 2008, the bipartisan Perry-Schlesinger Commission studied the role of nuclear weapons in US security policy and concluded that more money must be spent on the enterprise to maintain a credible US nuclear deterrent.9 This commission was established by Congress and co-chaired by William Perry, former secretary of defense, and James Schlesinger, former secretary of defense and energy. The commission confirmed in its report that the primary role of nuclear weapons in the US national security strategy is deterrence. They also provide extended deterrence to US allies and support nonproliferation among those allies who otherwise might develop their own arsenal without the US nuclear umbrella.10 The commission made several key recommendations on the future US strategic posture which have served as a guide for the Obama administration. Notably, the commission recognized the substantial work that has already been invested in reducing the nuclear threat worldwide. The United States has reduced its arsenal from a peak of 31,255 warheads in 1969 to 5,113 warheads (total active and reserve) today; the lowest numbers since the Truman administration (see fig. 2).11 Likewise, the Russians have significantly reduced their stockpile from over 45,000 at the peak of the Cold War.12 Ratification of the New START will reduce these numbers further, sizably shrinking both countries’ nuclear arsenals. More significant, however, is the inverse correlation between reduced nuclear stockpile numbers and increased importance that the remaining weapons remain safe, secure, and effective. Aging of the nuclear weapons, coupled with the decreased number of weapons available, creates increased operational risk to the nuclear deterrent for the United States and its allies. This risk requires the United States to maintain a significant number of “hedge” weapons that protect it against technical uncertainty. Reducing the technical uncertainty in these aging weapons would allow the United States to reduce the overall number while maintaining the credibility of the weapons. However, current agreements and restrictions do not allow the United States to test weapons or to build newly designed weapons. These restrictions and the weapon-aging problem create a quandary for the directors of Los Alamos, Lawrence Livermore, and Sandia when they provide an independent assessment of the stockpile each year to the president, certifying the weapons are safe, secure, and effective. To alleviate these credibility concerns, the NNSA must continue to develop and fund two critical programs, the Stockpile Stewardship Program (SSP) and the Life Extension Program (LEP). Weapon surveillance is the foundation of both programs. Surveillance involves the evaluation of both nuclear and nonnuclear components of a weapon through destructive and nondestructive testing. The process is responsible for identifying original manufacturing flaws, design limitations, and effects of aging.13 The results from these tests drive the NNSA’s understanding of weapon-aging issues and establish a baseline for life extension work. The surveillance results also feed into the modeling and simulation work done in the stewardship program to better understand the internal dynamics during a nuclear detonation. The stewardship program was established in 1992 when the underground nuclear weapons testing moratorium was instituted “to ensure the preservation of the core intellectual and technical competencies of the United States in nuclear weapons.”14 Its goal was to keep the nuclear stockpile reliable without nuclear testing. The SSP is a comprehensive, experiment-based modeling and simulation effort that applies data from multiple subcritical tests, simulating phases of a nuclear detonation, into high-speed computer models. The compilation of this data provides the NNSA a better understanding of nuclear weapons behavior.15 In the absence of nuclear weapons testing, the stewardship program becomes the primary tool used to certify weapon reliability each year. The complexity of thoroughly analyzing a nuclear detonation requires multiple nonnuclear experiments and the world’s fastest supercomputers, driving up the cost of the program. Without full funding, the safety, security, and effectiveness of the weapons become questionable. The surveillance program supports the Life Extension Program. The LEP is the solution to maintaining the nuclear weapons stockpile without designing and building a new nuclear weapon.16 To comply with US policy on nonproliferation and worldwide dismantlement, the 2010 Nuclear Posture Review (NPR) highlights the preference for refurbishment of existing warheads or reuse of components from old weapons. To this end, the NNSA has a full spectrum of life extension options, all of which refurbish, reuse, or replace individual components within a weapon without giving it any newly designed components or new military capabilities. Replacement of nuclear components is only done as a last resort to maintain a weapon and requires an extremely high level of political scrutiny for approval.17 The NNSA develops life extension programs based on DoD requirements for the enduring stockpile, which include an approximate 30-year life expectancy as well as added safety and security features to protect the weapons. The enduring stockpile, as established by the NPR, maintains the nuclear triad of SLBM and ICBM warheads and air-dropped bombs. To maintain all three legs of the triad, warheads from each leg must be life extended. Currently, the NNSA is in the production phase for the W76 SLBM life extension program. Already in the initial developmental phases, the B61, W78, and W88 warhead LEPs will follow. The LEP couples databases from the legacy systems and nuclear tests with the SSP data to sustain nuclear weapons for the enduring stockpile without having to test weapons explosively. Just as aging weapons systems create a perception by some of diminished deterrence capabilities for the United States and its allies, the atrophied physical infrastructure of the enterprise further affects the credibility of US nuclear deterrence. Vital facilities within the enterprise date back 50 to 60 years to the Manhattan Project and are on the verge of catastrophic failure. Caustic chemicals and processes have sped up the corrosion and breakdown of the facilities. Then congressman Lincoln Davis (D-TN) stated on a tour of the nuclear facilities that he felt like he was in a Russian facility, given the utter state of disrepair.18 This deterioration occurred because the original facilities were built for maximizing production rather than for long-term structural integrity. The mission today is much different. Funding cuts and reduced stockpile numbers have forced the NNSA to consolidate facilities, reducing the overall square footage by 50 percent and the number of sites from 15 to eight.19 This transition eliminated redundancy, creating single points of failure for the majority of systems needed to maintain the nuclear weapons stockpile. In other words, the NNSA is now a capability-based organization; that is, regardless of the size of the stockpile, it must ensure core competencies in several key areas to maintain the weapons stockpile rather than the capacity-based organization of the Cold War. Without significant investment in modernizing the existing infrastructure, the nuclear weapons program becomes vulnerable. There is no guarantee the sites are capable of maintaining their own operational status, let alone the operational status of nuclear weapons. The Future of the Nuclear Enterprise What is the future for the NNSA and the nuclear weapons complex? Most broadly, the NNSA must secure increased funding from Congress to modernize the enterprise. Recapitalization efforts must offset continued reduction in the nuclear stockpile and enable life extension programs, timely dismantlement, and proper management of fissile materials.20 The smaller, streamlined enterprise must maintain all of the critical capabilities necessary to sustain the nuclear stockpile. The new facilities, although smaller, must be built to twenty-first-century safety and security standards. These standards are significantly different from original construction and will drive the cost of new facilities into the billions of dollars. The major facilities the NNSA anticipates building over the next 10 years to ensure uninterrupted capability and reduced risk include a chemical metallurgy research replacement facility at Los Alamos, a high-explosive pressing facility in Amarillo, and a uranium processing facility at Oak Ridge. While the costs and challenges will be high, there are also benefits in these modernization efforts. First, the new facilities will be more reliable, safe, and secure. Also, the external security benefits of the infrastructure improvements cannot be ignored. For example, at Oak Ridge the security cordon around special nuclear material will be reduced from 150 acres to 15 acres once the uranium processing facility is operational. This reduction will lower security costs and the possibility of loss of special nuclear material due to the smaller footprint and state-of-the-art facilities. The infrastructure available to support the reduced number of nuclear weapons must be modernized to avoid operational risk that increases as the United States reduces the number of weapons in its arsenal. The modernization of the nuclear infrastructure will require significant, sustained investment and commitment over the next several decades. Without this investment, the risk associated with assessing the safety, security, and effectiveness of the weapons will increase to an unacceptable level. The Perry-Schlesinger report acknowledges this reality explicitly. It states that to invest effectively in nuclear weapons systems through stewardship and life extension, there must also be investment in the enterprise infrastructure. Without such dual investment, the United States will be unable to maintain a credible nuclear deterrent. As it continues to reduce its stockpile toward zero without fully addressing the aging issues in both the stockpile and the infrastructure, its nuclear umbrella will lack the credibility needed to deter potential adversaries and protect allies. These factors could lead other countries to question the viability of the US nuclear program and the credibility of the weapons currently in the stockpile. Without the resources and facilities needed to maintain the weapons, the deterrent effect is dramatically reduced. Even with increased funding for weapons and infrastructure modernization, the complex cannot be properly maintained without the sustained efforts and engagement of the best and brightest scientists and engineers. The world’s top scientists initially produced the atomic bomb, and the same critical skills will be needed to maintain the weapons complex for the foreseeable future. The end of underground nuclear testing launched the stewardship program to ensure nuclear weapons reliability through subcritical tests and other experimentation via simulation, modeling, and high-power computing. The critical skills required to maximize the science, technology, and engineering capacity and properly execute the SSP underpin the strength of the US nuclear deterrent and establish a fundamental understanding of nuclear weapon behavior. Consequently, to assess the stockpile, appropriately trained scientists are needed to resolve technical issues, extend the lifespan of weapons, and aid in dismantlement activities.21 Maintaining the critical skills of the workforce is at the core of meeting mission requirements. The reduction in mission legitimacy, the increasing age of employees, and other pressures have created the perception that employment on nuclear weapons is no longer important to the national security of the United States. This perception has caused many potential workers to seek other opportunities with higher career potential. The majority of nuclear weapons program personnel have spent their entire careers working on nuclear weapons. As Dr. Chris Deeney says, “The only certainty is the increasing age of the workforce.”22 Only a handful of individuals who still work for the NNSA have experience designing weapons and performing underground tests. Some of those have stayed on well past retirement because of a desire to continue to contribute to US national security.23 The fact of the matter is, as these individuals retire and eventually die, their knowledge dies with them. Therefore, it is vital to get a young, motivated workforce in place that can learn from the legacy of the past while building the future surety. The surveillance program’s success relies on an engaged, highly trained, and motivated workforce. The pool of recruits is inherently small due to the highly focused training and US citizenship requirement. For example, stewardship program experts need specialized degrees and experience in such areas as high-density physics to understand nuclear weapons behavior. To attract this kind of talent, the NNSA must have important national security work, including development and experimentation that is unavailable anywhere else in the world and aids in the understanding of nuclear behavior. It must also invest in the world’s highest-power computers to solve the challenging modeling and simulation problems. These efforts will entice the nation’s best scientists into a career of service to the US nuclear program. As the stockpile decreases, investment in human capital is essential to ensure the next generation of scientists and engineers has the right set of skills, expertise, and experience. The credibility of the reduced stockpile hinges on the workforce’s manipulation of the science, technology, and engineering base to fully understand the weapon-aging issues and develop LEPs to address these concerns.

#### Effective deterrence checks all conflict escalation

Robinson, ‘1

[Paul, President and Director, Sandia National Laboratory, "White Paper: Pursuing a New Nuclear Weapons Policy for the 21st Century" March 22, 2001, http://www.sandia.gov/media/whitepaper/2001-04-Robinson.htm]

Let me first stress that nuclear arms must never be thought of as a single “cure-all” for security concerns. For the past 20 years, only 10 percent of the U.S. defense budget has been spent on nuclear forces. The other 90 percent is for “war fighting” capabilities. Indeed, conflicts have continued to break out every few years in various regions of the globe, and these nonnuclear capabilities have been regularly employed. By contrast, we have not used nuclear weapons in conflict since World War II. This is an important distinction for us to emphasize as an element of U.S. defense policy, and one not well understood by the public at large. Nuclear weapons must never be considered as war fighting tools. Rather we should rely on the catastrophic nature of nuclear weapons to achieve war prevention, to prevent a conflict from escalating (e.g., to the use of weapons of mass destruction), or to help achieve war termination when it cannot be achieved by other means, e.g., if the enemy has already escalated the conflict through the use of weapons of mass destruction. Conventional armaments and forces will remain the backbone of U.S. defense forces, but the inherent threat to escalate to nuclear use can help to prevent conflicts from ever starting, can prevent their escalation, as well as bring these conflicts to a swift and certain end.

# 3

#### SMRs a part of a larger techno-utopian social narrative – they combine euphoric nuclear discourse about “inherently safe reactors” and energy “too cheap to meter” with green euphoric discourse about “local energy” – this narrative blocks public engagement, driving towards environmental destruction and nuclear extinction

Byrne & Toly 6

(Josh, director of the Center for Energy and Environmental Policy and distinguished professor of energy and climate policy at the University of Delaware, Noah, Associate Professor of Urban Studies and Politics & International Relations, Director of Urban Studies Program at Wheaton, “Energy as a Social Project: Recovering a Discourse”, pgs. 1-32 in Transforming Power: Energy, Environment, and Society in Conflict, eds. Josh Byrne, Noah Toly, and Leigh Glover)

 With environmental crisis, social inequality, and military conflict among the significant problems of contemporary energy-society relations, the importance of a social analysis of the modern energy system appears easy to establish. One might, therefore, expect a lively and fulsome debate of the sector’s performance, including critical inquiries into the politics, sociology, and political economy of modern energy. Yet, contemporary discourse on the subject is disappointing: instead of a social analysis of energy regimes, the field seems to be a captive of euphoric technological visions and associated studies of “energy futures” that imagine the pleasing consequences of new energy sources and devices.4 One stream of euphoria has sprung from advocates of conventional energy, perhaps best represented by the unflappable optimists of nuclear power who, early on, promised to invent a “magical fire” (Weinberg, 1972) capable of meeting any level of energy demand inexhaustibly in a manner “too cheap to meter” (Lewis Strauss, cited in the New York Times 1954, 1955). In reply to those who fear catastrophic accidents from the “magical fire” or the proliferation of nuclear weapons, a new promise is made to realize “inherently safe reactors” (Weinberg, 1985) that risk neither serious accident nor intentionally harmful use of high-energy physics. Less grandiose, but no less optimistic, forecasts can be heard from fossil fuel enthusiasts who, likewise, project more energy, at lower cost, and with little ecological harm (see, e.g., Yergin and Stoppard, 2003). Skeptics of conventional energy, eschewing involvement with dangerously scaled technologies and their ecological consequences, find solace in “sustainable energy alternatives” that constitute a second euphoric stream. Preferring to redirect attention to smaller, and supposedly more democratic, options, “green” energy advocates conceive devices and systems that prefigure a revival of human scale development, local self-determination, and a commitment to ecological balance. Among supporters are those who believe that greening the energy system embodies universal social ideals and, as a result, can overcome current conflicts between energy “haves” and “havenots.” 5 In a recent contribution to this perspective, Vaitheeswaran suggests (2003: 327, 291), “today’s nascent energy revolution will truly deliver power to the people” as “micropower meets village power.” Hermann Scheer echoes the idea of an alternative energy-led social transformation: the shift to a “solar global economy... can satisfy the material needs of all mankind and grant us the freedom to guarantee truly universal and equal human rights and to safeguard the world’s cultural diversity” (Scheer, 2002: 34).6 The euphoria of contemporary energy studies is noteworthy for its historical consistency with a nearly unbroken social narrative of wonderment extending from the advent of steam power through the spread of electricity (Nye, 1999). The modern energy regime that now powers nuclear weaponry and risks disruption of the planet’s climate is a product of promises pursued without sustained public examination of the political, social, economic, and ecological record of the regime’s operations. However, the discursive landscape has occasionally included thoughtful exploration of the broader contours of energy-environment-society relations.

#### **Text: The judge should vote negative to affirm a nuclear public sphere**

#### **Linking techno-utopianism to the military ensures extinction – removes any democratic checks on the trajectory of scientific development and ensures massive global arms races**

Beljac ‘8

(Marko has a PhD from Monash University, “Mission Statement”, http://scisec.net/?page\_id=5)

But it cannot be stated that the mere existence of a faculty of scientific cognition foreordains an extinction event. It is a necessary but not sufficient condition. This is because science and technology are inherently neutral. What matters as well is the social context in which science is pursued especially the link between scientific endeavour and moral agency. As stated above we can consider Hume’s distinction between fact and value, in conjunction with the naturalistic fallacy due to Moore, as a form of argument from the poverty of the stimulus for a faculty of moral cognition. Much interesting work in the cognitive sciences is now exploring the underlying nature of how this innate faculty of the mind operates. We can be thankful that we posses such a faculty. A faculty of scientific cognition without an accompanying system of moral principles would be most calamitous. Without it there would be little break on scientific knowledge being used for nefarious ends and the only way to prevent destruction in the nuclear age would be an appeal to rational self-interest upon the basis of a system of stable strategic deterrence. In other words in a world of states and scientific technique the only means of averting Armageddon would be the perpetual prospect of its unleashing. However, the mere existence of credible deterrent forces poses a small but non-zero probability of accidental nuclear war per annum. This small but non-zero value asymptotically tends to unity over time. Survival in the nuclear age cannot be indefinitely guaranteed by an overarching prospect of Armageddon. What is most striking about the nuclear age is that the underlying basis of the system of scientific and technical innovation lies at the core of the race to destruction. Many former scientific insiders, who turned against the arms race during the cold war, dubbed this the “technological imperative.” The idea was neatly captured by Richard Rhodes in the third installment of his The Arsenals of Folly (p83), In an official oral history of U.S. strategic nuclear policy produced by Sandia National Laboratories, the historian Douglas Lawson of Sandia comments that “the large growth that we saw [in nuclear weapons production] in the 1950s and 1960s was primarily driven by the capacity of the [production] complex and not truly by [military] requirements”. A designer at Sandia, Leon Smith, notes that “it was our policy at that time not to wait for requirements from the military but to find out from the technologies that were available what the art of the possible would be.” The former director of the Lawrence Livermore Laboratory, John S. Foster Jr., adds, “we were making it up as we went along.” Such candid sentiments confirm careful empirical research on technological innovation during the cold war. That is, developments in the nuclear age owed little to external perceptions of threat. There was an underlying internal rationality to the strategic build-up and this underlying rationality by no means has disappeared with the fall of the Berlin Wall. Think for instance of Ballistic Missile Defence and the weaponisation of space. Though such a technological imperative exists it is possible to carry the argument too far into a crude form of technological determinism. More is needed to reach true understanding. This can be found by virtue of what in economic theory is called a positive externality. A positive externality is an instance of market failure. Here an economic agent, most usefully a corporation, would not get the full benefits of investment but rather that the benefit to society would exceed the benefit to the firm. Outsiders would benefit more than the entity making the investment. Given this it would be irrational for the profit seeking firm to subsidize society. Scientific knowledge should properly be seen as a positive externality. In pure market system driven by perfectly rational agents the development of scientific knowledge would be irrational given the presence of positive externalities. The most useful way to deal with market failure due to positive externalities is via state subsidy. This is precisely why scientific knowledge and technological innovation, which enables the formation of high technology industry, has proceeded everywhere upon the basis of large scale state subsidisation. In the United States subsidisation in the presence of positive externalities occurs via the Pentagon system. Technological innovation, including in the strategic sector, did not owe itself in the United States to an external threat because such innovation was a mechanism to obviate wider positive externalities. It still is. So long as scientific knowledge as a type of positive externality is subsidized via the Pentagon system the race to destruction brought about by scientific and technological advance will continue to have an underlying rational basis. It must be stressed that such a rational dynamic cannot be discernable in the market system exclusively. State subsidy via the military is by no means inevitable and the Soviet Union, a command economy, displayed similar behaviour within its military-industrial complex. The Political Science of Science and Global Security There are a number of other factors to consider. Firstly, there exists a sort of scientific and technological security dilemma. The security dilemma is a regular staple of realist theoretical international relations and though it is real its significance should not be overestimated. That is to say, it is real but it accounts for a very small part of actual strategic developments. The most important form of the security dilemma is not the crude numerical models often spoken of in the literature. Paarberg is correct to note that US global strategic hegemony is due to the scientific and technological edge of its armed forces (which is brought about by underlying economic power). In a condition of anarchy and the concomitant existence of scientific technique it is possible to imagine the possibility of a sort of scientific race. Though real we should be careful not to overstate it. In fact, the arms race during the cold war was a series of moves and counter-moves in the technical sphere. One reason why Gorbachev called off the race was because the USSR was starting to lag technologically and the Soviet system could not convert scientific advance into meaningful industrial production. Given this dynamic we may speak of an epistemic argument against state sovereignty. It is interesting to observe that all proposals for dealing with the genie unleashed by the development of nuclear physics and technology involve the constraint of state sovereignty. Nuclear non proliferation and disarmament measures are successful to the extent that they corrode state sovereignty. Man’s innate epistemic capacity to form sciences and unfettered state power do not mix and the existence of this cognitive capacity compels the formation of post-Westphalian political forms. It is interesting that the state system and the scientific revolution have closely tracked each other. This common origin needs to be further explored. One very important link here is democracy. It has been noted that the strategic nuclear weapons policy in the US, but also elsewhere, has been the domain of a small policy and technocratic elite. A lot of the underlying theories of dangerous nuclear postures have been developed via fanciful game theoretic and systems analysis that served to provide ideological cover for strategic build-ups. This has led to what the noted American political scientist Robert Dahl has referred to as “guardianship”. In other words throughout the nuclear age the big decisions governing nuclear policy have been in the hands of a small community of elite policy makers rather than the public. Dahl notes that most critiques of democracy argue that, The average person is not sufficiently competent to govern, while, on the other hand, a minority of persons, consisting of the best qualified, are distinctly more competent to rule, and so ought to rule over the rest. This is, in essence, Plato’s argument in The Republic for a system of guardianship. Leaders who proclaim this view usually contend that they, naturally, are among the minority of exceptionally able people who ought to exercise guardianship over the rest… …Consider a few contemporary issues in this country: What are we to do about nuclear waste disposal? Should recombinant DNA research be regulated by the government? If so, how? The problem of nuclear reactor safety and the trade offs between the risks and gains of nuclear power are much more complex than the simple solutions offered on all sides would suggest. Or consider the technical and economic issues involved in clean air. At what point do the costs of auto emissions control exceed the gains? How and to what point should industrial pollution be regulated? For example, should electric utilities be required to convert to clean burning fuels, or to install stack scrubbers? How serious a problem is ozone depletion, and what should be done about it? The same applies to such matters as nuclear weapons, nuclear proliferation, BMD, space weapons and so on. So long as policy is effectively out of the hands of the public it is not possible to envisage a link being drawn between science and moral agency. The democratisation of science and technology is a necessary task to ensure further survival. It is a point made forcefully by the eminent theoretical physicist and cosmologist Sir Martin Rees. The democratisation of science would also remove the public subsidy that undergirds the Pentagon system.

# 4

#### Text: the United States federal government should phase out subsidies for the storage of spent fuel from nuclear power plants and substantially increase investment in smart microgrid technology for domestic military bases via a diverse portfolio tailored to individual installation circumstances, including non-nuclear renewable energies for on-site generation, increased backup generation capacity, improvements in energy efficiency and energy storage, intelligent local energy management, and accelerated implementation of the SPIDERS project.

#### A market without federal storage subsidies picks thorium- existing cores can be cheaply retrofitted

Jack Lifton, Resource Investor (publication) 22 Feb 2007, Thorium: An Alternative to Uranium, 2007 Update, http://www.resourceinvestor.com/pebble.asp?relid=29249&phrase=thorium

Thorium Power, Inc. has told me that they already have the technology to “switch over” from uranium to thorium more than 60% of the reactors in use today in the world. They said that a switched over or built from the ground up thorium powered reactor has for the “blanket” a total of three times the life of a uranium powered reactor. This would mean that the savings during the first fuel cycles will pay for the changeover in the case of a “retrofit.” The core can be used to burn fissionable grade plutonium to non weapons grade material while the blanket will be made from thorium and uranium-233, not 238, so that no weapons grade plutonium-239 can be produced in the reactor. In the last analysis of what keeps the uranium reactors running is unsurprisingly your tax dollars. The U.S. Federal Government subsidizes the storage of “spent” fuel from nuclear power plants. It (with our taxes) pays “private” utilities to store dangerous-because weapons grade material can e extracted from it and it is intensely radioactive to boot-spent fuel rods while awaiting that far off day when there will be a national repository for such waste. It has become a lawyer’s trick to sue the Federal Government on behalf of a utility that needs more storage space or operating funds claiming a breech of the contract implied by the government’s promise to maintain a safe operation and to defend the country. If this subsidy were to be phased out or reduced it would immediately point the utilities towards the longer and thus cheaper fuel cycle of thorium power, which produces less waste, as well as towards reducing the security aspect of the cost of storing and transporting materials from which weapons grade materials can be extracted.

#### Microgrids solve islanding and cyber-security

Robert K. Ackerman, SIGNAL Magazine - February 2012, Military Energy Enters SPIDERS Web, http://www.afcea.org/content/?q=node/2877

No man may be an island, but each U.S. military base may become an energy island if a joint project among the Department of Energy, the Department of Homeland Security and the Defense Department comes to fruition. The effort aims to develop a microgrid that would supply a base with internal power independent of any external source that might fail as a result of enemy action. Network security would be a key element of this energy microgrid. Facing the possibility of a cyberattack on the nation’s power grid, military bases must be able to sustain internal power with a degree of immunity from the online tactics employed by cybermarauders. This program also seeks to blend a host of conventional and alternative energy sources into a single entity that would respond seamlessly to internal base power demands. Complicating the endeavor to link these energy sources is the requirement to provide secure network control that could interoperate with the public power grid but still be immune to cyberthreats that menace the larger network. Known as the Smart Power Infrastructure Demonstration for Energy Reliability and Security, or SPIDERS, the project is a Defense Department joint capability technology demonstration (JCTD). It already is underway at Joint Base Pearl Harbor-Hickam, Oahu, Hawaii, and later phases will evaluate progressively sophisticated systems at Fort Collins, Colorado, and Camp Smith, Hawaii. Melanie Johnson, an electrical engineer with the Army Corps of Engineers Construction Engineering Research Laboratory, explains that SPIDERS is designed to develop a template for bringing microgrid technology to military installations in the United States. Its success would have implications for installations outside the United States, particularly in operational settings, she points out. Part of the SPIDERS technical management team, Johnson explains that a key element in SPIDERS is to provide network security for the communications and control systems within that microgrid environment. That security would be vital if a base loses power because of a cyberattack on the local power grid. What sets SPIDERS apart from other microgrid efforts is its emphasis on cybersecurity and network communications. Security is a primary SPIDERS objective, Johnson says, adding that this includes information assurance certification and implementing emerging standards from the National Institute of Standards and Technology (NIST), the North American Electric Reliability Corporation (NERC) and Department of Energy organizations. Adding cybersecurity to the microgrid complicates the picture and requires “a little critical thinking,” Johnson observes. However, SPIDERS is not employing the traditional approach of first developing a control system and then overlaying security. Instead, security will be integrated into the system as it is developed. The result will be a comprehensive security solution that is tailored to the system, she offers. The microgrid control system continually will monitor power quality and conditions in the regional power grid. If it detects instability or significant quality issues, it can alert monitors who would decide to disconnect the base from the external grid. The microgrid would continue to provide power to critical missions. Johnson shares that planners are examining the relationship between the interface with the microgrid control system and the base’s enterprise network. Of particular interest is how that relationship would open the microgrid to vulnerabilities from outside the installation. Issues include the types of communications traffic that would be allowed in and out of the microgrid control system network. According to its guidance, SPIDERS’ primary objectives are to protect task-critical assets from power loss due to cyberattack; integrate renewable and other distributed generational electricity to power task-critical assets in times of emergency; sustain critical operations during prolonged power outages; and manage installation electrical power consumption to reduce petroleum demand and carbon footprint. SPIDERS will exploit existing energy assets such as solar arrays, wind generators and other renewable technologies as well as diesel generators to provide electricity more efficiently than if backup diesel generators alone were used. Renewable energy generators remain online constantly, providing electricity from alternate sources during opportune conditions such as windy or sunny days. Johnson points out, however, that most renewable energy resources trip offline when the main grid crashes. The microgrid allows the renewable power to stay online while maintaining necessary safety measures. The program might tweak the bases’ energy sources by upgrading a legacy generator that lacks the necessary capacity, for example. Otherwise, it will focus on existing assets. Johnson emphasizes that SPIDERS will be energy-source agnostic.

# Grid

#### Aff wouldn’t island

King, Associate Director of Research and Associate Research Professor of International Affairs at George Washington, 11

(March, Feasibility of Nuclear Power on U.S. Military Installations, http://www.cna.org/research/2011/feasibility-nuclear-power-us-military)

There are several alternatives for the customer base served by a DoD

nuclear power plant. The plant could be built for:

• DoD as the exclusive user

• Commercial users, but with DoD a priority user

• Commercial users, including DoD

Having DoD as the exclusive user is not practical for almost all DoD installations because even small nuclear power plants generate more power than is needed on almost all DoD installations. If a nuclear plant doesn’t operate near capacity the cost of the power it supplies increases, making the business case unattractive. Having a DoD installation, or a group of DoD installations, as a priority user would allow an SMR plant to better contribute to energy assurance for those installations served by the plant. The installations could continue to be connected to the commercial power grid. When operation of the SMR plant was interrupted for some reason, like maintenance or refueling, the commercial grid could supply the installation power. When the SMR plant is operational it could supply power, even when power from the commercial grid is not available. The principal advantages of an arrangement where DoD is among the commercial users supplied by the nuclear power plant is that it would be easier to reliably operate the plant at full capacity. If contract arrangements could give DoD installations priority access to power when there is an interruption in power supplied by the commercial grid, then DoD electrical power assurance would still be significantly improved. And the nuclear plant would have sufficient capacity to supply many other users in the vicinity of the installations as well. With a long-term power purchase agreement, this could provide reliable power at a stable cost. This kind of arrangement would almost certainly require additional distribution infrastructure and more advanced electrical network control.

#### DoD can already get its power from domestic sources – and nuke power doesn’t help

King, Associate Director of Research and Associate Research Professor of International Affairs at George Washington, 11

(March, Feasibility of Nuclear Power on U.S. Military Installations, http://www.cna.org/research/2011/feasibility-nuclear-power-us-military)

Figure 4 shows feedstock used for domestic electricity generation from 1996 to 2009. In 2009, coal was used the most for electricity generation, followed by natural gas and fissionable materials (nuclear energy). Other feedstocks, combined, contributed less than 15 percent. Feedstock use has remained relatively the same for the last 15 years, with nuclear energy and natural gas exchanging second and third places [36]. For natural gas and coal ample future supply from domestic production seems assured. U.S. net imports of natural gas are projected to decline from 13 percent of total supply in 2008 to 6 percent in 2035 [19]. The United States has 29 percent of the world’s recoverable coal reserves and is a net exporter of coal [37]. In recent years, the United States has imported about 85 percent of the uranium it uses in civilian power reactors. Close to 50 percent of those imports come from Canada; lesser percentages come from Australia, Russia, Uzbekistan, and Kazakhstan [36].Uranium reserves in the United States in 2008 were 1.8 billion pounds. At the current domestic rate of consumption, these reserves will last about 30 years. Overall, feedstocks used for electricity generation come from diverse energy sources and are likely to be accessible in sufficient quantity to provide DoD power needs, so feedstock security is not an argument for DoD to significantly increase nuclear power within the mix of electricity generating options.

#### Reid evidence says Cyberattacks can already be deterred – Panetta statement – prefer statements by military heads then military analysts

#### Doesn’t improve military operations – nuclear waste and inaccessibility issues

Matthew Baker – American Security Project – 6/22/12, Do Small Modular Reactors Present a Serious Option for the Military’s Energy Needs?, <http://americansecurityproject.org/blog/2012/do-small-modular-reactors-present-a-serious-option-for-the-militarys-energy-needs/>

Unfortunately all the hype surrounding SMRs seems to have made the proponents of SMR technology oblivious to some of its huge flaws. Firstly like large reactors, one of the biggest qualms that the public has to nuclear is problems associated with nuclear waste. A more decentralized production of nuclear waste inevitably resulting from an increase in SMRs production was not even discussed. The danger of transporting gas into some military bases in the Middle East is already extremely volatile; dangers of an attack on the transit of nuclear waste would be devastating. Secondly, SMRs pose many of the same problems that regular nuclear facilities face, sometimes to a larger degree. Because SMRs are smaller than conventional reactors and can be installed underground, they can be more difficult to access should an emergency occur. There are also reports that because the upfront costs of nuclear reactors go up as surface area per kilowatt of capacity decreases, SMRs will in fact be more expensive than conventional reactors. Thirdly, some supporters of SMR technology seem to have a skewed opinion of public perception toward nuclear energy. Commissioner of the U.S. Nuclear Regulatory Commission, William C. Ostendorff, didn’t seem to think that the recent Fukushima disaster would have any impact on the development on SMRs. Opinion polls suggest Americans are more likely to think that the costs of nuclear outweigh its benefits since the Fukushima disaster. For SMRs to be the philosopher’s stone of the military’s energy needs the public needs to be on board. The DESC’s briefing did illustrate the hype that the nuclear community has surrounding SMRs, highlighting some pressing issues surrounding the military’s energy vulnerability. But proponents of SMRs need to be more realistic about the flaws associated with SMRs and realize that the negative impacts of nuclear technology are more costly than its benefits.

#### Their Andres scenario is egregious- nowhere does the author attempt to claim nuclear accidents would result, just that the USSR and US thought so- the US wouldn’t irrationally strike states with nuclear weapons if its military were down and no one is trying to pre-emptively nuke us

# Russia

#### Donohue only says Thorium is good *not that Russia adopts it*- if they want to cut corners in their nuclear management program they wouldn’t bother purchasing from the US

#### Tech isn’t ready – AT BEST tech is developed in 10 years

Howarth, Managing Director, UK National Nuclear Laboratory, 2010

[August 2010, Paul, Managing director of the UK National Nuclear Laboratory, “The Thorium Fuel Cycle: An independent assessment by the UK National Nuclear Laboratory,” UK National Nuclear Laboratory, http://ripassetseu.s3.amazonaws.com/www.nnl.co.uk/\_files/documents/aug\_11/NNL\_\_1314092891\_Thorium\_Cycle\_Position\_Paper.pdf]

In the event of thorium fuel cycles being adopted commercially in existing LWRs, the technology can be considered to be well understood, but not fully demonstrated. The historic experience in the Shippingport PWR cannot now be considered adequate to cover modern operating regimes and discharge burnups. Demonstration of thorium/U-233 fuels in commercial LWRs will therefore demand small scale testing in research reactors, followed by large scale tests in commercial reactors. Based on NNL’s knowledge and experience of introducing new fuels into modern reactors, it is estimated that this is likely to take 10 to 15 years even with a concerted R&D effort and investment before the thorium fuel cycle could be established in current reactors and much longer for any future reactor systems. Therefore it is not envisaged that thorium fuel in LWRs will be established in the next decade, but could be feasible in the following ten years if the market conditions are conducive.

#### No evidence that thorium reactors can used to reprocess plutonium

#### Easy chemical processes can turn Thorium byproducts into fissile uranium – turns prolif

Ashley et al - Department of Engineering, Cambridge – 12/6/12

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Thorium is being touted as a potential wonder fuel. Proponents believe that this element could be used in a new generation of nuclear-power plants to produce relatively safe, low-carbon energy with more resistance against potential nuclear-weapons proliferation than uranium. Although thorium offers some benefits, we contend that the public debate is too one-sided: small-scale chemical reprocessing of irradiated thorium can create an isotope of uranium that could be used in nuclear weapons, raising proliferation concerns. Global stocks of thorium are uncertain, but the element is thought to be three to four times more naturally abundant than uranium (see 'World thorium deposits'). The silver-white metal is often encountered as oxide waste from the mining of rare-earth elements, and substantial thorium deposits are found in Australia, Brazil, Turkey, Norway, China, India and the United States. The last three of these, together with the United Kingdom, are exploring the potential use of thorium in civil nuclear-energy programmes. One of many voices proposing the deployment of new thorium-based molten salt reactors (see page 26) is the Weinberg Foundation, a non-profit organization based in London that promotes thorium-fuelled technologies to combat climate change. Molten salt reactors were developed in the 1960s and use liquid nuclear fuels, that can incorporate thorium, rather than solid fuel rods. They are claimed to be more efficient and less susceptible to meltdown-related accidents than existing technologies. Small modular reactors, such as high-temperature gas-cooled reactors that use solid thorium-based fuels, are also being pursued, most notably by China. Naturally-occurring thorium is made up almost entirely of thorium-232, an isotope that is unable to sustain nuclear fission. When bombarded with neutrons, thorium is converted through a series of decays into uranium-233, which is fissile and long-lived — its half-life is 160,000 years. A side product is uranium-232, which decays into other isotopes that give off intense γ-radiation that is difficult to shield against. Spent thorium fuel is typically difficult to handle and thus resistant to proliferation. We are concerned, however, that other processes, which might be conducted in smaller facilities, could be used to convert 232Th into 233U while minimizing contamination by 232U, thus posing a proliferation threat. Notably, the chemical separation of an intermediate isotope — protactinium-233 — that decays into 233U is a cause for concern. Thorium is not a route to a nuclear future that is free from proliferation risks. Policies should be strengthened around thorium's use in declared nuclear activities, and greater vigilance is needed to protect against surreptitious activities involving this element. Protactinium pathway The decay path of thorium is well understood. If bombarded with neutrons, isotopically pure 232Th forms 233Th, which has a half-life of 22 minutes and β-decays to 233Pa. That isotope has a half-life of 27 days and β-decays to 233U, which can undergo fission. The International Atomic Energy Agency (IAEA) considers 8 kilograms of 233U to be enough to construct a nuclear weapon1. Thus, 233U poses proliferation risks. Although 233U is not used today in commercial reactors, the United States accumulated two tonnes of it during the cold war. Plans to dispose of much of it by burial are controversial and pose security and safety risks, according to a 2012 report2. The chemical reprocessing needed to separate 233U from spent nuclear fuel requires major infrastructure, such as large reprocessing plants, which are difficult to hide. With thorium fuel, the presence of highly radiotoxic 232U means that the spent fuel must be handled using remote techniques in heavily-shielded containment chambers. After irradiating thorium with neutrons for around one month, chemical separation of 233Pa could yield minimal 232U contamination, making the 233U-rich product easier to handle. If pure 233Pa can be extracted, then it merely needs to be left to decay to produce pure 233U. The problem is that neutron irradiation of 232Th could take place in a small facility, such as a research reactor, of which around 500 exist worldwide. The 232Th need not be part of a nuclear-fuel assembly nor be involved in energy generation. It has been demonstrated that around 200 g of thorium metal could produce 1 g of 233Pa — and hence 1 g of 233U — if exposed to neutrons at levels typically found in power reactors and some research reactors for a month, followed by protactinium separation3. Thus, only 1.6 tonnes of thorium metal would be required to produce the 8 kg of 233U required for a weapon. This amount of 233U could feasibly be obtained by this process in less than a year. The separation of protactinium from thorium is not new. We highlight two well-known chemical processes — acid-media techniques3, 4 and liquid bismuth reductive extraction5, 6, 7 (see 'Ways to obtain pure protactinium') — that are causes for concern, although there may be others. Both methods use standard nuclear-lab equipment and hot cells — containment chambers in which highly radioactive materials can be manipulated safely. Such apparatus is not necessarily subject to IAEA safeguards. The most common acid-media technique uses manganese dioxide to precipitate the protactinium as protactinium oxide4. Any radiotoxic uranium by-products are dissolved in acid and removed during the precipitation. This method was used in the 1960s by researchers at Oak Ridge National Laboratory in Tennessee to extract 1 g of 233Pa from 200 g of an irradiated thorium compound3. The main difficulty is that β-decay from each gram of 233Pa produces 50 watts of heat3, which complicates the handling. Scaling up the production of 233Pa would not be easy, but given the possibility of parallel processing of small quantities, our concerns over this technique remain. A second chemical method, suggested in the 1970s (refs 5,7), is being revisited for next-generation molten salt reactors (see, for example, ref. 8). These use thorium-based liquid fuels containing a fluoride-based salt with the typical composition 7LiF–BeF2–ThF4–UF4. The process is pyrochemically based, using high temperature oxidation–reduction reactions. It involves first fluorination and then extraction using molten bismuth to obtain protactinium. The infrastructure for pyrochemistry is more complex than for acid-media techniques, and scaling it up is even more challenging. Pyrochemical reprocessing technologies are in their infancy. But we are concerned that such a technique could be used in small batches9 to slowly accumulate protactinium. Given the need for access to a research or power reactor to irradiate thorium, the most likely security threat stems not from terrorist organizations but from wilful proliferating nation states. We have three main concerns: First, nuclear-energy technologies that involve irradiation of thorium fuels for short periods could be used covertly to accumulate quantities of 233U by parallel or batch means, perhaps without raising IAEA proliferation flags. Second, the infrastructure required to undertake the chemical partitioning of protactinium could be acquired and established surreptitiously in a small laboratory. Third, state proliferators could seek to use thorium to acquire 233U for weapons production. These three points should be included in debates on the proliferation attributes of thorium.

#### Their evidence only indicts Russia’s current, insecure nuclear stockpiles- those exist in the interim before Russia adopts all-Thorium reactors and prolif-useful waste is still mismanaged post-plan

#### Terrorist networks are weak – Bin Laden’s death, Abbottabad intelligence, no safe haven

WILLIAM MCCANTS - Center for Strategic Studies / Johns Hopkins – Sept/Oct 2011, Al Qaeda's Challenge, Foreign Affairs, http://www.foreignaffairs.com/articles/68160/william-mccants/al-qaedas-challenge?page=show

Al Qaeda now stands at a precipice. The Arab Spring and the success of Islamist parliamentarians throughout the Middle East have challenged its core vision just as the group has lost its founder. Al Qaeda has also lost access to bin Laden's personal connections in Afghanistan, Pakistan, and the Persian Gulf, which had long provided it with resources and protection. Bin Laden's death has deprived al Qaeda of its most media-savvy icon; and most important, al Qaeda has lost its commander in chief. The raid that killed bin Laden revealed that he had not been reduced to a figurehead, as many Western analysts had suspected; he had continued to direct the operations of al Qaeda and its franchises. Yet the documents seized from bin Laden's home in Abbottabad, Pakistan, reveal how weak al Qaeda had become even under his ongoing leadership. Correspondence found in the raid shows bin Laden and his lieutenants lamenting al Qaeda's lack of funds and the constant casualties from U.S. drone strikes. These papers have made the organization even more vulnerable by exposing its general command structure, putting al Qaeda's leadership at greater risk of extinction than ever before. Al Qaeda has elected Zawahiri as its new chief, at least for now. But the transition will not be seamless. Some members of al Qaeda's old guard feel little loyalty to Zawahiri, whom they view as a relative newcomer. Al Qaeda's members from the Persian Gulf, for their part, may feel alienated by having an Egyptian at their helm, especially if Zawahiri chooses another Egyptian as his deputy. Despite these potential sources of friction, al Qaeda is not likely to split under Zawahiri's reign. Its senior leadership will still want to unite jihadist groups under its banner, and its franchises will have little reason to relinquish the recognition and resources that come with al Qaeda affiliation. Yet those affiliates cannot offer al Qaeda's senior commanders shelter. Indeed, should Pakistan become too dangerous a refuge for the organization's leaders, they will find themselves with few other options. The Islamic governments that previously protected and assisted al Qaeda, such as those in Afghanistan and Sudan in the 1990s, either no longer exist or are inhospitable (although Somalia might become a candidate if the militant group al Shabab consolidates its hold there). In the midst of grappling with all these challenges, al Qaeda must also decide how to respond to the uprisings in the Arab world. Thus far, its leaders have indicated that they want to support Islamist insurgents in unstable revolutionary countries and lay the groundwork for the creation of Islamic states once the existing regimes have fallen, similar to what they attempted in Iraq. But al Qaeda's true strategic dilemma lies in Egypt and Tunisia. In these countries, local tyrants have been ousted, but parliamentary elections will be held soon, and the United States remains influential. The outcome in Egypt is particularly personal for Zawahiri, who began his fight to depose the Egyptian government as a teenager. Zawahiri also understands that Egypt, given its geostrategic importance and its status as the leading Arab nation, is the grand prize in the contest between al Qaeda and the United States. In his recent six-part message to the Egyptian people and in his eulogy for bin Laden, Zawahiri suggested that absent outside interference, the Egyptians and the Tunisians would establish Islamic states that would be hostile to Western interests. But the United States, he said, will likely work to ensure that friendly political forces, including secularists and moderate Islamists, win Egypt's upcoming elections. And even if the Islamists succeed in establishing an Islamic state there, Zawahiri argued, the United States will retain enough leverage to keep it in line. To prevent such an outcome, Zawahiri called on Islamist activists in Egypt and Tunisia to start a popular (presumably nonviolent) campaign to implement sharia as the sole source of legislation and to pressure the transitional governments to end their cooperation with Washington. Yet Zawahiri's attempt to sway local Islamists is unlikely to succeed. Although some Islamists in the two countries rhetorically support al Qaeda, many, especially the Muslim Brotherhood, are now organizing for their countries' upcoming elections -- that is, they are becoming Islamist parliamentarians. Even Egyptian Salafists, who share Zawahiri's distaste for parliamentary politics, are forming their own political parties. Most ominous for Zawahiri's agenda, the Egyptian Islamist organization al-Gama'a al-Islamiyya (the Islamic Group), parts of which were once allied with al Qaeda, has forsworn violence and recently announced that it was creating a political party to compete in Egypt's parliamentary elections. Al Qaeda, then, is losing sway even among its natural allies. This dynamic limits Zawahiri's options. For fear of alienating the Egyptian people, he is not likely to end his efforts to reach out to Egypt's Islamist parliamentarians or to break with them by calling for attacks in the country before the elections. Instead, he will continue urging the Islamists to advocate for sharia and to try to limit U.S. influence. In the meantime, Zawahiri will continue trying to attack the United States and continue exploiting less stable postrevolutionary countries, such as Libya, Syria, and Yemen, which may prove more susceptible to al Qaeda's influence. Yet to operate in these countries, al Qaeda will need to subordinate its political agenda to those of the insurgents there or risk destroying itself, as Zarqawi's group did in Iraq. If those insurgents take power, they will likely refuse to offer al Qaeda safe haven for fear of alienating the United States or its allies in the region. Thanks to the continued predominance of the United States and the growing appeal of Islamist parliamentarians in the Muslim world, even supporters of al Qaeda now doubt that it will be able to replace existing regimes with Islamic states anytime soon. In a recent joint statement, several jihadist online forums expressed concern that if Muammar al-Qaddafi is defeated in Libya, the Islamists there will participate in U.S.-backed elections, ending any chance of establishing a true Islamic state. As a result of all these forces, al Qaeda is no longer the vanguard of the Islamist movement in the Arab world. Having defined the terms of Islamist politics for the last decade by raising fears about Islamic political parties and giving Arab rulers a pretext to limit their activity or shut them down, al Qaeda's goal of removing those rulers is now being fulfilled by others who are unlikely to share its political vision. Should these revolutions fail and al Qaeda survives, it will be ready to reclaim the mantle of Islamist resistance. But for now, the forces best positioned to capitalize on the Arab Spring are the Islamist parliamentarians, who, unlike al Qaeda, are willing and able to engage in the messy business of politics.

#### Russia won’t buy our SMR’s – don’t want to look dependent on the SMR’s

# Iran

#### If Iran wants to prolif- they wouldn’t buy reactors that prevent that goal- they don’t trust the US after we tried to shut them down with Stuxnet

#### Fear of retaliation solves Iranian nuclear attacks

Kahl, associate professor @ Georgetown, 2012,

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Israel’s presumed mix of nuclear forces provides a viable second-strike capability, giving it the ability to massively retaliate against Iran’s major cities, military facilities and economic infrastructure should Iran ever attack the Jewish state with nuclear weapons. 60 Moreover, if Iran acquires nuclear weapons, Israel would likely move quickly to bolster its second-strike capabilities and the survivability of its command-and-control systems. If Iran declares its arsenal or tests a device, it also seems likely that Israel would overturn its current policy of amimut in order to clarify its nuclear doctrine and clearly spell out red lines to Tehran. 61 Even in the absence of any Israeli countermoves, Iran would likely require a few dozen nuclear weapons and advanced delivery systems to realistically threaten a viable “counterforce” strike that could eliminate Israel’s retaliatory capability (and if Israel indeed has submarine-launched capabilities, even this would be insufficient). Given Iran’s limited capabilities for the foreseeable future, and the strength of Israel’s ballistic missile and air defenses, Tehran’s ability to successfully destroy or decapitate Israel’s command-and-control systems seems limited, even if Iranian decisionmakers perceive Israel to be a “one bomb” (or a “few bombs”) country. This profound asymmetry between Iranian and Israeli capabilities would give even reckless Iranian leaders pause. After all, if an Iranian attack failed to completely destroy Israel’s retaliatory capabilities, Tehran would face a devastating response from the Jewish state. 62 Iran would be further deterred from attacking Israel by the prospect of a massive conventional or nuclear retaliation from the United States. 63 With or without a formal extension of the U.S. nuclear umbrella, the long-standing U.S.-Israel alliance and the likelihood of extraordinary political pressure inside the United States to respond in the aftermath of a premeditated Iranian strike on Israel would likely be sufficient to deter Iran. Indeed, the Iranian conspiratorial tendency to see the American “Great Satan” and the Israeli “Little Satan” as inextricably linked would only deepen Tehran’s perception that an attack would produce an overwhelming U.S. response. In addition, until Iran develops sufficient ICBMs to overwhelm U.S. national missile defenses, the credibility of any U.S.-extended deterrence relationship with Israel is further enhanced by the fact that Iran cannot effectively threaten the American homeland with retaliation. 64 Finally, a bolt-fromthe-blue nuclear attack on Israel would likely produce global condemnation and the prospect of a draconian international response, which could isolate and punish Iran to an extent that would make it difficult for Iranian leaders to achieve any other national objective. Faced with these stark realities, Iran’s leaders would quickly realize that any potential nuclear strike against Israel would gain little and risk everything, dissuading it from launching such an attack.

#### The US has export restrictions on Iran- we wouldn’t sell them nuclear technology when we’re leading the sanctions regime against them

#### Iran won’t go beyond threshold capability

Kahl, associate professor @ Georgetown, 2012,

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A threshold capability might be enough for Iran. Khamenei might conclude that acquiring the ability to rapidly produce nuclear weapons would provide Iran with a sufficient deterrent and enhance Iran’s regional influence, without incurring the costs of going further. After all, the possibility that Tehran might rapidly assemble weapons during a crisis or in the aftermath of a strike would present potential foes with a nontrivial risk of nuclear retaliation. At the same time, Khamenei might calculate that maintaining a threshold capability would lower the costs imposed on Iran, including the risk of deeper international isolation, an expensive regional arms race and a potential U.S. or Israeli military strike that might otherwise result from a decision to irrefutably violate the Nuclear Non-Proliferation Treaty (NPT). For at least the past seven years, Khamenei has also stated repeatedly that the acquisition, stockpiling or use of nuclear weapons would be a “grave sin” against Islam, 25 issuing a religious edict (fatwa) on the matter that senior Iranian officials describe as “a binding commitment.” 26 Fatwas are reversible in cases of extreme political expediency. 27 However, in the absence of a clear external provocation that would justify reversing long-standing religious declarations on the grounds of self-defense, the international and domestic costs associated with a threshold capability would be lower than those of a fully weaponized nuclear arsenal. For all of those reasons, the supreme leader might be satisfied with a threshold capability and freeze the program at that stage. Nevertheless, Khamenei has argued that the decision by Libya’s Moammar Gadhafi to abandon his nuclear program made him vulnerable to being overthrown by Western powers, 28 and Iran seems unlikely to stop short of a threshold capability without being compelled or persuaded to do so.