# NDT Round 1 vs. Dartmouth CK

## 1AC

### Inherency

#### Observation One: Inherency

#### Obama pushing nuclear incentives now.

Northey 13 (Hannah, E&E reporter, 3-13-13, “Obama admin placing big bet on small reactors”, <http://www.eenews.net/public/Greenwire/2013/03/13/1>, RSR)

The Obama administration is promoting a bold, long-range plan for building dozens of small, factory-built reactors capable of replacing coal-fired power plants that are expected to be retired in the coming decades, a Department of Energy official said yesterday.¶ DOE's effort is aimed at establishing an industry that would manufacture as many as 50 small modular reactors (SMRs) a year by 2040 or sooner, said Rebecca Smith-Kevern, the director of light water reactor technology at the department's Office of Nuclear Energy, which oversees the licensing of tiny nuclear plants.¶ "We have a vision of having a whole fleet of [small modular reactors] produced in factories," Smith-Kevern told a regulatory conference in Bethesda, Md. "We envision the U.S. government to be the first users."¶ DOE this week announced a second wave of million-dollar cost-share grants to help the industry design and license the modular reactors, which the administration defines as factory-built plants of less than 300 megawatts that are shipped by truck, barge or rail to construction sites for assembly.¶ The department awarded the first grants under its $452 million cost-share program to veteran reactor designer Babcock & Wilcox, which is building two small units at the Clinch River site in Oak Ridge, Tenn. (Greenwire, Nov. 11, 2012).

#### Global nuclear renaissance now

Marketwire 12 (5/3/12, – Part of the Paragon Report on uranium ore stock future

<http://finance.yahoo.com/news/nuclear-renaissance-back-track-122000381.html>)

NEW YORK, NY--(Marketwire -05/03/12)- Last year the Fukushima disaster in Japan started a downward spiral for companies in the Uranium Industry. Approximately one year later the industry looks to be finally recovering as the Global X Uranium ETF (URA) is up nearly 12 percent year-to-date. "Fukushima put a speed bump on the road to the nuclear renaissance," Ganpat Mani, president of Converdyn, said at a nuclear industry summit. "It's not going to delay the programs around the world." The Paragon Report examines investing opportunities in the Uranium Industry and provides equity research on Cameco Corporation (CCJ - News) and Uranium One, Inc. (UUU.TO - News). Approximately 650 million people in China and India currently are living without electricity. With the high costs of fossil fuel the most viable options for these countries would be nuclear power. Indonesia, Egypt, and Chile are among some of the nations that have plans to build their first nuclear power station, the list of countries operating atomic plants currently stands at 30. According to numbers released by the World Nuclear Association there are 61 reactors that are presently under construction, and plans to build another 162. "In two years, there will be very strong demand on the market, as new reactors start operating, and as new contracts with the existing fleet kick in," Areva SA's Chief Commercial Officer Ruben Lazo said in a previous interview.

#### But, the US is not reversing course on reprocessing.

Saillan 10 (Charles, attorney with the New Mexico Environment Department, Harvard Environmental Law Review, 2010, “DISPOSAL OF SPENT NUCLEAR FUEL IN THE UNITED STATES AND EUROPE: A PERSISTENT ENVIRONMENTAL PROBLEM”, Vol. 34, RSR)

The U.S. government’s position on reprocessing changed in 1974 when India exploded a nuclear weapon in the state of Rajasthan. 150 The weapon’s plutonium was isolated with reprocessing equipment imported for “peaceful purposes.” 151 Rightly concerned about the dangers of nuclear proliferation, President Ford announced that the United States would no longer view reprocessing as a necessary step in the nuclear fuel cycle. He called on other nations to place a three-year moratorium on the export of reprocessing technology. 152 In 1977, President Carter indefinitely deferred domestic efforts at reprocessing and continued the export embargo. 153 Although President Reagan reversed the ban on domestic reprocessing in 1981, 154 the nuclear industry has not taken the opportunity to invest in the technology. In 2006, the George W. Bush Administration proposed a Global Nuclear Energy Partner ship (“GNEP”) for expanded worldwide nuclear power production. 155 As a key component of the GNEP proposal, the United States would provide other nations with a reliable supply of nuclear fuel, and it would take back the spent fuel for reprocessing at a commercial facility in the United States, thus avoiding the spread of reprocessing technology. 156 However, the Obama Administration substantially curtailed GNEP in 2009, and is “no longer pursuing domestic commercial reprocessing.” 157

### Observation 2

#### Observation Two: Russia

#### Relations with Russia are deteriorating in the SQUO – nuclear energy represents a crucial point for overcoming other alt causes.

Weitz 12 [Richard, senior fellow at the Hudson Institute, World Politics Review Senior Editor, “Global Insights: U.S.-Russia Arms Control Prospects Under Putin”, World Politics Review, 3-6-2012, http://www.worldpoliticsreview.com/articles/11681/global-insights-u-s-russia-arms-control-prospects-under-putin]

This weekend’s election in Russia has unsurprisingly returned Vladimir Putin to the country’s presidency. In contrast to the preordained outcome of the Russian voting, the winner of this November’s U.S. presidential election is not yet known. But whoever occupies the White House in 2013 will need to consider the bilateral arms control relationship with Russia in coming years. And although the implementation of the New START agreement is going well, there are sharp differences in Washington and Moscow over where to go next. Moscow’s main concerns focus on U.S. missile defense and U.S. superiority in conventional forces. Both conditions work against Russia’s willingness to cut its offensive nuclear forces even further, which is the U.S. priority, especially with regard to the issue of Russian tactical nuclear weapons. In his recent Moscow News article on Russian foreign policy, Putin railed against what he called the U.S. quest for “absolute security.” In his words, the problem is that “absolute invulnerability for one country would in theory require absolute vulnerability for all others.” Instead, Putin again insisted on the right of all states to equal security, as well as Russia’s right to maintain the capacity to attack the United States with nuclear weapons if necessary. Putin argued that faced with U.S. plans for deploying a European-based missile defense system, Russia had two options: a symmetrical response of creating its own system or an asymmetrical strategy of strengthening Russia’s offensive strategic weapons to ensure that they are capable of overcoming any NATO system and thereby preserving mutual deterrence. The first choice being too costly and technically challenging, he said Russia would follow the second course. In Moscow’s view, the problem of equal security also applies to the imbalance in conventional forces in Europe. The United States recently followed Russia’s lead in ending implementation of the original Conventional Forces in Europe (CFE) Treaty. Russian officials have also given up on the idea of ratifying the Adapted CFE Treaty, since NATO insists that Russia withdraw its military forces from Georgia as part of its Istanbul Commitments. Given these complications, Russians are uninterested in various U.S. proposals for a “grand bargain” that would seek to address the CFE and tactical nuclear weapons in Europe simultaneously. Russian policymakers have also expressed a new complaint in the form of their open doubt over the United States’ ability to ratify the kinds of binding legal agreements that Moscow demands. They note the difficulties that the Obama administration had in securing U.S. Senate ratification of New START, which required a White House commitment to modernize the U.S. nuclear arsenal, even if that is now falling victim to budgetary pressures. Russians insist that they want another legally binding agreement to constrain U.S. missile defenses. The Obama administration has been offering a politically binding agreement on missile defense, but has refused to accept legally binding constraints on how the missile defense program might develop. Although U.S. officials stress that they will not try to negate Russia’s nuclear deterrent, whose massive size and great sophistication would make such an effort impossible in any case, Congress would never accept a legally binding agreement that commits the United States to deliberately constrain its ability to protect Americans and their allies from foreign missile attacks. At best, the administration is willing to offer nonbinding political guarantees that they will not seek to negate Russia’s strategic nuclear deterrent. Russian officials refuse to accept mere political declarations on such important issues. They claim the United States earlier violated such agreements when it enlarged NATO after the Cold War and moved NATO forces into former Soviet-bloc states. In contrast, they note that even when the United States withdrew from the Anti-Ballistic Missile Treaty in 2001, the predictable and legal manner in which the withdrawal was carried out reassured Putin and others in Moscow who opposed the U.S. decision. Russians also point out that political agreements lend themselves to different interpretations depending on who is viewing the issue. Although they do not seem to worry about another Obama presidency, they claim to fear that some future U.S. administration will try to expand U.S. missile defenses to be able to intercept Russian strategic missiles. These differences highlight the uncertain climate surrounding the nuclear arms control agenda, which is compounded by Russian concerns about U.S. space, cyber and other weapons. But progress could be possible in several other areas. First, Russians are eager to help counter nuclear terrorism through the mechanisms of the Nuclear Security Summit forums and the Global Initiative to Combat Nuclear Terrorism. Both countries want to revive the civilian use of nuclear power under safe and secure conditions, making sure that those countries now considering starting nuclear energy programs receive training and guidance on how to avoid accidents and protect the nuclear material at their facilities. Second, Russian-U.S. collaboration on regional proliferation challenges is important, since both countries are veto-wielding members of the U.N. Security Council. Russian officials are unlikely to accept any more U.N. sanctions on Iran given their different assessment of Iranian motives, unless incontrovertible evidence that Tehran is seeking a nuclear weapon emerges. But cooperation is possible regarding North Korea, where Russia and the United States share the goal of stabilizing the Korean Peninsula. Third, the Carnegie Endowment and other institutions have been developing a number of potential informal confidence and transparency-building measures that the two sides could pursue. These would help to lead toward a new strategic arms control treaty in a few years if the bilateral relationship improves, but could serve a valuable stabilizing function even without one. These measures include renewed efforts to expand the application of restrictions in the Intermediate Nuclear Forces Treaty and other bilateral arms control agreements to other countries, as well as measures to increase transparency regarding the capacity of each sides’ nuclear weapons-production complexes to construct new nuclear forces in any attempt to rapidly break out of a strategic arms control agreement. Finally, Russians are eager to work on civilian nuclear energy cooperation with the United States. The two sides’ recently ratified 123 agreement allows Russian and U.S. firms to cooperate to produce new types of civilian power reactors that would be less prone to proliferation than existing models. Such collaboration could prove very useful in helping develop new commercial stakeholders in both countries that have an interest in maintaining good Russian-U.S. relations. The economic relationship between Russia and the United States remains relatively undeveloped, since Americans buy Russia’s main exports -- oil, gas and weapons -- elsewhere, while various impediments hobble mutual investments. At present, the constituencies favoring strong bilateral ties in both countries are small, consisting mainly of arms control advocates and foreign policy experts. As a result, the Russian-U.S. agenda is still dominated by Cold War-type issues, including nuclear arms control, which position the two parties in an adversarial relationship. Only by moving away from this orientation can both sides begin to overcome the mutual confidence gap that exacerbates many of their other differences. Though Putin’s return to the presidency could augur a hard line on a number of issues where the U.S. and Russian positions diverge, his pragmatism and opportunism could lead to progress in the areas where the two sides’ interests overlap.

#### Russia will say yes to cooperation over reprocessing – plan sends a key signal to move beyond the Cold War legacy.

Rojansky 10 [Matthew, deputy director Russia and Eurasia Program at Carnegie, “As New START Debate Rages, Quiet Nuclear Progress With Russia”, U.S. News and World Report, 12-9-2010, http://www.usnews.com/opinion/articles/2010/12/09/as-new-start-debate-rages-quiet-nuclear-progress-with-russia]

Beyond benefiting relations, cooperation on peaceful nuclear energy makes financial sense. The United States and Russia have invested substantially in civilian nuclear research and development, and both share basic interests in capitalizing on the global "nuclear energy renaissance" by developing proliferation-resistant reactor technologies, increasing environmental safety, and making nuclear energy more economically competitive. And when it comes to civil nuclear power, Russia brings a lot to the table. For instance, the United States does not operate so-called "fast breeder" reactors and reprocessing facilities that don't produce nuclear waste that can be used for weapons, but Russia does. And, while the United States hasn't built a single new n uclear power plant since 1973, Russia opened its first fast breeder reactor that very year and plans to bring 26 new nuclear facilities online before 2030. And the Kremlin has already allocated some $3.6 billion for research on fast breeders and other projects under a program dedicated to the next generation of nuclear technology. With U.S. support, Russia has developed a sophisticated infrastructure to securely store spent nuclear fuel—and Moscow even offered to store and reprocess spent fuel from the United States, while no American state has been willing to do the same. Russian companies already supply roughly half of the uranium consumed in U.S. and European power plants and will need to supply more in the future as the United States is only able to produce a fifth—at most—of its nuclear fuel stock domestically. Fortunately, Russia's nuclear industry is interested in expanding its uranium enrichment and reprocessing activity in the U.S. market and potentially cooperating with American firms, including GE and Westinghouse, on bids for contracts in other countries. Closer U.S.-Russia cooperation on nuclear power means better nuclear security. As a major player in civil nuclear markets worldwide, Russia has a unique window into potential risks and opportunities to insist on measures that protect sensitive sites and technologies. Russia, with U.S. support, also has the chance to compete more effectively with China's nuclear industry, which is less scrupulous in its nonproliferation commitments. The importance of partnering with Russia was made clear during Secretary Clinton's recent trip to Central Asia. Belarus, the former Soviet republic, agreed to give up its stock of highly enriched uranium by 2012 in return for U.S. help in developing a new nuclear power reactor. But Russia has had its eye on this potentially lucrative project, and has the right experience to work effectively with Belarus's Soviet-era infrastructure. Washington should cooperate—instead of compete—with Moscow to build an environmentally safe, proliferation-proof reactor in Belarus. A quarter century after the Chernobyl disaster, this would be a powerful symbol that both sides can move beyond the Cold War legacy.

#### Relations are the biggest controlling impact – solves multiple extinction scenarios - Iran prolif, US-Russia War, terrorism and economic security

Allison and Blackwill 11 (10-30-11 Graham Allison, Director, Belfer Center for Science and International Affairs; Douglas Dillon Professor of Government; Faculty Chair, Dubai Initiative, Harvard Kennedy School, Robert D. Blackwill, International Council Member, Belfer Center for Science and International Affairs "10 Reasons Why Russia Still Matters"http://belfercenter.ksg.harvard.edu/publication/21469/10\_reasons\_why\_russia\_still\_matters.html)

That central point is that Russia matters a great deal to a U.S. government seeking to defend and advance its national interests. Prime Minister Vladimir Putin’s decision to return next year as president makes it all the more critical for Washington to manage its relationship with Russia through coherent, realistic policies. No one denies that Russia is a dangerous, difficult, often disappointing state to do business with. We should not overlook its many human rights and legal failures. Nonetheless, Russia is a player whose choices affect our vital interests in nuclear security and energy. It is key to supplying 100,000 U.S. troops fighting in Afghanistan and preventing Iran from acquiring nuclear weapons. Ten realities require U.S. policymakers to advance our nation’s interests by engaging and working with Moscow. First, Russia remains the only nation that can erase the United States from the map in 30 minutes. As every president since John F. Kennedy has recognized, Russia’s cooperation is critical to averting nuclear war. Second, Russia is our most consequential partner in preventing nuclear terrorism. Through a combination of more than $11 billion in U.S. aid, provided through the Nunn-Lugar Cooperative Threat Reduction program, and impressive Russian professionalism, two decades after the collapse of the “evil empire,” not one nuclear weapon has been found loose. Third, Russia plays an essential role in preventing the proliferation of nuclear weapons and missile-delivery systems. As Washington seeks to stop Iran’s drive toward nuclear weapons, Russian choices to sell or withhold sensitive technologies are the difference between failure and the possibility of success. Fourth, Russian support in sharing intelligence and cooperating in operations remains essential to the U.S. war to destroy Al Qaeda and combat other transnational terrorist groups. Fifth, Russia provides a vital supply line to 100,000 U.S. troops fighting in Afghanistan. As U.S. relations with Pakistan have deteriorated, the Russian lifeline has grown ever more important and now accounts for half all daily deliveries. Sixth, Russia is the world’s largest oil producer and second largest gas producer. Over the past decade, Russia has added more oil and gas exports to world energy markets than any other nation. Most major energy transport routes from Eurasia start in Russia or cross its nine time zones. As citizens of a country that imports two of every three of the 20 million barrels of oil that fuel U.S. cars daily, Americans feel Russia’s impact at our gas pumps. Seventh, Moscow is an important player in today’s international system. It is no accident that Russia is one of the five veto-wielding, permanent members of the U.N. Security Council, as well as a member of the G-8 and G-20. A Moscow more closely aligned with U.S. goals would be significant in the balance of power to shape an environment in which China can emerge as a global power without overturning the existing order. Eighth, Russia is the largest country on Earth by land area, abutting China on the East, Poland in the West and the United States across the Arctic. This territory provides transit corridors for supplies to global markets whose stability is vital to the U.S. economy. Ninth, Russia’s brainpower is reflected in the fact that it has won more Nobel Prizes for science than all of Asia, places first in most math competitions and dominates the world chess masters list. The only way U.S. astronauts can now travel to and from the International Space Station is to hitch a ride on Russian rockets. The co-founder of the most advanced digital company in the world, Google, is Russian-born Sergei Brin. Tenth, Russia’s potential as a spoiler is difficult to exaggerate. Consider what a Russian president intent on frustrating U.S. international objectives could do — from stopping the supply flow to Afghanistan to selling S-300 air defense missiles to Tehran to joining China in preventing U.N. Security Council resolutions. So next time you hear a policymaker dismissing Russia with rhetoric about “who cares?” ask them to identify nations that matter more to U.S. success, or failure, in advancing our national interests.

#### Independently, nuclear cooperation with Russia solves their economy – they want the plan.

Dewey et al 10 (Taylor, Logan Ensign, Stanford University, Natalya Matytsyna, The Higher School of Economics, Polina Beresneva, Moscow State University, Stanford U.S. Russia Forum Journal 2009-2010, <http://joinsurf.com/news/62/16/SURF-2009-2010-Journal-Article-4-of-8>)

Russia is currently pursuing the strategy of expanding its global role as an energy provider. This role will necessitate expanding the domestic production of nuclear energy as a way of freeing up fossil fuels, particularly natural gas, for export. Inherent in this strategy is the expansion of Russia’s nuclear export business to transform Rosatom into a major player in the world nuclear energy market and Russia into the default country for nuclear fuel-cycle services. Russia’s interest in concluding a nuclear cooperation agreement with the United States is grounded, in large part, in its desire to implement this strategy. Although Russia is not dependent on obtaining access to US technology and is already actively pursuing its nuclear energy goals regardless, cooperation with the US could help to render Russia’s strategy more efficient. While Russia’s nuclear industry has been far more active than its US counterpart over the past several decades, there are still gaps in the Russian nuclear engineering chain and areas where US technical expertise could improve the outlook for Russian exports. This is especially true in the area of control and safety systems, known as automated control and technical processes (ACPS). To improve their ability to pursue nuclear exports in larger, more lucrative and more internationally acceptable markets, Russian officials and industry are increasingly interested in developing joint initiatives with the United States and other countries. In the past, China and other countries have asked that some reactors purchased from Russia be equipped with non-Russian made ACPS. Partnering with German and French companies appears to have helped Russian firms win bids to build two reactors in Bulgaria. Complete control systems cannot be exported from the United States unless the recipient or partner has a 123 Agreement in place. Beyond the export market, Russian officials have expressed interest in enhancing cooperation with US companies to increase the efficiency and safety of reactors already operating in Russia. In addition, the United States has valuable expertise in the area of reactor life extension. Russia is also eager to reduce the maintenance costs of its nuclear reactor operations. According to official Russian government projections, Russia’s nuclear operators are hoping to reduce their maintenance costs by 20 percent by the year 2015. The United States nuclear industry has already reduced its maintenance costs by almost half (from 3.4 to 1.68 cents/kilowatt hour) since the mid- 1980s. The US experience may be of real value as Russia works to meet its targets.

#### Russian economic collapse causes extinction

Filger 9 (Sheldon, Author and Writer @ the Huffington Post, Former VP for Resource Development at New York’s United Way, “Russian Economy Faces Disastrous Free Fall Contraction,” http://www.globaleconomiccrisis.com/blog/archives/356)

In Russia historically, economic health and political stability are intertwined to a degree that is rarely encountered in other major industrialized economies. It was the economic stagnation of the former Soviet Union that led to its political downfall. Similarly, Medvedev and Putin, both intimately acquainted with their nation’s history, are unquestionably alarmed at the prospect that Russia’s economic crisis will endanger the nation’s political stability, achieved at great cost after years of chaos following the demise of the Soviet Union. Already, strikes and protests are occurring among rank and file workers facing unemployment or non-payment of their salaries. Recent polling demonstrates that the once supreme popularity ratings of Putin and Medvedev are eroding rapidly. Beyond the political elites are the financial oligarchs, who have been forced to deleverage, even unloading their yachts and executive jets in a desperate attempt to raise cash. Should the Russian economy deteriorate to the point where economic collapse is not out of the question, the impact will go far beyond the obvious accelerant such an outcome would be for the Global Economic Crisis. There is a geopolitical dimension that is even more relevant then the economic context. Despite its economic vulnerabilities and perceived decline from superpower status, Russia remains one of only two nations on earth with a nuclear arsenal of sufficient scope and capability to destroy the world as we know it. For that reason, it is not only President Medvedev and Prime Minister Putin who will be lying awake at nights over the prospect that a national economic crisis can transform itself into a virulent and destabilizing social and political upheaval. It just may be possible that U.S. President Barack Obama’s national security team has already briefed him about the consequences of a major economic meltdown in Russia for the peace of the world. After all, the most recent national intelligence estimates put out by the U.S. intelligence community have already concluded that the Global Economic Crisis represents the greatest national security threat to the United States, due to its facilitating political instability in the world. During the years Boris Yeltsin ruled Russia, security forces responsible for guarding the nation’s nuclear arsenal went without pay for months at a time, leading to fears that desperate personnel would illicitly sell nuclear weapons to terrorist organizations. If the current economic crisis in Russia were to deteriorate much further, how secure would the Russian nuclear arsenal remain? It may be that the financial impact of the Global Economic Crisis is its least dangerous consequence.

#### Moving away from the Cold War legacy solves Arctic conflict

Zysk ’12

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However, an increasing military presence in the region, even if not intended primarily for power projection, is a sensitive issue. Despite the pragmatism and ongoing cooperation in the Arctic region, mistrust— the Cold War’s legacy—is not entirely gone and may be easy to fuel. On various occasions, Russian political and military authorities have touched on the prevailing sense of insecurity vis-à-vis other actors’ military presence in the region, particularly that of the United States and NATO, which are traditionally seen as potential adversaries of Russia and suspected of having anti-Russian strategic agendas.86 A strengthening military presence by the individual Arctic littoral states, all members of NATO, may be viewed instead as an Alliance initiative in the region and thus considered to be a security problem. This suspicion has been repeatedly voiced by Russia’s authorities.87 One of the main concerns in Russian security and defense considerations has been the emergence of stronger military powers on the country’s borders, the Arctic included. In the preliminary Russian assessments of the transformation of the Arctic as a theater of maritime operations, the emphasis has been on challenges rather than opportunities deriving from it. During the Cold War, the Arctic Ocean was considered an operational front primarily for launching and flight routes of nuclear missiles. Surface vessel deployment by both the United States and the Soviet Union in the Arctic Ocean was difficult because of ice cover and was thus limited. But the expected opening of the Arctic may increase the inclination of foreign naval elements toward Arctic deployments.88

#### Cooperation with Russia reverses the link—causes it to move away from aggressive postures

Trent 11Packard C. [Lieutenant, United States Navy B.S., United States Merchant Marine Academy, 2003] “AN EVALUATION OF THE ARCTIC—WILL IT BECOME AN AREA OF COOPERATION OR CONFLICT?” *Naval Postgraduate School* March 2011 <http://edocs.nps.edu/npspubs/scholarly/theses/2011/March/11Mar_Trent.pdf> DR accessed: 6/25/12

As mentioned, Russia is implementing the measures necessary in order to reap the benefits the Arctic has to offer by being aggressive and unpredictable, and will do whatever it takes to be the powerhouse of the Arctic. In order to be competitive with Russia, the other Arctic nations are increasing their military capabilities and assets. D. CONCLUSION This chapter has examined counterarguments to the proposition that Arctic will become a zone of cooperation. It has revealed the means by which the Arctic might be pushed towards conflict through the unresolved disputes in the Arctic, Russia dependency on the Arctic, and an increase of military and security presence in the Arctic. There are a significant number of potential flashpoints that could ignite the Arctic into conflict. The discussion of territorial disputes highlighted issues arising from access to shipping channels and navigable waterways, specific territorial claims, and international maritime boundaries between and beyond territorial waters. Also examined was Russia’s dependency on the amount of oil and gas available in the Arctic. Russia’s main focus is regaining the status of a superpower by being aggressive and unpredictable in order to control the resources in the Arctic. Russia’s influence and behavior are provocative to other Arctic nations and if Russia is not willing to change its approach, the Arctic may be headed towards conflict. Russia is a potentially hostile superpower in the Arctic, and in order defend their claims, the other Arctic nations have increased or plan to increase their military capabilities and assets. This will allow the Arctic nations to be more strategically aligned, especially with Russia. The Arctic nations are building or have plans to build a more combat capable Arctic force to protect its sovereignty and national interests in the Arctic. Conley and Kraut, argue that Russia is not the only Arctic nation that has a twotrack approach, stressing cooperation yet increasing combat capability in the Arctic. All Arctic nations have a vested interest in ensuring the Arctic region is stable in order to maximize economic gain and benefit; all Arctic nations are also keeping their military options open and available for use to project sovereignty and to transmit to other nations a sense of claim and identity. The difference among the Arctic nations is in the degree and emphasis of implementation of the two-track approach.261 However, Russia is the powerhouse in the Arctic and will aggressively pursue a number of tactics to exploit this. For instance, Russia is deploying what it sees as a “win-win” Arctic strategy: gain early military and commercial regional supremacy and hope to win equally at the United Nations and other multilateral tables. Other Arctic nations tend to place more emphasis on working bilaterally or within international governance structures and operating cooperatively with other Arctic nations, but all to a greater or lesser degree have or are making military adjustments to preserve their options. The question for the future will be if or how Russia will maintain its dual approach, or if it will continue to rely more heavily on developing an aggressive defense posture to achieve its means and determine the future of the Arctic to its liking.262 All of these factors—to include territorial claims, Russia’s dependency, and the militarization of the Arctic—can potentially lead to conflict in the Arctic. It all depends on which one has the potential to flash and cause the conflict. Until all of these issues are resolved peacefully with all sides in agreement, the potential for conflict will remain.

#### US-Russian Arctic conflict goes nuclear

Cohen 10Ariel [Senior Research Fellow for Russian and Eurasian Studies and International Energy Policy, The Kathryn and Shelby Cullom Davis Institute for International Studies] “From Russian Competition to Natural Resources Access: Recasting U.S. Arctic Policy” *The Heritage Foundation* 6/15/10 <http://www.heritage.org/research/reports/2010/06/from-russian-competition-to-natural-resources-access-recasting-us-arctic-policy> DR accessed: 6/25/12

To advance its position, Russia has undertaken a three-year mission to map the Arctic.[26] The Kremlin is also moving rapidly to establish a comprehensive sea, ground, and air presence. Under Putin, Russia focused on the Arctic as a major natural resources base. The Russian national leadership insists that the state, not the private sector, must take the lead in developing the vast region. The Kremlin published its Arctic doctrine in March 2009.[27] The main goal is to transform the Arctic into Russia’s strategic resource base and make Russia a leading Arctic power by 2020. Russian Militarization of the Arctic. The military is an important dimension of Moscow’s Arctic push. The policy calls for creating “general purpose military formations drawn from the Armed Forces of the Russian Federation” as well as “other troops and military formations [most importantly, border units] in the Arctic zone of the Russian Federation, capable of ensuring security under various military and political circumstances.”[28] These formations will be drawn from the armed forces and from the “power ministries” (e.g., the Federal Security Service, Border Guard Service, and Internal Ministry). Above all, the policy calls for a coast guard to patrol Russia’s Arctic waters and estuaries. Russia views the High North as a major staging area for a potential nuclear confrontation with the United States and has steadily expanded its military presence in the Arctic since 2007. This has included resuming air patrols over the Arctic, including strategic bomber flights.[29] During 2007 alone, Russian bombers penetrated Alaska’s 12-mile air defense zone 18 times.[30] The Russian Navy is expanding its presence in the Arctic for the first time since the end of the Cold War, increasing the operational radius of the Northern Fleet’s submarines. Russia is also reorienting its military strategy to meet threats to the country’s interests in the Arctic, particularly with regard to its continental shelf.[31] Russia is also modernizing its Northern Fleet. During 2008 and 2009, Russian icebreakers regularly patrolled in the Arctic. Russia has the world’s largest polar-capable icebreaker flotilla, with 24 icebreakers. Seven are nuclear, including the 50 Years of Victory, the largest icebreaker in the world.[32] Russia plans to build new nuclear-powered icebreakers starting in 2015.[33] Moscow clearly views a strong icebreaker fleet as a key to the region’s economic development. Russia ’s Commercial Presence. Russia’s energy rush to the Arctic continues apace. On May 12, 2009, President Dmitry Medvedev approved Russia’s security strategy.[34] This document views Russia’s natural resources in the Arctic as a base for both economic development and geopolitical influence. Paragraph 11 identifies potential battlegrounds where conflicts over energy may occur: “The attention of international politics in the long-term will be concentrated on controlling the sources of energy resources in the Middle East, on the shelf of the Barents Sea and other parts of the Arctic, in the Caspian Basin and in Central Asia.” The document seriously considers the use of military force to resolve competition for energy near Russia’s borders or those of its allies: “In case of a competitive struggle for resources it is not impossible to discount that it might be resolved by a decision to use military might. The existing balance of forces on the borders of the Russian Federation and its allies can be changed.”[35] In August 2008, Medvedev signed a law that allows “the government to allocate strategic oil and gas deposits on the continental shelf without auctions.” The law restricts participation to companies with five years’ experience in a region’s continental shelf and in which the government controls at least a 50 percent stake. This effectively allows only state-controlled Gazprom and Rosneft to participate.[36] However, when the global financial crisis ensued, Russia backtracked and began to seek foreign investors for Arctic gas development.

### Observation 3

#### Observation Three: Helium

**HE-3 shortage now – low tritium production is causing a supply crisis**

Veen-Hincke ’12(Kristin V, Political Focus: Helium-3 Supply Dwindles while Demand Increases, May/June 2012, http://wellservicingmagazine.com/political-focus/2012/05/political-focus-helium-3-supply-dwindles-while-demand-increases/)

**For** more than **50 years**, the Department of Energy (**DOE) has supplied** isotopes and isotope-related services to not only companies in the U.S., but also those working in **the global market**. The Isotope Program, which was within the realm of the Office of Science until 2009, oversees the sale of distribution of these isotopes including Helium-3 (He-3) which is a rare, non-radioactive, and non-hazardous isotope. Helium-3 is used for neutron detection in the areas of national security, oil and gas exploration, nuclear safeguards measurements, and in scientific experimentation, and due to its non-reactive and non-corrosive nature, it is the preferred detector material.¶ Without He-3 gas, the wireline and well logging companies have no effective commercial alternatives for neutron detectors meaning they have a limited ability to generate a neutron porosity log for either open or cased hole operations.¶ “The U.S. government is the sole source of He-3 in this country because of the national security issues associated with this isotope,” said Elena Melchert, senior program manager for the Department of Energy’s Oil and Gas Research Program. **“Helium-3 results from the natural decay of tritium** which is a radioactive isotope. This process occurs during refurbishment and dismantling of nuclear weapons. **With a lessening supply of nuclear weapons, the stock of He-3 has been gradually dwindling while demand has increased,”** she continued. **“Finding an alternative source** for Helium-3 **is of** the **utmost importance.”** Distribution ¶ The distribution of Helium-3 for commercial use began in 1980. Helium-3 is a rare find on Earth so **natural recovery has not been financially feasible**.¶ The sole production of Helium-3 in the United States has come from the dismantling of nuclear weapons. Currently, the U.S. supply of Helium-3 is stored at the National Nuclear Security Administration’s (NNSA) Savannah River Site in South Carolina. The only other source of commercially-available Helium-3 is from the former Soviet Union’s nuclear weapons program. With the end of the Cold War and a lessening need for nuclear weapons, the **supply** of Helium-3 **is dwindling while demand is increasing**. **This is creating a problem for DOE as well as companies relying on the government’s supply** of this important component **for** their business **success**.¶ “Because **the primary, current source of He**lium-**3 is** the decay of **tritium, current supplies** of this important gas **are limited by** the **quantities of tritium** on hand and being **produced,” said** Dr. William **Brinkman**, **director of the Office of Science for** the U.S. **D**epartment **o**f **E**nergy at a House subcommittee meeting on this issue in April 2010. “**Without development of alternative sources** for Helium-3, **use** of this gas **will be constrained seriously in the foreseeable future** as accumulated stockpiles are drawn down.” Dr. Brinkman went on to say that the U.S. Government ended reactor-based production of tritium in 1988. This downsizing and an increase in demand have now created what he termed a “critical shortage in the global supply of Helium-3.”

**Helium shortages undermines nuclear detection capabilities – key to prevent prolif and nuclear terrorism.**

Homeland Security News Wire ’11(Helium-3 shortage endangers nuclear detection capabilities

2/28/11, http://www.homelandsecuritynewswire.com/helium-3-shortage-endangers-nuclear-detection-capabilities)

**Demand for radiation detectors has surged as a result of increased efforts to stop nuclear proliferation and terrorism, but production of he**lium-**3**, **a critical element in** nuclear **detection** **tech**nology, has not kept pace and existing stockpiles **are quickly dwindling**; in 2010 demand for helium-3 was projected to be 76,000 liters per year; the United States only produces 8,000 liters of helum-3 a year; last year the U.S. stockpile of helium-3 was at less than 48,000 liters; alternatives are currently in the early stages of development and researchers have found several promising leads; when an alternative is found, current radiation detection equipment will have to be replaced with the new technology¶ Demand for radiation detectors has surged as a result of increased efforts to stop nuclear proliferation and terrorism, but production of helium-3, a critical element in nuclear detection technology, has not kept pace and existing stockpiles are quickly dwindling.¶ Helium-3 is primarily used in security applications as it is highly sensitive to the neutrons that are emitted by plutonium. **Roughly 80 percent of helium-3 supplies are used for national security.**¶ According to Wired’s Danger Room, helium-3 does not naturally occur in large quantities and it represents less than 0.0002 percent of all helium.¶ **He**lium-**3 is** currently **produced by harvesting tritium**, a heavy isotope of hydrogen that is used to enhance the yield of nuclear weapons. **Tritium has not been produced since 1988 and led to reduced** helium-3 **production** levels. Helium-3 is now primarily obtained from dismantled or refurbished nuclear weapons.¶ **Since 9/11 demand for radiation detectors increased sharply, however production failed to increase.**¶ In 2010 demand for helium-3 was projected to be 76,000 liters per year, but the United States only produces 8,000 liters of it a year. Moreover, last year the U.S. stockpile of helium-3 was at less than 48,000 liters.¶ The United States has stopped exporting the gas and the International Atomic Energy Agency was informed that it must diversify its sources for helium-3.¶ Other countries have also followed suit and reduced its exports. From 2004 to 2008, the United States imported roughly 25,000 liters of helium-3 each year from Russia, but in August of 2008 Russia declared that it was “reserving its supplies for domestic use.” Dr. William K. **Hagan,** the acting **director of the Domestic Nuclear Detection Office at DHS, said** that **the shortage** of helium-3 **could affect** the handheld and backpack **detectors used by the U.S. Coast Guard, Customs and Border Protection, and T**ransportation **S**ecurity **A**dministration.¶ After the shortage was first noticed by government officials in 2008, the Domestic Nuclear Detection Office (DNDO) formed the Helium-3 Interagency Integrated Product Team (IPT) to manage the use of existing stockpiles of helium-3, investigate alternatives, and explore technologies to recycle helium-3 and extend current supplies.¶

#### Scenario one: nuclear terrorism

#### Nuclear terrorism is extremely likely

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(Zafar Nawaz, “Nuclear/Radiological Terrorism: Myth or Reality?”, Journal of Political Studies, Vol. 19, Issue - 1, 2012, 91:111, dml)

The **misperception, miscalculation and** above all **ignorance** of the ruling elite **about security puzzles are perilous for the national security of a state**. Indeed, **in an age of transnational terrorism and unprecedented dissemination of dualuse nuclear technology, ignoring nuclear terrorism threat is an** imprudent policy choice. The **incapability** of terrorist organizations **to engineer fissile material does not eliminate** completely **the possibility of nuclear terrorism**. At the same time, **the absence of an example** or precedent of a nuclear/ radiological terrorism **does not qualify the assertion that the** nuclear/radiological **terrorism ought to be remained a myth**. Farsighted rationality obligates that one should not miscalculate **transnational terrorist groups — whose behavior suggests that they have a death wish — of acquiring nuclear**, radiological, chemical and biological **material producing capabilities**. In addition, one could be sensible about the published information that **huge amount of nuclear material is spread around the globe**. According to estimate **it is enough to build more than** 120,000 **Hiroshima-sized nuclear bombs** (Fissile Material Working Group, 2010, April 1). The alarming fact is that **a few storage sites** of nuclear/radiological materials **are inadequately secured and continue to be accumulated in unstable regions** (Sambaiew, 2010, February). Attempts at stealing fissile material had already been discovered (Din & Zhiwei, 2003: 18). Numerous evidences confirm **that terrorist groups had aspired to acquire fissile material for their terrorist acts**. Late Osama **bin Laden**, the founder of al Qaeda **stated that acquiring nuclear weapons was a“religious duty**” (Yusufzai, 1999, January 11). The IAEA also reported that “al-Qaeda was actively seeking an atomic bomb.” Jamal Ahmad al-Fadl, a dissenter of Al Qaeda, in his trial testimony had “revealed his extensive but unsuccessful efforts to acquire enriched uranium for al-Qaeda” (Allison, 2010, January: 11). On November 9, 2001, Osama bin Laden claimed that “we have chemical and nuclear weapons as a deterrent and if America used them against us we reserve the right to use them (Mir, 2001, November 10).” On May 28, 2010, Sultan Bashiruddin Mahmood, a Pakistani nuclear scientist confessed that he met Osama bin Laden. He claimed that “I met Osama bin Laden before 9/11 not to give him nuclear know-how, but to seek funds for establishing a technical college in Kabul (Syed, 2010, May 29).” He was arrested in 2003 and after extensive interrogation by American and Pakistani intelligence agencies he was released (Syed, 2010, May 29). Agreed, Mr. Mahmood did not share nuclear know-how with **Al Qaeda**, but his meeting with Osama establishes the fact that the terrorist organization **was in contact with nuclear scientists**. Second, **the terrorist group has sympathizers in the nuclear scientific bureaucracies**. It also authenticates bin Laden’s Deputy Ayman Zawahiri’s claim which he made in December 2001: “If you have $30 million, go to the black market in the central Asia, contact any disgruntled Soviet scientist and a lot of dozens of smart briefcase bombs are available (Allison, 2010, January: 2).” **The covert meetings between nuclear scientists and al Qaeda members could not be interpreted as idle threats** and thereby the threat of nuclear/radiological terrorism is real. The 33Defense Secretary Robert Gates admitted in 2008 that “what keeps every senior government leader awake at night is the thought of a terrorist ending up with a weapon of mass destruction, especially nuclear (Mueller, 2011, August 2).” Indeed, **the nuclear deterrence strategy** cannot deter **the transnational terrorist syndicate from** **nuclear**/radiological terrorist **attacks**. Daniel Whiteneck pointed out: “**Evidence suggests**, for example, **that al Qaeda** might not only use WMD simply to demonstrate the magnitude of its capability but that it might actually welcome **the escalation of a strong U.S. response, especially if it included** catalytic effects **on governments** and societies in the Muslim world. **An adversary that prefers escalation regardless of the consequences** cannot be deterred” (Whiteneck, 2005, Summer: 187) Since taking office, President Obama has been reiterating that “nuclear weapons represent the ‘gravest threat’ to United States and international security.” While realizing that the US could not prevent nuclear/radiological terrorist attacks singlehandedly, he launched 47an international campaign to convince the international community about the increasing threat of nuclear/ radiological terrorism. He stated on April 5, 2009: “**Black market trade in nuclear secrets and nuclear materials abound**. The technology to build a bomb has spread. Terrorists are determined to buy, build or steal one. **Our efforts to contain these dangers are centered on a global non-proliferation regime, but as more** people and nations **break the rules, we could reach the point where the center cannot hold** (Remarks by President Barack Obama, 2009, April 5).” He added: “**One terrorist with one nuclear weapon could unleash massive destruction**. Al Qaeda has said it seeks a bomb and that it would have no problem with using it. And we know that there is unsecured nuclear material across the globe” (Remarks by President Barack Obama, 2009, April 5). In July 2009, at the G-8 Summit, President Obama announced the convening of a Nuclear Security Summit in 2010 to deliberate on the mechanism to “secure nuclear materials, combat nuclear smuggling, and prevent nuclear terrorism” (Luongo, 2009, November 10). President Obama’s nuclear/radiological threat perceptions were also accentuated by the United Nations Security Council (UNSC) Resolution 1887 (2009). The UNSC expressed its grave concern regarding ‘the threat of nuclear terrorism.” It also recognized the need for all States “to take effective measures to prevent nuclear material or technical assistance becoming available to terrorists.” The UNSC Resolution called “for universal adherence to the Convention on Physical Protection of Nuclear Materials and its 2005 Amendment, and the Convention for the Suppression of Acts of Nuclear Terrorism.” (UNSC Resolution, 2009) The United States Nuclear Posture Review (NPR) document revealed on April 6, 2010 declared that “**terrorism and proliferation are** far greater threats **to the United States and international stability**.” (Security of Defence, 2010, April 6: i). **The United States declared that it reserved the right to“hold fully accountable” any state or group “that supports or enables terrorist efforts to obtain** or use **weapons of mass destruction**, whether by facilitating, financing, or providing expertise or safe haven for such efforts (Nuclear Posture Review Report, 2010, April: 12)”. This declaration underscores the possibility that terrorist groups could acquire fissile material from the rogue states.

#### An attack breaks the nuclear taboo – leads to nuclear war.

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**The nuclear taboo is a** kind **of international norm and this type of norm is supported by the promotion of the norm through international social exchange.** **But at present the increased threat of nuclear terrorism has lowered people’s confidence that nuclear weapons will not be used**. **China and the United States have a broad common interest in combating nuclear terrorism.** **Using technical and institutional measures to break the foundation of nuclear terrorism and lessen the possibility of a nuclear terrorist attack can not only weaken the danger of nuclear terrorism itself but also** strengthen people’s confidence in the nuclear taboo**, and in this way preserve an international environment beneficial to both China and the United States.** **In this way even if there is crisis in China-U.S. relations caused by conflict, the nuclear taboo can also help both countries reduce suspicions about the nuclear weapons problem, avoid miscalculation and thereby reduce the** danger of a nuclear war**.**

#### That causes extinction via retal.

Ayson 10 (Robert, Professor of Strategic Studies, Director of Strategic Studies: New Zealand, Senior Research Associate with Oxford’s Centre for International Studies. “After a Terrorist Nuclear Attack: Envisaging Catalytic Effects. Studies in Conflict and Terrorism, Volume 33, Issue 7, July 2010, pages 571-593)

**Washington's early response to a terrorist nuclear attack on its own soil might also raise** the possibility of an unwanted (and **nuclear** aided) **confrontation with Russia and/or China.** For example, **in the noise and confusion during the immediate aftermath of the terrorist nuclear attack, the U.S. president might be expected to place** the country's armed forces, including **its nuclear arsenal, on a higher stage of alert. In such a tense environment**, when careful planning runs up against the friction of reality, it is just possible that **Moscow and**/or **China might mistakenly read this as a sign of U.S. intentions to use** force (and possibly **nuclear force) against them**. In that situation, the **temptations to preempt such actions might grow**, although it must be admitted that **any preemption would** probably still **meet** with **a devastating response. As part of its initial response to the act of nuclear terrorism** (as discussed earlier) **Washington might decide to order a** significant conventional (or **nuclear) retaliatory** or disarming **attack** **against the leadership of the terrorist group and/or states** seen to support that group. Depending on the identity and especially the location of these targets, **Russia and/or China might interpret such action as being far too close for their comfort, and** potentially as an **infringement on their spheres of influence and even on their sovereignty.** One far-fetched but perhaps not impossible scenario might stem from a judgment in Washington that some of the main aiders and abetters of the terrorist action resided somewhere such as Chechnya, perhaps in connection with what Allison claims is the “Chechen insurgents' … long-standing interest in all things nuclear.”42 **American pressure** on that part of the world **would** almost **certainly raise alarms in Moscow** that …might require a degree of advanced consultation from Washington that the latter found itself unable or unwilling to provide.

**Detection technology is uniquely key to solve terrorism**

Levi ‘8(Michael A. David M. Rubenstein senior fellow for energy and environment at the Council on Foreign Relations, “Deterring State of Sponsorship of Nuclear Terrorism”, Council of Foreign Relations Special Report No. 39, September 2008)

**Nuclear detection tech**nology **has a dual role in thwarting a terrorist nuclear attack—deterrence** ¶ **and defense.** Deterrence means dissuasion from an action by threat of unacceptable consequences. ¶ **Terrorists may be deterred from a nuclear strike by** one of the few consequences unacceptable to ¶ them: **failure**. **Detection systems would raise that risk.** These **systems** could also **make** **a** terrorist ¶ **nuclear strike too complex to succeed.** But **other factors** would also have these effects: the ¶ difficulty of fabricating a bomb, the chance that law enforcement or intelligence would detect ¶ efforts to obtain a bomb, the possible inability to detonate a purloined bomb, and the risk that ¶ ¶ scientists recruited for the plot would defect. Such risks would **disappear,** however, **if terrorists**  **were given a bomb and operating instructions. They would then only need to mount a smuggling operation. In that case, the role of nuclear detection systems** would change: they would **become the main defense.**

#### Scenario two is prolif:

**HE-3 shortage undermines non-proliferation and scientific research**

Lobsenz ’10(George, editor of *Energy Daily,* DOE Helium Shortage Hits Nuke Security, Oil And Gas Industry, 7/10/10,

http://www.managingpowermag.com/supply\_chains/253.html)

The Energy Department's failure to recognize **an impending supply squeeze for helium-3**—a nonradioactive gas produced in the agency's nuclear weapons complex—**has created a national crisis** requiring White House intervention and **threatening key U.S. nuclear and homeland security programs**, a wide range of **medical and scientific research activities** and development of U.S. oil and natural gas resources, according to testimony before a House subcommittee. ¶ The testimony at the House Science and Technology Committee's investigations and oversight subcommittee revealed that DOE and other federal officials only fully grasped the situation in 2008. Fast-dwindling helium-3 supplies forced the government last year to begin rationing the gas, which has unique neutron detection and refrigerant capabilities that cannot be provided by other substances in some research and industrial applications. ¶ And in a growing snowball of real-world impacts, the sudden helium **shortage** already **has:¶ Disrupted international nonproliferation efforts** led by the International Atomic Energy Agency **that use helium-based devices to track and safeguard sensitive nuclear materials;¶ Slowed** Department of Homeland Security (**DHS) and DOE programs to deploy radiation detection machines** at airports, seaports and border crossings;¶ **Delayed a huge swath of cutting-edge** **scientific research, ranging from superconductivity to nanotechnology to quantum computing;**¶ Curtailed operations at some neutron-scattering facilities overseas, although similar DOE facilities such as the Spallation Neutron Source at Oak Ridge, Tenn., have sufficient helium for planned operations through fiscal year 2014;¶ **Jeopardized** progress on new lung imaging **techniques that promise** better **treatment** methods **for** respiratory **disease**; **and**¶ Forced oil well services companies to scramble for helium-3 devices that are critical to assessing and developing underground oil and gas reservoirs, including the nation's fast-growing shale gas fields.

#### New proliferators will be uniquely destabilizing -- guarantees conflict escalation.

Cimbala, ‘8

[Stephen, Distinguished Prof. Pol. Sci. – Penn. State Brandywine, Comparative Strategy, “Anticipatory Attacks: Nuclear Crisis Stability in Future Asia”, 27, InformaWorld]

If the possibility existed of a mistaken preemption during and immediately after the Cold War, between the experienced nuclear forces and command systems of America and Russia, then it may be a matter of even more concern with regard to states with newer and more opaque forces and command systems. In addition, the Americans and Soviets (and then Russians) had a great deal of experience getting to know one another’s military operational proclivities and doctrinal idiosyncrasies, including those that might influence the decision for or against war. Another consideration, relative to nuclear stability in the present century, is that the Americans and their NATO allies shared with the Soviets and Russians a commonality of culture and historical experience. Future threats to American or Russian security from weapons of mass destruction may be presented by states or nonstate actors motivated by cultural and social predispositions not easily understood by those in the West nor subject to favorable manipulation during a crisis. The spread of nuclear weapons in Asia presents a complicated mosaic of possibilities in this regard. States with nuclear forces of variable force structure, operational experience, and command-control systems will be thrown into a matrix of complex political, social, and cultural crosscurrents contributory to the possibility of war. In addition to the existing nuclear powers in Asia, others may seek nuclear weapons if they feel threatened by regional rivals or hostile alliances. Containment of nuclear proliferation in Asia is a desirable political objective for all of the obvious reasons. Nevertheless, the present century is unlikely to see the nuclear hesitancy or risk aversion that marked the Cold War, in part, because the military and political discipline imposed by the Cold War superpowers no longer exists, but also because states in Asia have new aspirations for regional or global respect.12 The spread of ballistic missiles and other nuclear-capable delivery systems in Asia, or in the Middle East with reach into Asia, is especially dangerous because plausible adversaries live close together and are already engaged in ongoing disputes about territory or other issues.13 The Cold War Americans and Soviets required missiles and airborne delivery systems of intercontinental range to strike at one another’s vitals. But short-range ballistic missiles or fighter-bombers suffice for India and Pakistan to launch attacks at one another with potentially “strategic” effects. China shares borders with Russia, North Korea, India, and Pakistan; Russia, with China and NorthKorea; India, with Pakistan and China; Pakistan, with India and China; and so on. The short flight times of ballistic missiles between the cities or military forces of contiguous states means that very little time will be available for warning and attack assessment by the defender. Conventionally armed missiles could easily be mistaken for a tactical nuclear first use. Fighter-bombers appearing over the horizon could just as easily be carrying nuclear weapons as conventional ordnance. In addition to the challenges posed by shorter flight times and uncertain weapons loads, potential victims of nuclear attack in Asia may also have first strike–vulnerable forces and command-control systems that increase decision pressures for rapid, and possibly mistaken, retaliation. This potpourri of possibilities challenges conventional wisdom about nuclear deterrence and proliferation on the part of policymakers and academic theorists. For policymakers in the United States and NATO, spreading nuclear and other weapons of mass destruction in Asia could profoundly shift the geopolitics of mass destruction from a European center of gravity (in the twentieth century) to an Asian and/or Middle Eastern center of gravity (in the present century).14 This would profoundly shake up prognostications to the effect that wars of mass destruction are now passe, on account of the emergence of the “Revolution in Military Affairs” and its encouragement of information-based warfare.15 Together with this, there has emerged the argument that large-scale war between states or coalitions of states, as opposed to varieties of unconventional warfare and failed states, are exceptional and potentially obsolete.16 The spread of WMD and ballistic missiles in Asia could overturn these expectations for the obsolescence or marginalization of major interstate warfare.

#### The impact is extinction.

Krieger, ‘9

[David, Pres. Nuclear Age Peace Foundation and Councilor – World Future Council, “Still Loving the Bomb After All These Years”, 9-4, https://www.wagingpeace.org/articles/2009/09/04\_krieger\_newsweek\_response.php?krieger]

Jonathan Tepperman’s article in the September 7, 2009 issue of Newsweek, “Why Obama Should Learn to Love the Bomb,” provides a novel but frivolous argument that nuclear weapons “may not, in fact, make the world more dangerous….” Rather, in Tepperman’s world, “The bomb may actually make us safer.” Tepperman shares this world with Kenneth Waltz, a University of California professor emeritus of political science, who Tepperman describes as “the leading ‘nuclear optimist.’” Waltz expresses his optimism in this way: “We’ve now had 64 years of experience since Hiroshima. It’s striking and against all historical precedent that for that substantial period, there has not been any war among nuclear states.” Actually, there were a number of proxy wars between nuclear weapons states, such as those in Korea, Vietnam and Afghanistan, and some near disasters, the most notable being the 1962 Cuban Missile Crisis. Waltz’s logic is akin to observing a man falling from a high rise building, and noting that he had already fallen for 64 floors without anything bad happening to him, and concluding that so far it looked so good that others should try it. Dangerous logic! Tepperman builds upon Waltz’s logic, and concludes “that all states are rational,” even though their leaders may have a lot of bad qualities, including being “stupid, petty, venal, even evil….” He asks us to trust that rationality will always prevail when there is a risk of nuclear retaliation, because these weapons make “the costs of war obvious, inevitable, and unacceptable.” Actually, he is asking us to do more than trust in the rationality of leaders; he is asking us to gamble the future on this proposition. “The iron logic of deterrence and mutually assured destruction is so compelling,” Tepperman argues, “it’s led to what’s known as the nuclear peace….” But if this is a peace worthy of the name, which it isn’t, it certainly is not one on which to risk the future of civilization. One irrational leader with control over a nuclear arsenal could start a nuclear conflagration, resulting in a global Hiroshima. Tepperman celebrates “the iron logic of deterrence,” but deterrence is a theory that is far from rooted in “iron logic.” It is a theory based upon threats that must be effectively communicated and believed. Leaders of Country A with nuclear weapons must communicate to other countries (B, C, etc.) the conditions under which A will retaliate with nuclear weapons. The leaders of the other countries must understand and believe the threat from Country A will, in fact, be carried out. The longer that nuclear weapons are not used, the more other countries may come to believe that they can challenge Country A with impunity from nuclear retaliation. The more that Country A bullies other countries, the greater the incentive for these countries to develop their own nuclear arsenals. Deterrence is unstable and therefore precarious. Most of the countries in the world reject the argument, made most prominently by Kenneth Waltz, that the spread of nuclear weapons makes the world safer. These countries joined together in the Nuclear Non-Proliferation Treaty (NPT) to prevent the spread of nuclear weapons, but they never agreed to maintain indefinitely a system of nuclear apartheid in which some states possess nuclear weapons and others are prohibited from doing so. The principal bargain of the NPT requires the five NPT nuclear weapons states (US, Russia, UK, France and China) to engage in good faith negotiations for nuclear disarmament, and the International Court of Justice interpreted this to mean complete nuclear disarmament in all its aspects. Tepperman seems to be arguing that seeking to prevent the proliferation of nuclear weapons is bad policy, and that nuclear weapons, because of their threat, make efforts at non-proliferation unnecessary and even unwise. If some additional states, including Iran, developed nuclear arsenals, he concludes that wouldn’t be so bad “given the way that bombs tend to mellow behavior.” Those who oppose Tepperman’s favorable disposition toward the bomb, he refers to as “nuclear pessimists.” These would be the people, and I would certainly be one of them, who see nuclear weapons as presenting an urgent danger to our security, our species and our future. Tepperman finds that when viewed from his “nuclear optimist” perspective, “nuclear weapons start to seem a lot less frightening.” “Nuclear peace,” he tells us, “rests on a scary bargain: you accept a small chance that something extremely bad will happen in exchange for a much bigger chance that something very bad – conventional war – won’t happen.” But the “extremely bad” thing he asks us to accept is the end of the human species. Yes, that would be serious. He also doesn’t make the case that in a world without nuclear weapons, the prospects of conventional war would increase dramatically. After all, it is only an unproven supposition that nuclear weapons have prevented wars, or would do so in the future. We have certainly come far too close to the precipice of catastrophic nuclear war. As an ultimate celebration of the faulty logic of deterrence, Tepperman calls for providing any nuclear weapons state with a “survivable second strike option.” Thus, he not only favors nuclear weapons, but finds the security of these weapons to trump human security. Presumably he would have President Obama providing new and secure nuclear weapons to North Korea, Pakistan and any other nuclear weapons states that come along so that they will feel secure enough not to use their weapons in a first-strike attack. Do we really want to bet the human future that Kim Jong-Il and his successors are more rational than Mr. Tepperman?

#### Reprocessing is best the method for producing tritium and HEU – Savannah River proves.

IEER, No Date

[Institute for Energy and Environmental Research, “Reprocessing and Spent Nuclear Fuel Management at the Savannah River Site”, RSR]

The primary mission of SRS throughout the Cold War was to produce tritium, a radioactive element used in nuclear weapons. This was done by placing fuel into one or more of the site’s five production reactors. Targets made of lithium were also placed inside the reactors. During the chain reaction, some of the neutrons coming off the U-235 were absorbed in the target rather than bumping into another atom of U-235. This created tritium inside the lithium target rod.¶ When the SRS reactors were not being used to make tritium, they were often used to make plutonium for nuclear weapons (Pu-239). This was done in a very similar way using depleted uranium targets instead of lithium ones. Depleted uranium is what’s left when most U-235 has been removed from natural uranium during the enrichment process. Sometimes other target materials were used to produce different radioisotopes. For example, neptunium-237 was used to produce Pu-238 for heat sources and special batteries for space exploration, as well as military and intelligence missions. The last SRS reactor operated in 1988.¶ Nuclear weapons are not made of irradiated targets. The tritium or plutonium first has to be separated from everything else in the target — the metal cladding and the other radioactive elements. The separation process for plutonium is called reprocessing. Reprocessing was also used at SRS to recover HEU from spent fuel to be made into new fuel. Some of this fuel came from SRS reactors, and spent fuel containing HEU was also sent to SRS from research and test reactors in the U.S. and other countries. Continued reprocessing is one of the options in the Draft EIS for managing SNF in the future

#### Increasing domestic supply of HEU independently solves tritium supply – foreign sources can’t solve.

Rowny 12 (Edward, retired Lieutenant General, was chief negotiator with the rank of ambassador in the START arms control negotiations with the Soviet Union and has served as an arms control adviser and negotiator for five presidents, Roll Call, 3-29-2012,

http://www.rollcall.com/issues/57\_118/edward-rowny-safe-uranium-enrichment-should-be-us-priority-213505-1.html)

Oil may grab headlines, but nuclear power for civilian use is growing, as it should. It is efficient, extremely safe and friendly to the environment. As with oil, the U.S. would be wise to produce its own supply of enriched uranium, the fuel for nuclear power plants. Farming out the process to other nations — or to companies headquartered overseas — is risky and increases our vulnerabilities. The U.S. government should pay more attention than it has in recent years to the nation’s dwindling ability to enrich its own uranium. The consequences of doing otherwise could be dramatic. Our country could find itself at the mercy of foreigners who do not have our best interests at heart. Energy independence, a laudable aspiration for oil, is even more essential for nuclear power. Domestically produced supplies of enriched uranium are already running short. The U.S. once produced most of the world’s enriched uranium. Now we’re down to about a quarter of the world’s supply. For reasons of national security, we shouldn’t dip further. That’s why the president should be praised for requesting $150 million in next year’s National Nuclear Security Administration budget to keep uranium enrichment alive on our soil. In the meantime, Chu has asked Congress for the authority to reallocate his current budget resources for that purpose until next year’s budget is enacted. Without this cash infusion, American technology at a major facility in rural Ohio will face an uncertain future. We can’t afford the uncertainty. Military considerations also play a role here. Nuclear weapons, while thankfully on the decline, still exist and must be maintained and updated. International treaties mandate that tritium, a rare, radioactive isotope that’s a byproduct of enriched uranium use in nuclear reactors and is critical to the proper, safe functioning of nuclear weapons, must be made with U.S. technology. Unless U.S. technology is available to make the enriched uranium needed to produce tritium, our national security will be at risk.

### Plan Text

#### Thus the plan: The United States Federal Government should provide a twenty-percent investment tax credit for the deployment of domestic nuclear fuel recycling.

### Solvency

#### Observation Four: Solvency

#### Tax incentives would solve for reprocessing – makes it commercially more desirable

Lagus 5 (Todd, 2005 WISE Intern, University of Minnesota, WISE, “Reprocessing of Spent Nuclear Fuel: A Policy Analysis” <http://www.wise-intern.org/journal/2005/lagus.pdf>, RSR)

The economic analysis shows that the reprocessing or even the once through nuclear cycle is not yet economically desirable to investors. However, changes in government policies, including environmental regulations already mentioned and economic policies, could improve the competitiveness of both technologies. The University of Chicago nuclear power study analyzes the effects of government involvement in the future of the once through cycle using several different forms of support: loan guarantees, accelerated depreciation, and investment tax credits. Loan guarantees in this case refer to the obligation of the government to repay part of the loan should a utility company not be able to repay. The 2005 Energy Bill, which passed in July 2005, would make advanced nuclear power plants eligible for federal loan guarantees and provide a tax credit for nuclear power production. This would lessen the risks associated with capital costs for investors, and according to the Chicago study, reduce the LCOE for a nuclear reactor by 4 mills/kWh to 6 mills/kWh. The next financial subject, accelerated depreciation, refers to the ability of an investor to utilize the investment tax deductions early on in the lifetime of the payment rather than receive the same deduction each year in a linear fashion. Accelerated depreciation helps investors absorb capital costs, which for nuclear power generation are large. The University of Chicago study calculates a reduction in the LCOE for a 7 year depreciation policy of 3 mills/kWh to 4 mills/kWh. Tax incentives for nuclear power production are the final policies that could make nuclear power and reprocessing more desirable. An investment tax credit of 10 percent would create an LCOE reduction between 6 mills/kWh and 8 mills/kWh, while a 20 percent credit could create cost reductions between 9 mills/kWh and 13 mills/kWh. 39 Production tax credits on a per kWh basis may also be used. Since reprocessing and the once through cycle are not appreciably different for the price, it is sufficient to assume 12 that similar effects for all three of these government policies would occur with policies applied to reprocessing. While it is no secret that monetary incentives would help the nuclear reprocessing investments, there is still the question of whether or not the government should provide economic support to the industry. As with any government funding, it is politically important not to be viewed by other energy generation industries, i.e. gas and coal, as favoring nuclear power over other sources. Given the recent concerns for global warming, tax incentives and loan guarantees for nuclear technologies seem like a realistic option especially in the absence of emission regulations. Accelerated depreciation also is an unobtrusive option that could help the industry by easing capital costs.

#### Government investment key – necessary to mitigate risks from government regulations.

Selyukh 10 (Alina, Staff Writer, “Nuclear waste issue could be solved, if...”, 8-17-10, Reuters,

<http://www.reuters.com/article/2010/08/17/us-nuclear-waste-recycling-idUSTRE67G0NM20100817>, RSR)

Since the U.S. agency declared spent fuel reprocessing too costly, U.S. research into new technologies has slowed. President George W. Bush offered federal backing for nuclear waste management alternatives, but over the years the policy has meandered and had few incentives to lure companies, said Steven Kraft, senior director of used-fuel management at the Nuclear Energy Institute, the industry's trade organization. Being able to burn through rather inexpensive uranium to produce energy, companies are wary of investing millions into recycling technology that may go against the national policy. Still, industry support for the ideas is strong, if not for the procedure itself then for allowing the market -- not the government -- to determine its cost-effectiveness and fate. Duke Energy, which operates seven nuclear plants, would support nuclear recycling if there was a cost-effective national policy, spokeswoman Rita Sipe said. GE Hitachi has proposed a new generation of fast reactors that, they say, could return to the grid up to 99 percent of energy contained in the uranium, compared to recovering 2 or 3 percent from a common light water reactor. But they want federal support for more research and, ultimately, commercialization of the technology, said chief consulting engineer Erik Loewen. That support, in essence, would have to come in a form of subsidies such as cost sharing or loan guarantees, said Jack Spencer, nuclear energy policy research fellow at the Heritage Foundation think tank. "What the industry needs... is something to mitigate government-imposed risks," he said of the regulatory regime.

#### Government investment necessary – provides appropriate risk mitigation and shortens the timeframe for completion.

IAEA 8 (International Atomic Energy Agency, “Spent Fuel Reprocessing Options”, August 2008, RSR)

With the expected high costs and significant risks involved in constructing new nuclear facilities, e.g., reprocessing facilities, the impact of various ownership options need to be considered. These options include government funding, regulated funding, private funding, and combinations of public and private funding. These different funding approaches may significantly impact the costs of fuel cycle services. Given the very long time frames associated with building reprocessing facilities, there exist risks other than technological or economic, which need to be dealt with. These include evolving government policy, public and political acceptance, and licensing risks. As a result, private investors are unlikely to provide capital unless the initial high risks factors are mitigated through appropriate risk sharing agreements (e.g., loan guarantees, equity protection plans, tax credits, etc.) with government entities.

## 2AC

### T

#### We meet: Nuclear fuel recycling is energy production.

World Nuclear Association 12 [Processing of Used Nuclear Fuel, http://www.world-nuclear.org/info/inf69.html]

Used nuclear fuel has long been reprocessed to extract fissile materials for recycling and to reduce the volume of high-level wastes. ¶ New reprocessing technologies are being developed to be deployed in conjunction with fast neutron reactors which will burn all long-lived actinides. ¶ A significant amount of plutonium recovered from used fuel is currently recycled into MOX fuel; a small amount of recovered uranium is recycled. ¶ A key, nearly unique, characteristic of nuclear energy is that used fuel may be reprocessed to recover fissile and fertile materials in order to provide fresh fuel for existing and future nuclear power plants. Several European countries, Russia and Japan have had a policy to reprocess used nuclear fuel, although government policies in many other countries have not yet addressed the various aspects of reprocessing.¶ Over the last 50 years the principal reason for reprocessing used fuel has been to recover unused uranium and plutonium in the used fuel elements and thereby close the fuel cycle, gaining some 25% more energy from the original uranium in the process and thus contributing to energy security. A secondary reason is to reduce the volume of material to be disposed of as high-level waste to about one fifth. In addition, the level of radioactivity in the waste from reprocessing is much smaller and after about 100 years falls much more rapidly than in used fuel itself.¶

#### Counter interpretation:

#### The aff has to affect both resource extraction and conversion into energy

Australian Government, Department of Climate Change and Energy Efficiency 2011 [“Energy Production and Consumption,” http://www.climatechange.gov.au/government/initiatives/national-greenhouse-energy-reporting/publications/supplementary-guidelines/energy-production-consumption.aspx]

Production of energy: in relation to a facility, means the:

1. extraction or capture of energy from natural sources for final consumption by or from the operation of the facility or for use other than in the operation of the facility
2. manufacture of energy by the conversion of energy from one form to another form for final consumption by or from the operation of the facility, or for use other than in the operation of the facility (regulation 2.23(3) NGER Regulations).

#### We meet the counter-interpretation: recycling involves both the act of reprocessing the used fuel and using it to create new nuclear energy.

#### Our interp good:

A. Predictability – Only our interpretation guarantees link arguments to both extraction and the burning of resources to produce energy. This is crucial link ground for pollution DAs and domestic/foreign energy tradeoff DAs.

B. Limits: Requiring the aff to both extract and convert the energy is necessary to eliminate affs that only extract, like capture carbon or methane or stockpile oil as a strategic military reserve with heg advantages. Also key to prevent affs that only burn fuels like Bataille-style affs that encourage rapid consumption or R&D affs that incentivize new ways to burn the same resources.

#### Not effects T – increase energy.

#### Their interp bad:

#### They get rid of all uranium extraction affs because extraction from waste is identical to extraction from the ground. This means they get rid of oil and natural gas extraction affs which is literally half the topic.

#### Competing interpretations are bad: Race to the bottom: they’re just trying to limit out one more case

#### Prefer reasonability: as long as we’re reasonably topical, there’s no reason to pull the trigger. Don’t vote on potential abuse.

### Case

#### Plan creates resiliency and motivation to maintain relations

Einhorn et al ‘8

(Robert, Rose Gottemoeller, Fred McGoldrick, Daniel Poneman, Jon Wolfsthal, “The U.S.-Russia Civil Nuclear Agreement A Framework for Cooperation”, Center for Strategic and International Studies, May 2008, http://csis.org/files/media/csis/pubs/080522-einhorn-u.s.-russia-web.pdf)

Russian officials and industry representatives also expect, rightly or wrongly, that a 123 Agreement may improve U.S.-Russia bilateral relations generally. Although that relationship has become strained in recent years on a variety of fronts, groups within Russia—including the nuclear industry—are eager to maintain and expand cooperative ties in areas where interests converge, including the future expansion of nuclear energy. As leaders in nuclear energy technology with a strong incentive to prevent the further spread of nuclear weapons, Russia and the United States have a common stake in expanding the use of nuclear power in a way that minimizes the risk of proliferation. With the current U.S. administration looking to revive the U.S. nuclear industry and explore approaches to the fuel cycle similar to those long advanced in Russia, the outlook on civil nuclear energy in both countries has never been closer. Cooperation in this area can provide policymakers on both sides an incentive to maintain positive relations, especially in trying times. Also, beyond the technical benefits of a 123 Agreement, there is a sense in Russian technical and political circles than the implementation of a 123 Agreement would be a useful step in putting the U.S.-Russia security relationship on a more stable footing. Many in Russia have complained that past security and technical assistance has had too much of a donor (U.S.)–recipient (Russia) quality, which has hampered cooperation in some areas. Changing this dynamic could lead to Russia taking greater responsibility for internal nuclear security efforts, including possibly expanding existing efforts to additional civil facilities and into new areas of work related to counterterrorism.

#### MOX specifically key to the relationship.

Wolfe ’12 – executive director of Citizens for Nuclear Technology Awareness,

(Clint, formerly chaired the Technical Advisory Panel to the Department of Energy's Plutonium Focus Area, guest article in the Greenville News, 8-10-2012, http://www.c-n-t-a.com/letters.htm#GN1208)

I would like to first consider his reference to cost vs. the alternative. The decision to make MOX fuel out of weapons-grade plutonium was reached after considering numerous disposition paths. Each of the alternatives had financial, technical or political shortcomings. Discussions with the Russians over how to dispose of plutonium became necessary after agreements between our countries in 1993 that provided for the dismantling of U.S. and Russian nuclear weapons. Reciprocity was a given as a matter of trust, and the Russians would not consider treating highly enriched uranium and plutonium as wastes. They maintained, and correctly so, that these materials were valuable sources of energy. As a consequence, blend-down of highly enriched uranium from former Soviet nuclear weapons that were aimed at us and our allies now provides 50 percent of our nuclear generated electricity in the United States today. This agreement already has netted a huge economic benefit to the United States and to any country with nuclear-generating capacity, as the cost of uranium for fuel has been moderated by this huge supply from the Russian and U.S. arsenals. The plutonium portion of the weapons agreements was slower in coming to fruition, but each country committed to an initial disposition of 34 metric tons with more possibly to follow. This represents about 50 percent of all the weapons-grade plutonium ever produced in the United States. Conversion of this material into mixed-oxide fuel will power a million homes for more than 50 years, and that energy is worth tens of billions of dollars. Choosing to delay or cancel the MOX project would require revisiting all the old alternatives, including surveillance, and all of them cost a lot of money. Add to that the potential for our treaty partners to take exception to our reneging, and we introduce the possibility of the *loss of credibility* in a crucial area of our foreign policy. The Russians were suspicious of proposed disposition paths that left the plutonium in a recoverable state.

### Rare Earth Metals DA

#### No China monopoly – lots of alternate supplies

Bell, Contributor on climate, energy, and space issues, 2012 [Larry, China's Rare Earth Metals Monopoly Needn't Put An Electronics Stranglehold On America, Forbes, April 15, http://www.forbes.com/sites/larrybell/2012/04/15/chinas-rare-earth-metals-monopoly-neednt-put-an-electronics-stranglehold-on-america/]

Is it time to end that Chinese monopoly control of materials important to our military and to high-tech manufacturing? Following years of unsuccessful efforts, the Obama administration now appears to realize the importance of doing so, announcing on March 13 that it intends to press the World Trade Organization to force China to discontinue levying restrictions on rare earth exports. While WTO rules technically permit export quotas on natural resources for environmental purposes (which China claims to be the case in regard to rare earths), trade lawyers argue that China’s caps on its export violates that spirit. They note that while Beijing has been cutting access to these vital materials by other countries through quotas, it has been slow to limit rigid production limits at home that might help to protect the natural environment.¶ Some other countries are also working to ensure access to rare earths. After China enacted a 2010 embargo on rare earth shipments to Japan for leverage in a territorial dispute, Japan now maintains a stockpile of seven rares and is talking about offering government loans that encourage companies to fund foreign investments private reserves. The Toyota and Sojitz Corporations have already entered into tie-ins with Vietnamese rare earth claim-holders. Toyota is also operating a small rare earths mine in India.¶ Elsewhere in the Far East, South Korea announced plans last year to stockpile 76,000 tons of rares over the next five years, about 10% of all global production. The country has allocated a huge $8 billion war chest for this purpose, an amazing sum considering that its economy is one-fifteenth the size of ours.¶ In Europe, Sweden has declared a Norra Harr heavy rare earth project owned by Tasman Metals, Ltd. to be in its “national interest” under the Swedish Environment Act; and German Chancellor Angela Merkel recently inked an agreement to obtain rare earths from Mongolia.¶ American companies are on their own in the rare earth race, and some of them, along with taxpayers, may reasonably prefer to keep it that way… so long as government will get out of their way. A 2010 U.S. Geological Survey Report estimates that known reserves of rare oxides are about 1.5 million tons, and total domestic resources might be 13 million tons. At peak 10,200 2007 U.S. consumption levels, supplies from known reserves would last nearly 150 years, and possibly more than one thousand years if other resources are explored and exploited. In addition, other friendly, stable countries like Australia and Canada have substantial rare earth deposits as well. The Australian mining company Lynas Corporation aims to annually produce 11,000 tons of rare earth oxides from its new Mount Weld mine.

#### Nuclear renaissance now. Northey says that nuclear power is receiving subsidies in the US in the SQUO. This means that the SQUO triggers the link way more than the plan does due to greater plant construction.

#### **Global nuclear expansion now.** Over 200 reactors are going to be constructed in the next five years. That’s 1AC Marketwire.

#### Increased rare earth metal demand is key to the Chinese economy.

China Daily, ‘12

[“Policies of China's rare earth industry”, 6-21-12,

<http://www.chinadaily.com.cn/cndy/2012-06/21/content_15515969.htm>, RSR]

The market environment is gradually improving as China is constantly expediting reform in the rare earth industry, promoting the development of a market system featuring diversified investment, independent decision-making by businesses and pricing according to supply and demand. In recent years, investment in China's rare earth industry has experienced rapid growth, the market has been constantly expanded, state-owned, privately owned and foreign-invested sectors coexist, and the value of the rare earth metal market is approaching 100 billion yuan. The market order in this sector is gradually improving, and progressive development is being made in the merger and reorganization of businesses. The old picture of a "small, scattered, and disorderly" rare earth industry has vanished. Scientific and technological level has improved further. After many years of development, China has established a relatively complete R&D system, pioneered numerous technologies of international advanced levels in rare earth mining and dressing, smelting, separating, etc., and its unique mining and dressing processes and advanced separating techniques have laid a solid foundation for efficient exploitation and utilization of rare earth resources. The rare earth new materials industry has experienced steady development, and industrialization has been achieved in using rare earths to produce permanent-magnet, luminescent, hydrogen-storage, and catalytic materials, and other new materials, providing support for the restructuring and upgrading of traditional industries, and the development of emerging industries of strategic importance. The rapid development of China's rare earth industry has not only satisfied domestic demand for economic and social development, but also made important contributions to the world's rare earth supply. For many years, China has been faithfully fulfilling its pledges upon its accession to the WTO, honoring the WTO rules, and promoting fair trade in rare earths. Currently, China supplies over 90 percent of the global market rare earth needs with 23 percent of the world's total reserves, its output of permanent-magnet, luminescent, hydrogen-storage and polishing materials, which use rare earths as raw materials, accounts for more than 70 percent of the world's total, and China-produced rare earth materials, parts and components, as well as rare earth end products, such as energy-saving lamps, special and small electric motors and NiMH batteries, satisfied the development needs of high-tech industries of other countries, especially those of the developed countries.

#### Chinese economic collapse leads to nuclear war.

Yee, Associate Professor of Government @ Hong Kong Baptist University, and Storey, Asian-Pacific Center for Security Studies, ‘2

[Herbert and Ian, China Threat: Perception, Myths, and Reality, p. 5]

The fourth factor contributing to the perception of a china threat is the fear of political and economic collapse in the PRC, resulting in territorial fragmentation, civil war and waves of refugees pouring into neighbouring countries. Naturally, any or all of these scenarios would have a profoundly negative impact on regional stability. Today the Chinese leadership faces a raft of internal problems, including the increasing political demands of its citizens, a growing population, a shortage of natural resources and a deterioration in the natural environment caused by rapid industrialisation and pollution. These problems are putting a strain on the central government’s ability to govern effectively. Political disintegration or a Chinese civil war might result in millions of Chinese refugees seeking asylum in neighbounng countries. Such an unprecedented exodus of refugees from a collapsed PRC would no doubt put a severe strain on the limited resources of China’s neighbours. A fragmented china could also result in another nightmare scenario — nuclear weapons falling into the hands of irresponsible local provincial leaders or warlords.12 From this perspective, a disintegrating China would also pose a threat to its neighbours and the world.

#### New recycling processes solve rare earth demand

Farrell 3-15 [Ian, Recycling rare earth elements using ionic liquids, Chemistry World, http://www.rsc.org/chemistryworld/2013/03/recycling-rare-earth-neodymium-and-samarium-ionic-liquids]

Recycling old magnets, so that rare-earth metals can be re-used, could help to solve an urgent raw material supply problem in the electronics industry. Researchers from the University of Leuven, Belgium, have used ionic liquids to separate neodymium and samarium from transition metals like iron, manganese and cobalt – all elements that are used in the construction of permanent rare-earth magnets, which are found in electronic devices ranging from hard drives to air conditioners and wind turbines.¶ ‘The process involves the liquid-liquid extraction of rare-earth metals from the other elements present in neodymium-iron-boron and samarium-cobalt magnets,’ explains Koen Binnemans who leads the group developing the process. ‘These other elements – including iron, cobalt, manganese, copper and zinc – are extracted into the ionic-liquid phase, while the rare-earth metals are left behind in the aqueous phase,’ he says, adding that the ionic liquid itself – trihexyl(tetradecyl)phosphonium chloride – can also be re-used, after the transition metals have been stripped out.¶ In traditional liquid-liquid extractions of metal ions, an aqueous phase containing the metal salt is mixed with an organic phase containing an extraction agent. Simple though they are, these processes use organic phases comprising flammable and volatile solvents, like toluene, kerosene or diethyl ether. Ionic liquids are far more environmentally friendly, having very low vapour pressure and non-flammability.¶ The usefulness of neodymium and samarium in the microelectronics industry is outweighed only by their lack of availability. In a register put together by the US government these were the only two elements to feature in the highest supply risk category, and the European Commission has placed them on a list of critical raw materials. Currently, the vast majority of world’s rare-earth elements come from China, and this degree of dependence gives many foreign governments an uneasy feeling, especially when the materials are so crucial to high-tech defence projects.¶ ‘Recycling is only a partial solution to the supply-risk problem; it cannot replace primary mining, though it can complement it,’ remarks Binnemans, adding that although less than 1% of rare-earth elements are recycled currently, 20% of global demand could be met in this way. ‘By combining mining and recycling the western world could become largely independent of China in the future,’ he says.

#### No REM shortage and no impact to shortage – committee on technological innovation solves

DOE 1-16-13

[EERE News, Energy Innovation Hub Tackles Shortages of Rare Earth Metals]

The Energy Department on January 9 selected Ames Laboratory for an award of $120 million over five years to establish an Energy Innovation Hub, which will seek solutions to shortages of rare earth metals and other materials impacting U.S. energy security. The new Critical Materials Institute (CMI) in Ames, Iowa, will assemble researchers from the Department's Idaho National Laboratory, Lawrence Livermore National Laboratory, and Oak Ridge National Laboratory, as well as academia and the private sector. The new Hub will focus on technologies that will enable the United States to make better use of accessible materials and to eliminate the need for materials that are subject to supply disruptions. Many materials deemed critical by the Department are used in wind turbines, solar panels, electric vehicles, and energy-efficient lighting. The Department's 2011 Critical Materials Strategy reported that supply challenges for five rare earth metals (dysprosium, terbium, europium, neodymium, and yttrium) may affect clean energy technology deployment in the coming years. In recent years, the Energy Department and others have scaled up work to address these challenges. Among the recent investments, the Department's Advanced Research Projects Agency-Energy and Office of Energy Efficiency and Renewable Energy have supported more than $40 million in magnet, motor, and generator research. CMI will leverage these existing research programs into a larger, coordinated effort. The Hub will address challenges across the entire life cycle of these materials. Cross-cutting research, including developing computational tools and supply-chain and economic analyses, will also be necessary to support the basic science needs across all challenge areas. Selected through an open national competition with a rigorous merit review process that relied on outside expert reviewers, CMI is the fifth Energy Innovation Hub established by the Energy Department since 2010. See the Energy Department press release.

#### Alt causes – electronics + alternative energy trades off.

Cho, Staff Writer, 9-20

[Renee, “Rare earth metals: Will we have enough?”, 9-20-12, Phys.org, RSR]

According to a recent Congressional Research Service report, world demand for rare earth metals is estimated to be 136,000 tons per year, and projected to rise to at least 185,000 tons annually by 2015. With continued global growth of the middle class, especially in China, India and Africa, demand will continue to grow. High-tech products and renewable energy technology cannot function without rare earth metals. Neodymium, terbium and dysprosium are essential ingredients in the magnets of wind turbines and computer hard drives; a number of rare earth metals are used in nickel-metal-hydride rechargeable batteries that power electric vehicles and many other products; yttrium is necessary for color TVs, fuel cells and fluorescent lamps; europium is a component of compact fluorescent bulbs and TV and iPhone screens; cerium and lanthanum are used in catalytic converters; platinum group metals are needed as catalysts in fuel cell technology; and other rare earth metals are essential for solar cells, cell phones, computer chips, medical imaging, jet engines, defense technology, and much more.

#### No China war – consensus of experts.

Fettweis, Professor Political Science at Tulane, ‘10

[Christopher, “Dangerous Times?: The International Politics of Great Power Peace”, Washington, DC, USA: Georgetown University Press, p 128,

<http://site.ebrary.com/lib/asulib/Doc?id=10439493&ppg=128>, RSR]

The diminution of military influence on policymaking is indicative of a broader generational change that seems to be occurring inside Beijing. A number of China experts have begun to argue that the current leadership of the PRC has little in common with the founding members of the communist party, and are far less dogmatic in their approach to both economics and politics. 34 While it is surely a bit premature to suggest that there is a Chinese Gorbachev ready to bring political freedom to his people, at the very least Beijing has altered the way it treats its neighbors. China’s muchdiscussed “charm offensive” has won it many friends in East Asia, and it has helped solidify many of the complex economic ties that cement stability across the region and avoid the regional tensions that realists have expected to see in response to its rapid economic growth. 35 Beijing has been reluctant to use its military superiority to threaten or bully its neighbors into cooperation. Perhaps it is on its way to internalizing the norm of peaceful conflict resolution and will soon no longer contemplate the use of force to achieve its goals; for now, perhaps, the determination to be a good neighbor is the best step for which anyone can hope.

### Natural Gas DA

#### Plan solves the terminal impact.

#### Natural gas prices will stay low and plenty of shale now

Philips ‘13 (Matthew, Bloomberg Businessweek, “Why Natural Gas Will Stay Cheap in 2013,” 2013, http://www.businessweek.com/articles/2013-01-10/why-natural-gas-will-stay-cheap-in-2013)

Six weeks ago, natural gas bulls were riding high. By Thanksgiving, prices had more than doubled since hitting a decade low of $1.90 per million BTUs in April. Heading into what was supposed to be a cold winter for the U.S.—at least compared with last year—the consensus view was that natural gas prices would be higher in 2013, since about half of all U.S. households heat their homes with natural gas. By the end of December, the median forecast of 22 analysts surveyed by Bloomberg was that natural gas would average $3.75 for 2013. A few weeks of warm weather later, and a lot of those forecasts look way too optimistic. Prices have fallen more than 20 percent since peaking at $3.90 per million BTUs in late November. With the National Weather Service predicting above-normal temperatures over the next 10 days for the eastern third of the U.S., that downward pressure is likely to continue. “We’re going to see a lot of guys coming in and changing their forecasts,” says Laurent Key, an energy analyst at Societe Generale (SCGLY) in New York. Key expects prices to bottom out around an average of $3.16 in the second quarter before climbing. “If we end up repeating 2012, those expectations need to come down by about a buck,” says Scott Hanold, an energy analyst at RBC Capital Markets (RY) in Minneapolis. Goldman Sachs (GS) just lowered its 2013 price target by 50 cents, from $4.25 per million BTUs, to $3.75, still above the current price of $3.12. Natural gas is notoriously volatile, so prices could surge if the weather turns cold and people crank up their heat, but it’s hard to see that demand making up for what’s already been lost. Even if there is a February freeze across the country, that cold snap probably wouldn’t be sufficient to compensate for a mild December, Goldman analyst Johan Spetz wrote in a Jan. 7 research note. Bloomberg News reported Wednesday that Mike Fitzpatrick, editor of the Energy OverView newsletter, thinks natural gas prices could drop as low as $2.20 if the weather stays mild. The more likely scenario seems to be something akin to what happened last year, when prices fell through the spring and didn’t rise appreciably until people started turning on their air conditioners in May. Part of what helped lift natural gas prices off their lows last April was increased demand from utilities switching from coal to natural gas to generate electricity. But that effect might be more muted in 2013. After getting crushed by cheap natural gas over the last few years, coal appears set to recapture some of that market share in 2013. “Coal has become more competitive against natural gas,” says Lucas Pipes, an analyst at Brean Murray, Carret & Co. Coal prices have gotten so cheap that if natural gas rises to just $3.40 this year, Pipes estimates that would cause 50 million tons of coal demand to come on the market as utilities fire up their coal plants. The Department of Energy is forecasting that coal will account for 39 percent of all electricity generated in 2013, up from 37.6 percent last year. Meanwhile, natural gas’s continued run of increasing its share of the electricity market may be over. The DOE predicts that natural gas will lose ground this year and next, falling from 30.3 percent of all electricity generated in 2012, to 27.9 percent in 2013, and 27.5 percent in 2014. On top of that, natural gas production is set to rise by 0.5 percent this year, according to the DOE. After spending the previous 15 months reducing the number of rigs drilling for natural gas, U.S. producers finally started adding to that total in November, spurred perhaps by the prospect of sustained $4 prices. While production has slowed in some places, the Marcellus Shale in western Pennsylvania is still attracting new investment. “Marcellus is an animal. There are still 1,000 wells that haven’t been put online yet,” says Hanold. “That’s going to push production even higher.” Marcellus is also more immune to lower prices. The geology is so good, and the royalty rates so low, that producers can drill profitably even at $2 natural gas prices, he says. In the end, the fundamental issue that’s kept natural gas prices so low for the last few years—too much supply, inadequate demand—appears here to stay for the foreseeable future**.** ”Natural gas prices will be dead for at least two more years,” says Fadel Gheit, a senior oil and gas analyst at Oppenheimer (OPY). By dead he means well below $4. “The industry shot itself in the foot by overdrilling,” he says. “Now anybody and their brother can get gas out of the ground and into the system.”

#### Their card says that SQUO triggers exports anyway even at high costs.

#### US wouldn’t export gas:

#### a.) No export facilities

Levi, senior fellow at CFR, 2012,

[June, Michal, David M. Rubenstein Senior Fellow for Energy and the Environment. Director of the Program on Energy Security and Climate Change Council on Foreign Relations. Michael is a member of the Strategic Advisory Board for NewWorld Capital LLC, a private equity firm focused on environmental opportunities, and a member of the External Advisory Board to the Princeton University Carbon Mitigation Initiative (CMI). He holds a Bachelors of Science in mathematical physics from Queen’s University, an MA in physics from Princeton University and a Ph.D. in war studies from the

University of London. “A Strategy for U.S. Natural Gas Exports,” <http://www.hamiltonproject.org/files/downloads_and_links/06_exports_levi.pdf>]

There is a real possibility that prices in the United States, ¶ Europe, and Asia will continue to diverge, creating ¶ opportunities for U.S. LNG exports. Yet exporting ¶ natural gas overseas is not a straightforward endeavor. Gas must ¶ be liquefied before it can be transported in specially built ships ¶ and then regasified at its destination. Building liquefaction ¶ facilities in particular can cost as much as $4 billion for each ¶ billion cubic feet of daily export capacity—several times the ¶ cost of building an import terminal of similar scale (Ratner ¶ et al. 2011). Investment on this scale can be risky: if natural ¶ gas price spreads collapse, multibillion-dollar investments can ¶ quickly become worthless. Adding to the dangers involved in ¶ building any terminal is regulatory risk associated with safety ¶ and security concerns.

#### **b.)** distant market prices undercut profits

Levi, senior fellow at CFR, 2012,

[June, Michal, David M. Rubenstein Senior Fellow for Energy and the Environment. Director of the Program on Energy Security and Climate Change Council on Foreign Relations. Michael is a member of the Strategic Advisory Board for NewWorld Capital LLC, a private equity firm focused on environmental opportunities, and a member of the External Advisory Board to the Princeton University Carbon Mitigation Initiative (CMI). He holds a Bachelors of Science in mathematical physics from Queen’s University, an MA in physics from Princeton University and a Ph.D. in war studies from the

University of London. “A Strategy for U.S. Natural Gas Exports,” <http://www.hamiltonproject.org/files/downloads_and_links/06_exports_levi.pdf>]

It is far from clear that all or even most of this export volume ¶ would be used even if it were approved. A recent MIT study ¶ looked at nine scenarios for U.S. and world natural gas markets; ¶ none of them led to the emergence of significant U.S. natural ¶ gas exports, in large part because other lower cost producers ¶ undercut prices offered by the United States in distant markets ¶ (MIT 2011). Other forces, discussed in Chapter 2, could also ¶ lead global natural gas prices to converge even without U.S. ¶ exports, removing opportunities for economically attractive ¶ U.S. LNG sales.

#### Renewables now mean tradeoff inevitable

Mitchell 2/13 (Travis, associate editor for all FierceEnergy and FierceFinance publications and is based in the Washington, DC office. Before joining FierceMarkets, Travis worked as an editorial/communication intern at the Rural Community Assistance Partnership, a national non-profit focusing on clean water and has also worked on the multimedia desk for the Washington bureau of Agence France-Presse. Travis holds a B.A. in journalism from American University in Washington, DC, where he also spent four years as a student DJ for WVAU. He is fluent in French, a music lover and enjoys eating his way around the District, Facts show renewable energy success, http://www.fierceenergy.com/story/facts-show-renewable-energy-success/2013-02-19, MDA)

**There are** plenty of **misconceptions about the costs and benefits of renewable energy.** But while opinions vary as to the effectiveness of generation sources such as wind and solar, facts are indisputable. And the **facts show that renewable power is increasingly economical and poised for explosive growth in the United States.**¶ **While the U.S. actually saw substantial decline in the renewable energy investment dollars from 2011-2012 (from $300 billion down to $270 billion), that's** a **misleading** figure. **The drop can be attributed**, in part, **to falling costs of renewable energy materials, and increased energy use.** In fact, **2012 was a record year for U.S. installed renewable capacity** at 17.4 GW.¶ **"Solar had a very strong year, but really wind was the big winner overall in terms of capacity**," said Ethan Zindler, head of policy analysis at Bloomberg New Energy Finance. ¶ Zindler was part of a gathering of energy analysts at a recent American Council on Renewable Energy (ACORE) policy forum, which highlighted industry advancements and acted as a brainstorming session for the future of renewable energy policy. While not optimistic about how renewable energy would fare over the next couple years, Zindler noted that these technologies -- **wind**, in particular -- **are approaching cost parity with coal generation.**¶ Renewables enjoy falling costs¶ **A Bloomberg New Energy Finance analysis shows a** 20-**30 percent drop in the levelized costs (without subsidies) of photovoltaic tech**nology over the past 12 months, and the price of wind generation continues to be down.¶ "The short answer is that, in a number of cases, **these technologies really are now very much getting close to being competitive with their fossil rivals**," Zindler said.¶ Making costs more reasonable is a product of increased investment and research, and much of it was spurred from the American Recovery and Reinvestment Act of 2009, a policy move that pumped substantial cash into renewable energy. **The ultimate goal is to see the cost of solar, wind and geothermal systems continue to fall. This is becoming increasingly necessary as natural gas prices remain at historic lows.**¶ **Renewables will go toe-to-toe with natural gas in the coming years, as state Renewable Portfolio Standards and U.S. E**nvironmental **P**rotection **A**gency regulations **make it tougher to build new coal generation and more cumbersome to keep old units operating.**¶ Importance of continued policy support¶ Just as policy can encourage development, its absence can stunt it. Renewables spending slowed recently over fear of revoked renewable production tax credits and subsidies.¶ In time, **the renewables industry will certainly thrive on its own.** But for now, policy is critical to supporting renewable energy growth.¶ Not only will policy offer much needed financial support, but it is also part of the country's heritage, according to Nancy Pfund, managing partner at venture capital firm DBL Investors.¶ "Even from the early days of land grants and coal railroad development, **the government has played a critical role in supporting the emergence of new technologies in the energy field and transitioning us from one to the other**," Pfund said, speaking at the ACORE forum.¶ Few of those presenting at the forum projected wide-sweeping energy legislation to hit any time soon. But absent a comprehensive energy reform bill, there are likely to be incremental changes to help erect a stronger energy roadmap, including focusing on continuing support for funding that could further drive down the cost of renewables.¶ Perhaps Congress should also heed research that demonstrates a growing number Americans want and support renewable energy.¶ "All the polls, all the studies show that American's love solar energy and they want the government to pursue policies that support it," Pfund said. She predicted that over the next few years, the renewable energy discussion will shift from policy professionals to the broader consumer marketplace.¶ This consumer support also creates an opportunity for utilities to work with lawmakers in driving renewable energy policy and growth, she said.¶ All in all, **the facts seem to be piling up on the side of renewable energy.** Policy reform has been shown to work, and has driven costs down. Likewise, a lack of firm policy has slowed advancement, again a testament to it's potential effectiveness. **The next few years will be critical and challenging for renewble energy, but as long as installed capacity continues to grow, and the facts demonstrate improvement, it will be tough to make the argument against these generation sources and the policies that support them.**

#### **Global nuclear expansion now.** Over 200 reactors are going to be constructed in the next five years. That’s 1AC Marketwire.

#### Nuclear renaissance now. Pistilli says nuclear is already receiving subsidies and building plants.

#### Nat gas and nuclear don’t compete—utilities will always rely on nuclear as a hedge

Lamonica ‘12

(Martin, “A Glut of Natural Gas Leaves Nuclear Power Stalled”, Technology Review by MIT, 8-9-2012, http://www.technologyreview.com/news/428737/a-glut-of-natural-gas-leaves-nuclear-power/)

Even in United States, of course, super cheap natural gas will not last forever. With supply exceeding demand, some drillers are said to be losing money on natural gas, which could push prices back up. Prices will also be pushed upward by utilities, as they come to rely on more natural gas for power generation, says James. Ali Azad, the chief business development officer at energy company Babcock & Wilcox, thinks the answer is making nuclear power smaller, cheaper, and faster. His is one of a handful of companies developing small modular reactors that can be built in three years, rather than 10 or more, for a fraction of the cost of gigawatt-size reactors. Although this technology is not yet commercially proven, the company has a customer in the Tennessee Valley Authority, which expects to have its first unit online in 2021 (see "A Preassembled Nuclear Reactor"). "When we arrive, we will have a level cost of energy on the grid, which competes favorably with a brand-new combined-cycle natural gas plants when gas prices are between $6 to $8," said Azad. He sees strong demand in power-hungry China and places such as Saudia Arabia, where power is needed for desalination. Even if natural gas remains cheaper, utilities don't want to find themselves with an overreliance on gas, which has been volatile on price in the past, so nuclear power will still contribute to the energy mix. "[Utilities] still continue [with nuclear] but with a lower level of enthusiasm—it's a hedging strategy," says Hans-Holger Rogner from the Planning and Economics Studies section of the International Atomic Energy Agency. "They don't want to pull all their eggs in one basket because of the new kid on the block called shale gas."

### Tritium CP

#### Permutation do both.

#### Can’t solve Russia relations doesn’t do reprocessing.

#### Need reprocessing to separate out the tritium specifically. That’s 1AC IEER evidence.

#### Uranium shortages now take out the CP.

Humphreys, ’12 (Tommy, 9-12-2012, editor of Business Insider, CEO of CEO.ca, “The US Is More Dependent On Foreign Uranium Than Foreign Oil”, Business Insider,

<http://www.businessinsider.com/the-us-is-more-dependent-on-foreign-uranium-than-foreign-oil-2012-9>)

Recently we sat down with Amir Adnani, CEO of Uranium Energy Corp. ($UEC), an American uranium mining company, for a conversation on the nuclear industry eighteen months after the catastrophe at Fukushima which devastated both Japan and most uranium miners’ share prices. One of the most critical issues we discussed in our interview was the severity of the US uranium supply and demand deficit. According to Adnani, “The US is consuming 55 million pounds of uranium per annum…to generate 20% of US electricity…[but] domestic production of uranium is only 4 million pounds per year…The US is more dependent on foreign uranium than it is on foreign oil.”Adnani says the supply deficit is global: “The world consumes…more uranium than the mining industry produces. In terms of real numbers, there’s global demand of about 180 million pounds per year, and supply from mining activity is roughly 140 million pounds per year–so you have a 40 million pound per year supply deficit, just to meet current reactor requirements.” How is that 40 million pound annual gap filled? The answer is retired Russian warheads. “Since the cold war ended,” Adnani continues, “we’ve relied heavily on military inventories of uranium–basically dismantling retired Russian nuclear warheads to feed this supply imbalance. This has taken place under a treaty called, “The Highly Enriched Uranium Treaty”, or the “HEU Treaty”, which is set to expire next year, in 2013. [Additionally], the Russian government has come out repeatedly, saying that after this agreement [expires] there’s no interest on their part to continue utilizing this source of supply…That’s a very important catalyst for recognizing why higher uranium prices are needed–in order to stimulate interest in new mine construction…to fill this secondary supply source.” When looking at future demand Adnani concludes: “There are roughly 430 nuclear reactors operating worldwide…over 60 [new reactors] in construction…and hundreds more planned between now and 2020-2030…What’s happening right now in the world in terms of new nuclear builds is unprecedented.”

#### Plan solves warming.

Chakravorty et al. 12 (Ujjayant (Professor and Canada Research Chair, Alberta School of Business and Department of Economics); Bertrand Magne (OECD Environment Directorate, Paris, France); Michel Moreaux (Emeritus Professor and IDEI Researcher, Toulouse School of Economics, University of Toulouse), “RESOURCE USE UNDER CLIMATE STABILIZATION: CAN NUCLEAR POWER PROVIDE CLEAN ENERGY?”, Journal of Public Economic Theory, Vol. 14, Issue 2, 2012, RSR)

This paper applies a model with price-induced substitution across resources to examine the role of nuclear power in achieving a climate stabilization target, such as that advocated by the Intergovernmental Panel on Climate Change (IPCC). It asks an important policy question: is nuclear power a viable carbon-free energy source for the future? If so, then at what cost? The main insight is that nuclear power can help us switch quickly to carbon free energy, and if historical growth rates of nuclear capacity are preserved, the costs of reaching climate stabilization goals decline signiﬁcantly and may therefore be at the lower end of cost estimates that are reported by many studies. However, it is also clear from our results that nuclear is economical anyway, even without environmental regulation. Regulation only plays a major part when fast breeders are available and that too, in the somewhat distant future, towards the end of the century. To some extent, recent increases in efﬁciency in U.S. nuclear power attest to its economic advantages, even in a market with no environmental regulation (Davis and Wolfram 2011). The climate goal of 550 ppm of carbon can be achieved at a surplus cost of about 800 billion dollars, or about 1.3% of current world GDP, if no nuclear expansion is undertaken. Achieving this goal using nuclear power will result in a tripling of the share of world nuclear electricity generation by mid century with welfare gains of about half a trillion dollars (in discounted terms). The cost of providing energy will decrease by about $1.3 trillion or 2% of current world GDP, compared to the case in which the level of nuclear generation is frozen. These estimates of cost savings from nuclear power are signiﬁcant, and unlike in previous studies, are derived from an economic model with an explicit nuclear fuel cycle. However, nuclear power can be cost-effective for about 50 years or so, beyond which period, other technologies are likely to take over, including renewables, clean coal and next generation nuclear technologies that are much more efﬁcient in recycling waste materials. Ultimately, large-scale adoption of nuclear power will be hindered by the rising cost of uranium and the problem of waste disposal. Only signiﬁcant new developments such as the availability of new generation nuclear technology that is able to recycle nuclear waste may lead to a steady state where nuclear energy plays an important role. 31

#### Warming leads to extinction.

Sify ‘10 (Sify, Sydney newspaper citing Ove Hoegh-Guldberg, professor at University of Queensland and Director of the Global Change Institute, and John Bruno, associate professor of Marine Science at UNC (Sify News, “Could unbridled climate changes lead to human extinction?”, <http://www.sify.com/news/could-unbridled-climate-changes-lead-to-human-extinction-news-international-kgtrOhdaahc.html>)

The findings of the comprehensive report: 'The impact of climate change on the world's marine ecosystems' emerged from a synthesis of recent research on the world's oceans, carried out by two of the world's leading marine scientists. One of the authors of the report is Ove Hoegh-Guldberg, professor at The University of Queensland and the director of its Global Change Institute (GCI). 'We may see sudden, unexpected changes that have serious ramifications for the overall well-being of humans, including the capacity of the planet to support people. This is further evidence that we are well on the way to the next great extinction event,' says Hoegh-Guldberg. 'The findings have enormous implications for mankind, particularly if the trend continues. The earth's ocean, which produces half of the oxygen we breathe and absorbs 30 per cent of human-generated carbon dioxide, is equivalent to its heart and lungs. This study shows worrying signs of ill-health. It's as if the earth has been smoking two packs of cigarettes a day!,' he added. 'We are entering a period in which the ocean services upon which humanity depends are undergoing massive change and in some cases beginning to fail', he added. The 'fundamental and comprehensive' changes to marine life identified in the report include rapidly warming and acidifying oceans, changes in water circulation and expansion of dead zones within the ocean depths. These are driving major changes in marine ecosystems: less abundant coral reefs, sea grasses and mangroves (important fish nurseries); fewer, smaller fish; a breakdown in food chains; changes in the distribution of marine life; and more frequent diseases and pests among marine organisms. Study co-author John F Bruno, associate professor in marine science at The University of North Carolina, says greenhouse gas emissions are modifying many physical and geochemical aspects of the planet's oceans, in ways 'unprecedented in nearly a million years'. 'This is causing fundamental and comprehensive changes to the way marine ecosystems function,' Bruno warned, according to a GCI release. These findings were published in Science.

### Politics

#### No recession now – Best indicators prove risk of recession is 0.20%

Perry 13 [Mark, Chart of the day: US recession probability is down to 0.20%, AEIdeas, The public policy blog of the American Enterprise Institute, http://www.aei-ideas.org/2013/02/chart-of-the-day-us-recession-probability-is-down-to-0-20/]

The chart above shows University of Oregon economics professor Jeremy Piger’s “Recession Probability Index” from January 1990 to November 2012, based on the 4 monthly variables used by the NBER to determine U.S. recessions: 1) non-farm payroll employment, 2) the index of industrial production, 3) real personal income excluding transfer payments, and 4) real manufacturing and trade sales.¶ According to Professor Piger, “Historically, three consecutive months of recession probabilities exceeding 0.8 (see graph) has been a good indicator that an expansion phase has ended and a new recession phase has begun, while three consecutive months of recession probabilities below 0.2 has been a good indicator that a recession phase has ended and a new expansion phase has begun.”¶ Based on an update yesterday, the Recession Probability Index has been trending downward for the last three months and fell to 0.20% in November, the lowest level since June and July when the probability was also 0.20%. Based on this historically accurate measure of the probability of a US recession, the US economy is not even close to being in the early stages of an economic contraction.

#### Case OW. <Insert analysis here>

#### Obama’s pushing nuclear now – should have already triggered the link.

#### Obama’s PC is low, PC’s not key, and winners win.

The Hill 3-20 (Amie Parnes and Justin Sink, Obama honeymoon may be over, The Hill, 20 March 2013, http://thehill.com/homenews/administration/289179-obama-honeymoon-may-be-over, da 3-28-13)

The second-term honeymoon for President Obama is beginning to look like it is over.¶ Obama, who was riding high after his reelection win in November, has seen his poll numbers take a precipitous fall in recent weeks. ¶ A CNN poll released Tuesday showed Obama’s favorability rating underwater, with 47 percent approving and 50 percent disapproving of Obama’s handling of his job. ¶ Much of the president’s agenda is stuck, with climate change regulations delayed, immigration reform mired in committee negotiations and prospects for a grand bargain budget deal in limbo at best. ¶ On Tuesday, in a decision that underscored Obama’s depleting political capital, the White House watched as Senate Majority Leader Harry Reid (D-Nev.) announced only a watered-down version of Obama’s gun control proposals would be considered on the Senate floor. ¶ Republicans, sensing the sea change, are licking their chops. They point to the lack of movement on Obama’s signature issues, noting the contrast to the ambitious plans outlined in the early weeks of his second term.¶ “The president set very high goals for himself during his State of the Union, but the reality is very little of his agenda is actually moving,” Republican strategist Ron Bonjean said. “He allowed himself to get caught up in the legislative quicksand, [and] the cement is beginning to harden. “¶ History isn’t on Obama’s side. ¶ The last four presidents who won a second term all saw their poll numbers slide by mid-March with the exception of Bill Clinton, whose numbers improved in the four months following his reelection.¶ Clinton may have only been delaying the inevitable. His numbers dropped 5 points in April 1994. Even Ronald Reagan, buoyed by a dominant performance over Walter Mondale in the 1984 election, saw a double-digit erosion by this point in his second term.¶ Obama has yet to complete the first 100 days of his second term. But without a signature achievement since his reelection, he faces a crossroads that could define the remainder of his presidency. ¶ White House aides maintain that the 24-hour news cycle makes comparisons to previous presidents difficult.¶ “I think the nature of our politics now is different than Ronald Reagan’s honeymoon,” one senior administration official said. “The ebb and flow of politics doesn’t follow that model anymore.”¶ But observers say a drop in popularity is typical for second-termers.¶ “There may be some typical second-term honeymoon fade happening,” said Martin Sweet, an assistant visiting professor of political science at Northwestern University. “Honeymoon periods for incumbents are a bit more ephemeral.”¶ But like most other presidents, Sweet added, “Obama’s fate is tied to the economy.”¶ “Continuing economic progress would ultimately strengthen the president but if we are hit with a double-dip recession, then Obama’s numbers will crater,” he said.¶ The White House disputes any notion that Obama has lost any political capital in recent weeks.¶ “The president set out an ambitious agenda and he’s doing big things that are not easy, from immigration to gun control,” the senior administration official said. “Those are policies you can’t rack up easily, and no one here is naive about that.”¶ The White House is aware that the clock is ticking to push its hefty agenda, but the official added, “The clock is not ticking because of president’s political capital. The clock is ticking because there’s a timetable in achieving all of this. [Lawmakers] are not going to sign on because the president’s popular.” ¶ And administration officials believe they still have the leverage.¶ ¶ “There’s a decent amount of momentum behind all of this,” the official said. “It looks like immigration is closer [to passage] than ever before.”¶ Republican strategist Ken Lundberg argued that current budget fights “have cut short the president’s second-term honeymoon.” ¶ He said this could also hurt the president’s party, warning “the lower the president’s approval rating, the bigger the consequence for vulnerable Democrats.”¶ “Voters want solutions, and if they see the president headed down the wrong path, lockstep lawmakers will be punished in 2014,” he said.¶ Democratic strategist Chris Kofinis maintained that as long as he’s president, Obama still has the leverage.¶ “Immigration reform doesn’t get impacted by whether Obama’s poll numbers are 55 or 45,” Kofinis said. “Does it make certain things a little more difficult? Possibly. But while his numbers may have fallen, he’s still more likeable than the Republicans are on their best day.”¶ Kofinis said the real question for Obama is what kind of emphasis he’s going to place on his second term because the public will have less patience than they did during his first.¶ “The challenge in a second term is the American people look at certain things and have a higher tolerance in a second term,” he said. “When they know you’re not running for reelection again, they hold you to a higher standard.” ¶ Bonjean and other Republicans are aware that Obama could potentially bounce back from his latest slip in the polls and regain his footing.¶ “He has the opportunity to take minor legislative victories and blow them up into major accomplishments – meaning if he got something on gun control, he can tout that that was part of his agenda and the work isn’t over. If he were able to strike a grand bargain with Republicans, that’d be a legacy issue.”¶ Still, Bonjean added, “It’s not looking so good right now.”

#### Normal means is that plan is introduced at the bottom of the docket – won’t be voted on until after Immigration.

#### Plan popular and Graham shields the link.

Russell ’13 (Pam Radtke, Budget Cutters Eye Nuclear Reprocessing Plant, Roll Call, 5 February 2013, http://www.rollcall.com/news/budget\_cutters\_eye\_nuclear\_reprocessing\_plant-222173-1.html?pg=1, da 2-14-13)

The scrutiny is raising concern among the project’s supporters, especially with across-the-board spending cuts set to kick in next month unless Congress acts to postpone them or enact an alternative austerity plan.¶ “We must stay the course and create a pathway to safely and responsibly dispose of weapons grade plutonium,” Rep. Joe Wilson, R-S.C., wrote in a letter he has been circulating among his colleagues that would urge the White House to preserve the project. “If we fail to uphold our end of this agreement, dire consequences could be felt by our close allies across the globe, as Russia may choose not to honor its end of the agreement.”¶ The MOX facility has survived earlier challenges. Former Rep. David L. Hobson, R-Ohio, said his efforts to kill funding for the project when he served as Energy and Water Appropriations Subcommittee chairman were thwarted by the political clout of South Carolina lawmakers — including fiscal conservatives such as Wilson, Sen. Lindsey Graham and former Sen. Jim DeMint.¶ Hobson described the project as a jobs program for South Carolina. In addition to the 2,600 employees now working on it, the completed facility will require permanent workers to operate it for up to two decades. The plant is part of the larger Savannah River Site in South Carolina, an Energy Department-managed site that employs 12,000.¶ Hobson said one of the biggest regrets of his tenure was agreeing to back off efforts to end the project when he was told they could hurt Republican Gov. Mark Sanford’s re-election chances in 2006.¶ “I got rolled,” Hobson said.¶ Laura Peterson of Taxpayers for Common Sense, which has called for an end to the project, said conservative Republicans who otherwise might be expected to complain about cost overruns are deterred by the support it enjoys from Graham. And Hobson said DeMint — a leading champion of small government and spending cuts who now heads The Heritage Foundation — never suggested killing the MOX program.¶ “This is worse than earmarks,” Hobson said. “This is appalling.”¶ Neither Graham’s nor DeMint’s staffs responded to requests to comment on the project, but Wilson and other supporters say it is vital to fulfilling the 2000 arms deal with Russia. Failing to move ahead with the program, Wilson warned, could lead the Russians not to honor its end of the agreement.

#### Logical policy maker can do both.

#### No reason Obama would push the plan – means it doesn’t affect his political capital.

#### CIR won’t pass – interests are too divided on guest-worker wages

Murray 3-22 (Sara, Fight Over Immigrant Wages Stalls Talks on Bill, Wall Street Journal, 22 March 2013, http://online.wsj.com/article/SB10001424127887324373204578376740176273104.html?mod=googlenews\_wsj, da 3-28-13)

Negotiations between business and labor appeared to reach a breaking point Friday evening, jeopardizing the Senate's effort to finish its plan to overhaul the nation's immigration system.¶ A disagreement over how to set the minimum wages for future low-skilled workers effectively stalled immigration negotiations Friday evening. A bipartisan group of senators working on immigration legislation are expected to continue discussing the issue over the two-week recess but it appears they will fall short of their goal to reach a consensus on how to rewrite immigration laws before they leave town.¶ Even if the senators are able to reach an agreement amongst themselves, they may have to push forward without business and labor's endorsements, threatening the future of any immigration plan once the group unveils it.¶ The AFL-CIO and Chamber of Commerce have broadly agreed to create a new visa category for low-wage workers, which would allow them to come to the U.S. and work year-round. The number of workers would rise and fall, based on the state of the U.S. economy, and would have an overall cap of 200,000 a year, people familiar with the talks said.¶ Wages for those workers have proven more difficult to negotiate. The Chamber said it would support the formula government agencies currently use to calculate wages for low-skilled workers who come to the U.S. under a temporary visa program. That would ensure that immigrants were paid similar wages to their American colleagues, according to the Chamber.¶ Under that formula, employers who use guest workers are required to pay them the highest of four different rates, which include the federal and state minimum wages, as well as wages calculated based on the industry and location.¶ Organized labor was pushing for an alternate calculation that would yield higher wages. On Friday the AFL-CIO said on Friday it attempted to offer a compromise with language that said,"visas will be issued only when the employment of foreign workers will not adversely affect the wages and working conditions of similarly situated workers in the United States." It was rejected by Republicans in the bipartisan Senate group, according to a labor official.¶ As talks broke down, the Chamber took aim at the unions.¶ "The unions have jeopardized the entire immigration reform effort," over the relatively small program for future workers, Randel K. Johnson, the Chamber's senior vice president for labor, immigration and employee benefits, said in a statement. "We however remain hopeful that we can resolve this problem and still ultimately pass sound legislation that can be signed into law by the president."¶ Senators have been aiming to release legislation in April, when they return from recess, and then hold hearings and markups on the bill. The goal has been to move it to the floor by May or June at the latest. But as the deadline has neared, complications have continued to pop up.

#### CIR won’t pass – not enough support among members of the House GOP

Foley 3-27 (Elise, John Yarmuth: Immigration Group In House 'Very Close' To Deal, Huffington Post, 27 March 2013, http://www.huffingtonpost.com/2013/03/27/john-yarmuth-immigration\_n\_2963491.html, da 3-28-13)

Yarmuth said one of the biggest questions is how they ensure their bill can pass the Republican-controlled House, which will be a heavier lift than the Democratic-controlled Senate. The so-called "gang of eight" in the upper chamber plans to unveil a bill next month and has already put out a framework, but the House group still must decide whether to wait until a Senate bill passes or introduce their own legislation sooner.¶ They may be leaning toward the latter, Yarmuth hinted.¶ "I think one of the things that we're dealing with is the issue of making sure that House Republicans who are in the majority are comfortable with whatever package comes to the floor of the House," he said. "You know, just kind of the sensitivity is, would House Republicans be open to a bill that comes from a Democratic-controlled Senate or from a Democratic president? And that's why we kind of think our effort is most important because if we can get one through the House, then I think the odds of getting it signed into law improve a lot."¶ He said the contentious issues in the House group were over how to deal with undocumented immigrants already in the country, guest workers, border security and stopping employers from hiring people unauthorized to work in the United States.

#### Cantor and House Republicans support nuclear power

Politico 11 (Cantor: nuclear power 'essential' for U.S. energy needs, http://www.politico.com/blogs/glennthrush/0311/Cantor\_nuclear\_power\_essential\_for\_US\_energy\_needs.html)

House Majority Leader Eric Cantor defended nuclear energy production Monday, after a series of explosions at a nuclear reactor in Japan, calling it “essential” to meeting American energy needs. The problems at the Fukushima plant 150 miles north of Tokyo have reignited the debate over the safety of nuclear energy production. Cantor told reporters Monday that the tsunami that ravaged Japan last week is to blame, not the reactor itself. “As far as we know, this is the result of a tsunami,” he said. “Nuclear power is an essential mix of the energy economy in this country.” The tsunami caused technical problems at the Japanese plant, which left nuclear rods exposed, raising the specter of Chernobyl-style meltdown. The timing couldn’t have been worse for House Republican leaders, who demanded last week that President Barack Obama speed up approval of new nuclear energy facilities.

#### Obama is the kiss of death.

Altman, 3-20

[Alex, “Four Hurdles That Could Block Immigration Reform”, Time, 3-20-13,

<http://swampland.time.com/2013/03/20/four-hurdles-that-could-block-immigration-reform/>, RSR]

Little discussed but also looming is the possibility that Democrats drag their feet on reform. Liberals will balk if the path to citizenship is too long or too onerous, or if enforcement provisions are too rigid. Many conservatives also suspect that Democratic power brokers, despite their daily hammering of Republicans to get moving on immigration reform, would privately prefer to keep the issue as a cudgel than actually pass a law. Barack Obama “wants to make a bill come out of the Senate that is so far out there that it would never pass, so that he can blame us for not being compassionate and use the issue to take back the House in 2014,” says a House Republican. Even some liberals see this as a plausible scenario. “There’s always a lingering doubt in my mind,” admits one House Democrat. Obama knows that putting his fingerprints on the deal is an easy way to kill it; when a draft of his proposal leaked in the press, he called Republican negotiators individually to apologize. But if negotiations in Congress bog down, he may not be so hands off.

#### Gun control thumps

Martosko 3-28 (David, Obama goes all-in on gun control plans as a coterie of moms frames a White House speech about lives lost in gun violence, Daily Mail, 28 March 2013, http://www.dailymail.co.uk/news/article-2300586/Obama-goes-gun-control-plans-coterie-moms-frames-White-House-speech-lives-lost-gun-violence.html, da 3-28-13)

He reiterated his frequent claim that universal background checks, along with bans on high-capacity ammunition magazines and his other proposed reforms, are in keeping with the desires of most gun owners¶ 'None of them will infringe on the rights of responsible gun owners. What they will do is keep guns out of the hands of dangerous people who put others at risk. And this is our best chance in more than a decade to take common-sense steps that will save lives,' Obama said.¶ 'None of these ideas should be controversial,' the president added, his voice rising. 'Why wouldn’t we want to make it more difficult for a dangerous person to get his or her hand on a gun? Why wouldn’t we want to close the loophole that allows as many as 40 percent of all gun purchases to take place without a background check?'¶ 'Why wouldn't we do that?'¶ Momentum in Congress has stalled lately, with lawmakers spending more time and political capital on other issues including immigration reform and wrangling over the federal budget.¶ But Obama tried to move firearms back to center stage, telling Congress not to 'get squishy because time has passed,' and encouraging Americans to pester their elected representatives for action.¶ 'I want everybody who is listening to make yourself heard right now,' he said 'If you think that checking someone’s criminal record before he can check out a gun show is common sense, you've got to make yourself heard.'¶ 'If you’re a responsible, law-abiding gun owner who wants to keep irresponsible, law-breaking individuals from abusing the right to bear arms by inflicting harm on a massive scale, speak up.'¶ He made frequent references to Sandy Hook Elementary School, where 20 children and 6 adults were gunned down in a grisly massacre.¶ 'Shame on us if we've forgotten" about the Newtown shooting, Obama said. 'I haven't forgotten those kids.'¶ 'We're not just going to sit back and wait until the next Newtown or the next Blacksburg or the next innocent, beautiful child who is gunned down in a playground in Chicago or Philadelphia or Los Angeles before we summon the will to act.'¶ Mayors Against Illegal Guns, a group founded and funded by billionaire New York Ciuty Mayor Michael Bloomberg, weighed in hours before Obama took the podium, with an emotional ad featuring parents of children killed in the Connecticut shooting.

#### No PC loss from pushing nuclear.

Hinckley, adjunct professor of international energy policy at Georgetown University, ‘12

[Elias, partner with the law firm of Kilpatrick Townsend & Stockton,

“Hard Choices Ahead for US Energy”, <http://www.ourenergypolicy.org/wp-content/uploads/2012/03/EHinckley-policy-article.pdf>]

What remains unclear is how policymakers will react. Some amount of policymaking support has been lost, as there has been simply too much discourse devoted to the potential hazards of nuclear power. However, the downside to continuing to champion the role of nuclear energy as part of a secure US energy future appears limited at this stage. There is little nationalized resistance and, as a result, no clear political cost to support nuclear policies, and possibly the benefit of the impression of proactivity on broad energy policy initiatives, and the results may be politicians continuing to champion nuclear power with no real expectation of new facilities being developed over the near or midterm

#### Comprehensive reform fails – if it passes it has too many compromises that prevent solvency.

Morrison, ‘12

[Bruce, a former U.S. Representative from Connecticut, was the chairman of the House immigration subcommittee and the author of the Immigration Act of 1990. December 9th, 2012, "One Bill of Compromises Isn’t the Answer”,

www.nytimes.com/roomfordebate/2012/12/09/understanding-immigration-reform/one-immigration-bill-of-compromises-isnt-the-answer]

To many, “comprehensive immigration reform” means “fix it and forget it.” But doing it all in one bill reprises what got us in the current mess in the first place. After major reform bills in 1986 and 1990, the failing employment verification scheme and the clogged green card process were allowed to go unattended. The “enforcement only” 1996 law only froze the mess in place.¶ Save the 'punishment' for those that do not comply with a system that works, not those ensnared in the current system that does not.¶ **A huge compromise of all competing immigration fixes larded into one bill will involve compromises that do not serve the nation’s interests.** Instead we need to assemble the votes to do the two things that must be done — a broad earned legalization program for the 11 million now illegally resident in the country in conjunction with the assurance that this problem will not happen again. That assurance will come from a universal, electronic, identity-authenticating screening of all workers to ensure that they are authorized to work in the U.S.¶ Because almost all who make unauthorized entries and overstays do so to seek and accept employment, no other tool will get the result we need to make legalization politically and philosophically justified — that we have fixed the source of the problem. And this also means using the employment relationship to roll-in legalization while rolling out universal verification.¶ The key point is that prevention of illegal presence is the goal. Save the “punishment” for those that do not comply with a system that works, not those ensnared in the current system that does not.¶ Our legal immigration system needs lots of fixing, like the increase of STEM green cards passed by the House last week and much more. But these fixes, including all future flows beyond the current one million annual immigrants and the millions who will be legalized, will get much easier to negotiate when the legalization-prevention barrier is removed.

## 1AR

### CP

#### We must act quickly with long term technological innovation to avoid the irreversible climate change triggered by 2°C.

Peters, et al. 12(Glen (Center for International Climate and Environmental Research – Oslo); Robbie Andrew (Center for International Climate and Environmental Research – Oslo); Tom Boden (Carbon Dioxide Information Analysis Center (CDIAC), Oak Ridge National Laboratory); Josep Canadell (Global Carbon Project, CSIRO Marine and Atmospheric Research, Canberra, Australia); Philippe Ciais (Laboratoire des Sciences du Climat et de l’Environnement, Gif sur Yvette, France); Corinne Le Quéré (Tyndall Centre for Climate Change Research, University of East Anglia, Norwich, UK); Gregg Marland (Research Institute for Environment, Energy, and Economics, Appalachian State University); Michael R. Raupach (Global Carbon Project, CSIRO Marine and Atmospheric Research, Canberra, Australia); and Charlie Wilson (Tyndall Centre for Climate Change Research, University of East Anglia, Norwich, UK), “The challenge to keep global warming below 2 °C”, Nature Climate Change, 12-2-12, RSR)

It is important to regularly re-assess the relevance of emissions scenarios in light of changing global circumstances3,8. In the past, decadal trends in CO2 emissions have responded slowly to changes in the underlying emission drivers because of inertia and path dependence in technical, social and political systems9. Inertia and path dependence are unlikely to be affected by short-term fluctuations2,3,9 — such as financial crises10 — and it is probable that emissions will continue to rise for a period even after global mitigation has started11. Thermal inertia and vertical mixing in the ocean, also delay the temperature response to CO2 emissions12. Because of inertia, path dependence and changing global circumstances, there is value in comparing observed decadal emission trends with emission scenarios to help inform the prospect of different futures being realized, explore the feasibility of desired changes in the current emission trajectory and help to identify whether new scenarios may be needed. Global CO2 emissions have increased from 6.1±0.3 Pg C in 1990 to 9.5±0.5 Pg C in 2011 (3% over 2010), with average annual growth rates of 1.9% per year in the 1980s, 1.0% per year in the 1990s, and 3.1% per year since 2000. We estimate that emissions in 2012 will be 9.7±0.5 Pg C or 2.6% above 2011 (range of 1.9–3.5%) and 58% greater than 1990 (Supplementary Information and ref. 13). The observed growth rates are at the top end of all four generations of emissions scenarios (Figs 1 and 2). Of the previous illustrative IPCC scenarios, only IS92-E, IS92-F and SRES A1B exceed the observed emissions (Fig. 1) or their rates of growth (Fig. 2), with RCP8.5 lower but within uncertainty bounds of observed emissions. Observed emission trends are in line with SA90-A, IS92-E and IS92-F, SRES A1FI, A1B and A2, and RCP8.5 (Fig. 2). The SRES scenarios A1FI and A2 and RCP8.5 lead to the highest temperature projections among the scenarios, with a mean temperature increase of 4.2–5.0 °C in 2100 (range of 3.5–6.2 °C)14, whereas the SRES A1B scenario has decreasing emissions after 2050 leading to a lower temperature increase of 3.5 °C (range 2.9–4.4°C)14. Earlier research has noted that observed emissions have tracked the upper SRES scenarios15,16 and Fig. 1 confirms this for all four scenario generations. This indicates that the space of possible pathways could be extended above the top-end scenarios to accommodate the possibility of even higher emission rates in the future. The new RCPs are particularly relevant because, in contrast to the earlier scenarios, mitigation efforts consistent with longterm policy objectives are included among the pathways2,. RCP3-PD (peak and decline in concentration) leads to a mean temperature increase of 1.5 °C in 2100 (range of 1.3–1.9 °C)14. RCP3–PD requires net negative emissions (for example, bioenergy with carbon capture and storage) from 2070, but some scenarios suggest it is possible to stay below 2 °C without negative emissions17–19. RCP4.5 and RCP6 — which lie between RCP3–PD and RCP8.5 in the longer term — lead to a mean temperature increase of 2.4 °C (range of 1.0–3.0 °C) and 3.0 °C (range of 2.6–3.7 °C) in 2100, respectively14. For RCP4.5, RCP6 and RCP8.5, temperatures will continue to increase after 2100 due to on-going emissions14 and inertia in the climate system12. Current emissions are tracking slightly above RCP8.5, and given the growing gap between the other RCPs (Fig. 1), significant emission reductions are needed by 2020 to keep 2 °C as a feasible goal18–20. To follow an emission trend that can keep the temperature increase below 2 °C (RCP3-PD) requires sustained global CO2 mitigation rates of around 3% per year, if global emissions peak before 202011,19. A delay in starting mitigation activities will lead to higher mitigation rates11, higher costs21,22, and the target of remaining below 2 °C may become unfeasible18,20. If participation is low, then higher rates of mitigation are needed in individual countries, and this may even increase mitigation costs for all countries22. Many of these rates assume that negative emissions will be possible and affordable later this century11,17,18,20. Reliance on negative emissions has high risks because of potential delays or failure in the development and large-scale deployment of emerging technologies such as carbon capture and storage, particularly those connected to bioenergy17,18. Although current emissions are tracking the higher scenarios, it is still possible to transition towards pathways consistent with keeping temperatures below 2 °C (refs 17,19,20). The historical record shows that some countries have reduced CO2 emissions over 10-year periods, through a combination of (non-climate) policy intervention and economic adjustments to changing resource availability. The oil crisis of 1973 led to new policies on energy supply and energy savings, which produced a decrease in the share of fossil fuels (oil shifted to nuclear) in the energy supply of Belgium, France and Sweden, with emission reductions of 4–5% per year sustained over 10 or more years (Supplementary Figs S17–19). A continuous shift to natural gas — partially substituting coal and oil — led to sustained mitigation rates of 1–2% per year in the UK in the 1970s and again in the 2000s, 2% per year in Denmark in the 1990–2000s, and 1.4% per year since 2005 in the USA (Supplementary Figs S10–12). These examples highlight the practical feasibility of emission reductions through fuel substitution and efficiency improvements, but additional factors such as carbon leakage23 need to be considered. These types of emission reduction can help initiate a transition towards trajectories consistent with keeping temperatures below 2 °C, but further mitigation measures are needed to complete and sustain the reductions. Similar energy transitions could be encouraged and co-ordinated across countries in the next 10 years using available technologies19, but well-targeted technological innovations24 are required to sustain the mitigation rates for longer periods17. To move below the RCP8.5 scenario — avoiding the worst climate impacts — requires early action1 7,18,21 and sustained mitigation from the largest emitters22 such as China, the United States, the European Union and India. These four regions together account for over half of global CO2 emissions, and have strong and centralized governing bodies capable of co-ordinating such actions. If similar energy transitions are repeated over many decades in a broader range of developed and emerging economies, the current emission trend could be pulled down to make RCP3‑PD, RCP4.5 and RCP6 all feasible futures. A shift to a pathway with the highest likelihood to remain below 2 °C above preindustrial levels (for example, RCP3-PD), requires high levels of technological, social and political innovations, and an increasing need to rely on net negative emissions in the future11,17,18. The timing of mitigation efforts needs to account for delayed responses in both CO2 emissions9 (because of inertia in technical, social and political systems) and also in global temperature12 (because of inertia in the climate system). Unless large and concerted global mitigation efforts are initiated soon, the goal of remaining below 2 °C will very soon become unachievable.

### Rare Earth Metals

#### No REM shortage – stockpiling, search for new deposits, and recycling

Jamaica Observer 1-20-13

[http://www.jamaicaobserver.com/editorial/Time-for-innovative-and-enterprising-thinking\_13434527]

What is also important is our move to seize the moment when there are opportunities. China produces 90 - 95 per cent of the world's supply of rare earth metals, minerals/elements, mostly in Inner Mongolia, and Japan imports 60 per cent of that. They are valuable and in demand because they are used in the production of electronics.¶ The rapid increase in demand in recent years has led to a shortage, and if production is not increased the shortage will worsen and price hikes will mirror the demand/supply gap. In addition to the natural scarcity of rare earth metals, China, the leading producer, has since 2009 instituted measures to limit supply so as to conserve scarce resources and protect the environment.¶ Other measures such as a series of reduced quotas, which commenced in 2011, were aimed at restricting exports. As a result of these market conditions, several countries are stockpiling rare earth metals and exploration has been stimulated in Australia, Brazil, Canada, Greenland, Tanzania, Vietnam and the United States.¶ Given high prices and new recycling technology, the extraction of rare earth metals from electronic waste has become commercially viable. Recycling plants are currently operating in France, as well as in Japan where there is an estimated 300,000 tons of rare earth metals stored in unused electronics.

#### No Shortage – recycling, reopening mines, and fair trade with China

O’Keef 12-28-12

[Jennifer Kreitzer, [Industry News] Shedding Light on Rare Earth Elements, Pest Control Technology Market Leadership, pctonline.com, http://www.pctonline.com/pct1212-rare-earth-elements.aspx]

What is being done? The United States, the European Union and Japan are working with China to help ensure balanced and fair trade. Responding to an appeal from these governments, the World Trade Organization earlier this year announced plans to investigate China’s export quotas and tariffs on the premise that China may be breaking global commerce rules. Work is also underway to open, or reopen, mines in the United States, Canada, Australia and Vietnam. And, advances in recycling technologies could release many thousands of tons of materials currently “stored” in old electronics and other products. However, these efforts are not expected to have a global impact for nearly a decade. The situation is certain to remain volatile, and the impact on the pest management industry uncertain in the meantime.

### Politics

#### **PC isn’t real —butterfly effect – only winners win.**

Hirsh ‘13 (Michael, chief correspondent for National Journal, previously served as the senior editor and national economics correspondent for Newsweek, 2/9/2013, “There’s No Such Thing as Political Capital,” <http://www.nationaljournal.com/magazine/there-s-no-such-thing-as-political-capital-20130207>, NP)

On Tuesday, in his State of the Union address, President Obama will do what every president does this time of year. For about 60 minutes, he will lay out a sprawling and ambitious wish list highlighted by gun control and immigration reform, climate change and debt reduction. In response, the pundits will do what they always do this time of year: They will talk about how unrealistic most of the proposals are, discussions often informed by sagacious reckonings of how much “political capital” Obama possesses to push his program through.¶ Most of this talk will have no bearing on what actually happens over the next four years.¶ Consider this: Three months ago, just before the November election, if someone had talked seriously about Obama having enough political capital to oversee passage of both immigration reform and gun-control legislation at the beginning of his second term—even after winning the election by 4 percentage points and 5 million votes (the actual final tally)—this person would have been called crazy and stripped of his pundit’s license. (It doesn’t exist, but it ought to.) In his first term, in a starkly polarized country, the president had been so frustrated by GOP resistance that he finally issued a limited executive order last August permitting immigrants who entered the country illegally as children to work without fear of deportation for at least two years. Obama didn’t dare to even bring up gun control, a Democratic “third rail” that has cost the party elections and that actually might have been even less popular on the right than the president’s health care law. And yet, for reasons that have very little to do with Obama’s personal prestige or popularity—variously put in terms of a “mandate” or “political capital”—chances are fair that both will now happen.¶ What changed? In the case of gun control, of course, it wasn’t the election. It was the horror of the 20 first-graders who were slaughtered in Newtown, Conn., in mid-December. The sickening reality of little girls and boys riddled with bullets from a high-capacity assault weapon seemed to precipitate a sudden tipping point in the national conscience. One thing changed after another. Wayne LaPierre of the National Rifle Association marginalized himself with poorly chosen comments soon after the massacre. The pro-gun lobby, once a phalanx of opposition, began to fissure into reasonables and crazies. Former Rep. Gabrielle Giffords, D-Ariz., who was shot in the head two years ago and is still struggling to speak and walk, started a PAC with her husband to appeal to the moderate middle of gun owners. Then she gave riveting and poignant testimony to the Senate, challenging lawmakers: “Be bold.”¶ As a result, momentum has appeared to build around some kind of a plan to curtail sales of the most dangerous weapons and ammunition and the way people are permitted to buy them. It’s impossible to say now whether such a bill will pass and, if it does, whether it will make anything more than cosmetic changes to gun laws. But one thing is clear: The political tectonics have shifted dramatically in very little time. Whole new possibilities exist now that didn’t a few weeks ago.¶ Meanwhile, the Republican members of the Senate’s so-called Gang of Eight are pushing hard for a new spirit of compromise on immigration reform, a sharp change after an election year in which the GOP standard-bearer declared he would make life so miserable for the 11 million illegal immigrants in the U.S. that they would “self-deport.” But this turnaround has very little to do with Obama’s personal influence—his political mandate, as it were. It has almost entirely to do with just two numbers: 71 and 27. That’s 71 percent for Obama, 27 percent for Mitt Romney, the breakdown of the Hispanic vote in the 2012 presidential election. Obama drove home his advantage by giving a speech on immigration reform on Jan. 29 at a Hispanic-dominated high school in Nevada, a swing state he won by a surprising 8 percentage points in November. But the movement on immigration has mainly come out of the Republican Party’s recent introspection, and the realization by its more thoughtful members, such as Sen. Marco Rubio of Florida and Gov. Bobby Jindal of Louisiana, that without such a shift the party may be facing demographic death in a country where the 2010 census showed, for the first time, that white births have fallen into the minority. It’s got nothing to do with Obama’s political capital or, indeed, Obama at all.¶ The point is not that “political capital” is a meaningless term. Often it is a synonym for “mandate” or “momentum” in the aftermath of a decisive election—and just about every politician ever elected has tried to claim more of a mandate than he actually has. Certainly, Obama can say that because he was elected and Romney wasn’t, he has a better claim on the country’s mood and direction. Many pundits still defend political capital as a useful metaphor at least. “It’s an unquantifiable but meaningful concept,” says Norman Ornstein of the American Enterprise Institute. “You can’t really look at a president and say he’s got 37 ounces of political capital. But the fact is, it’s a concept that matters, if you have popularity and some momentum on your side.”¶ The real problem is that the idea of political capital—or mandates, or momentum—is so poorly defined that presidents and pundits often get it wrong. “Presidents usually over-estimate it,” says George Edwards, a presidential scholar at Texas A&M University. “The best kind of political capital—some sense of an electoral mandate to do something—is very rare. It almost never happens. In 1964, maybe. And to some degree in 1980.” For that reason, political capital is a concept that misleads far more than it enlightens. It is distortionary. It conveys the idea that we know more than we really do about the ever-elusive concept of political power, and it discounts the way unforeseen events can suddenly change everything. Instead, it suggests, erroneously, that a political figure has a concrete amount of political capital to invest, just as someone might have real investment capital—that a particular leader can bank his gains, and the size of his account determines what he can do at any given moment in history.¶ Naturally, any president has practical and electoral limits. Does he have a majority in both chambers of Congress and a cohesive coalition behind him? Obama has neither at present. And unless a surge in the economy—at the moment, still stuck—or some other great victory gives him more momentum, it is inevitable that the closer Obama gets to the 2014 election, the less he will be able to get done. Going into the midterms, Republicans will increasingly avoid any concessions that make him (and the Democrats) stronger.¶ But the abrupt emergence of the immigration and gun-control issues illustrates how suddenly shifts in mood can occur and how political interests can align in new ways just as suddenly. Indeed, the pseudo-concept of political capital masks a larger truth about Washington that is kindergarten simple: You just don’t know what you can do until you try. Or as Ornstein himself once wrote years ago, “Winning wins.” In theory, and in practice, depending on Obama’s handling of any particular issue, even in a polarized time, he could still deliver on a lot of his second-term goals, depending on his skill and the breaks. Unforeseen catalysts can appear, like Newtown. Epiphanies can dawn, such as when many Republican Party leaders suddenly woke up in panic to the huge disparity in the Hispanic vote.¶ Some political scientists who study the elusive calculus of how to pass legislation and run successful presidencies say that political capital is, at best, an empty concept, and that almost nothing in the academic literature successfully quantifies or even defines it. “It can refer to a very abstract thing, like a president’s popularity, but there’s no mechanism there. That makes it kind of useless,” says Richard Bensel, a government professor at Cornell University. Even Ornstein concedes that the calculus is far more complex than the term suggests. Winning on one issue often changes the calculation for the next issue; there is never any known amount of capital. “The idea here is, if an issue comes up where the conventional wisdom is that president is not going to get what he wants, and he gets it, then each time that happens, it changes the calculus of the other actors” Ornstein says. “If they think he’s going to win, they may change positions to get on the winning side. It’s a bandwagon effect.”