# 1NC 1

#### The United States federal government should provide power purchase agreements for small modular nuclear reactors that are diminishing as the technology improves in price and performance.

#### Temporary, diminishing incentives are vital to inducing competition, technological innovation and ending subsidy dependence

**Jenkins, 12** – Director of Energy and Climate Policy at the Breakthrough Institute (Jesse, Congressional Testimony before the Senate Committee on Energy and Natural Resources, 5/22, <http://www.energy.senate.gov/public/index.cfm/files/serve?File_id=31b79a1a-83a0-4ae6-8c80-30fe754ad0ea>)

Recognizing that investment horizons, technology development cycles, and market conditions vary across advanced energy technology segments, precise policy mechanisms will likely differ from sector to sector. Yet whether through production or investment subsidies, consumer rebates, market-­‐creating regulations or standards, or other market incentives, we recommend that any advanced energy deployment subsidies meet the following policy design criteria. Reformed policies should:

1. ESTABLISH A COMPETITIVE MARKET. Deployment policies should create market opportunities for advanced clean energy technologies while fostering competition between technology firms.

2. DRIVE COST REDUCTIONS AND PERFORMANCE IMPROVEMENTS. Deployment policies should create market incentives and structures that demand and reward continual improvement in technology performance and cost.

3. PROVIDE TARGETED AND TEMPORARY SUPPORT FOR MATURING TECHNOLOGIES. Deployment policies must not operate in perpetuity, but rather should be terminated if technology segments either fail to improve in price and performance or become competitive without subsidy.

4. REDUCE SUBSIDY LEVELS IN RESPONSE TO CHANGING TECHNOLOGY COSTS. Deployment incentives should decline as technologies improve in price and performance to both conserve limited taxpayer and consumer resources and provide clear incentives for continued technology improvement.

5. AVOID TECHNOLOGY LOCK-OUT AND PROMOTE A DIVERSE ENERGY PORTFOLIO. Deployment incentives should be structured to create market opportunities for energy technologies at different levels of maturity, including new market entrants, to ensure that each has a chance to mature while allowing technologies of similar maturity levels to compete amongst themselves.

6. PROVIDE SUFFICIENT BUSINESS CERTAINTY. While deployment incentives should be temporary, they must still provide sufficient certainty to support key business decisions by private firms and investors.

7. MAXIMIZE THE IMPACT OF TAXPAYER RESOURCES AND PROVIDE READY ACCESS TO AFFORDABLE PRIVATE CAPITAL. Deployment incentives should be designed to avoid creating unnecessarily high transaction costs while opening up clean tech investment to broader private capital markets.

#### Conditioning new incentives on price competition solves the aff better and avoids our disads

**Hayward, 10** – resident scholar at the American Enterprise Institute (Steven, “Post-Partisan Power: How a Limited and Direct Approach to Energy Innovation Can Deliver Clean, Cheap Energy, Economic Productivity and National Prosperity”, October, <http://thebreakthrough.org/blog/Post-Partisan%20Power.pdf>)

The government has a long history of successfully driving innovation and price declines in emerging technologies by acting directly as a demanding customer to spur the early commercialization and largescale deployment of cutting-edge technologies. From radios and microchips to lasers and camera lenses, the federal government, in particular the DOD, has helped catalyze the improvement of countless innovative technologies and supported the emergence of vibrant American industries in the process. 67

Yet today’s mess of open-ended energy subsidies reward production of more of the same product, not innovation. The federal government showers subsidies across many energy options, from oil and coal to ethanol and wind power. None of these efforts, however, are designed or optimized to drive and reward innovation and ensure the prices of these technologies fall over time, making the subsidies effectively permanent. This must change.

Competitive Deployment Incentives

The current energy subsidy and deployment framework should be turned on its head. Government investments succeed not when they are blanket subsidies but rather when they are narrowly targeted to specific outcomes, such as developing computers to allow for rocket systems, building a communications network to survive a nuclear attack, or creating increasingly efficient and powerful jet engines. These public investments paid off handsomely in personal computers, the Internet, and gas turbines used in both commercial air travel as well as modern natural gas power plants. 68

In an era of expanding federal debt, across-the-board energy subsidy reform should be pursued. Incentives for energy technology deployment should be targeted and disciplined. Technologies should receive competitive deployment incentives only to the extent that they are becoming cheaper in unsubsidized terms over time.

The strategy that we propose would be aimed at low-carbon technologies that, at a minimum, satisfy the following criteria:

 The technology has been demonstrated and has proven technical feasibility at commercial scale;

 Is currently priced above normal market rates and is locked out of markets by more mature,

entrenched technology competitors;

 Has potential for significant and sustained cost and performance improvements during deployment

and scale-up;

#Has strong prospects for significant market penetration once the technology reaches competitive

prices.

Targeted and competitive deployment incentives could be created for various classes of energy technologies to ensure that each has a chance to mature. Incentive levels should fall at regular intervals, terminating if the technology class either fails to improve in price or reaches cost parity in the absence of any further incentives.

Structured in this manner, reformed national energy deployment incentives will not select winners and losers, nor will it create permanently subsidized industries. These public investments will instead provide opportunity for all emerging low-carbon energy technologies to demonstrate progress toward competitive costs while increasing the rate at which early-stage clean and affordable energy technologies are commercialized.

#### The CP prevents the collapse of the energy bubble – avoids economic collapse

**Swezey, 11** – project director for The Breakthrough Institute (Devon, “Clean Tech Sector Heading for a Major Crash” 7/11, <http://blacklistednews.com/?news_id=14600&print=1>)

The global clean energy industry is set for a major crash. The reason is simple. Clean energy is still much more expensive and less reliable than coal or gas, and in an era of heightened budget austerity the subsidies required to make clean energy artificially cheaper are becoming unsustainable.

Clean tech crashes are nothing new. The U.S. wind energy industry has collapsed three times before, first in the mid 1990s and most recently in 2002 and 2004 when Congress failed to extend the tax credit that made it profitable. But the impact and magnitude of the coming clean tech crash will far outstrip those of past years.

As part of its effort to combat the economic recession, the federal government pumped nearly $80 billion in direct investment and tax credits into the clean energy sector, catalyzing an unprecedented industry expansion. Solar energy, for example, grew 67% in the United States in 2010. The U.S. wind energy industry also experienced unprecedented growth as a result of the generous Section 1603 clean energy stimulus program. The industry grew by 40% and added 10 GW of new turbines in 2009. Yet many of the federal subsidies that have driven such rapid growth are set to expire in the next few years, and clean energy remains unable to compete without them.

The crash won't be limited to the United States. In many European countries, clean energy subsidies have become budget casualties as governments attempt to curb mounting deficits. Spain, Germany, France, Italy and the Czech Republic have all announced cuts to clean energy subsidies.

Such cuts are not universal, however. China, flush with cash, is bucking the trend, committing $760 billion over 10 years for clean energy projects. China is continuing to invest in low-carbon energy as a way of meeting its voracious energy demand, diversifying its electricity supply, and alleviating some of the negative health consequences of its reliance on fossil energy.

If U.S. and European clean energy markets collapse while investment continues to ramp up in China, the short-term consequences will likely be a migration of much of the industry to Asia. As we wrote in our 2009 report, "Rising Tigers, Sleeping Giant," this would have significant economic consequences for the United States, as the jobs, revenues and other benefits of clean tech growth accrue overseas.

In the long-term, however, clean energy must become much cheaper and more reliable if it is to widely displace fossil fuels on the scale of national economies and become a commercially viable industry.

Breaking the Boom-Bust Cycle

Why is the United States still locked in this self-perpetuating boom-bust cycle in clean energy? The problem, according to a new essay by energy experts David Victor and Kassia Yanosek in this week's Foreign Affairs, is that our system of clean energy subsidization is jury-rigged to support the deployment of only the least-risky and most mature clean energy technologies, while lacking clear incentives for continual innovation that could make clean energy competitive on cost with conventional energy sources. Rather, we should "invest in more innovative technologies that stand a better chance of competing with conventional energy sources over the long haul." According to Victor and Yanosek, nearly seven-eighths of global clean energy investment goes toward deploying existing technologies that aren't competitive without subsidy, while only a small share goes to encouraging innovation in existing technologies or developing new ones.

This must change. Rather than simply subsidize production of current technologies, we need a comprehensive energy innovation strategy to develop, manufacture, and deploy riskier but more promising clean energy technologies that may eventually compete with fossil energy at scale. Instead of rewarding companies for building the same product, we should reward companies who continuously improve designs and cut costs over time.

Such a federal strategy will require major federal investments, but of a different kind than the subsidies that have driven the clean tech industry in years past. For starters, we must dramatically ramp up funding for early-stage clean energy research and development. A growing bipartisan group of think tanks and business leaders have pushed an investment of at least $15 billion annually in energy R&D, up from its current $4 billion level.

Targeted funding is needed to solve technology challenges and ensure that innovative technologies can develop and improve. One key program that helps fulfill this need is ARPA-E, which funds a portfolio of innovative technology companies and helps connect them with private investors. But ARPA-E's budget has continually been under assault in budget negotiations, hampering its ability to catalyze innovation in the energy sector and limiting its impact.

We also need to invest in cutting-edge advanced manufacturing capabilities and shared technology infrastructure that would help U.S. companies cut costs and improve manufacturing processes. As the President's Council of Advisors on Science and Technology wrote in a report released last week, manufacturing is vital to innovation, "because of the synergies created by locating production processes and design processes near to each other." Furthermore, bringing down manufacturing costs, such as by supporting shared infrastructure for small firms, or offering financing for the adoption of innovative technologies in manufacturing, will be a key component of reducing the costs of new clean energy innovations.

Lastly, the nation's hodgepodge of energy deployment subsidies is in dire need of reform. As Breakthrough and colleagues wrote in "Post-Partisan Power," we need an energy deployment regime that demands and rewards innovation, rather than just supporting more of the same. Brookings' Mark Muro (a co-author or PPP) expands, "targeted and competitive deployment incentives could be created for various classes of energy technologies that would ensure that each has a chance to mature even as each is challenged to innovate and locate price declines." Rather than create permanently subsidized industries, such investments would "provide the opportunity for opportunity for all emerging low-carbon energy technologies to demonstrate progress toward competitive costs," while speeding commercialization.

It is clear that the current budgetary environment in the United States presents challenges to the viability of the fast-growing clean energy industry. But it also presents an opportunity. By repurposing existing clean energy policies and investing in clean energy innovation, the United States can be the first country to make clean energy cheap and reliable, a distinction that is sure to bring major economic benefits in a multi-trillion dollar energy market.

#### Causes global war

**Royal, 10** [Jedediah Royal, Director of Cooperative Threat Reduction at the U.S. Department of Defense, 2010, “Economic Integration, Economic Signaling and the Problem of Economic Crises,” in Economics of War and Peace: Economic, Legal and Political Perspectives, ed. Goldsmith and Brauer, p. 213-215]
Less intuitive is how periods of economic decline may increase the likelihood of external conflict. Political science literature has contributed a moderate degree of attention to the impact of economic decline and the security and defence behaviour of interdependent states. Research in this vein has been considered at systemic, dyadic and national levels. Several notable contributions follow. First, on the systemic level. Pollins (2U0X> advances Modclski and Thompson's (19%) work on leadership cycle theory, finding that rhythms in the global economy are associated with the rise and fall of a pre-eminent power and the often bloody transition from one pre-eminent leader to the next. As such, exogenous shocks such as economic crises could usher in a redistribution of relative power (sec also Gilpin. 1981) that leads to uncertainty about power balances, **increasing the risk of miscalculation** (Fearon. 1995). Alternatively, even a relatively certain redistribution of power could lead to a permissive environment for conflict as a rising power may seek to challenge a declining power (Werner. 1999). Separately. Pollins (1996) also shows that global economic cycles combined with parallel leadership cycles impact the likelihood of conflict among major, medium and small powers, although he suggests that the causes and connections between global economic conditions and security conditions remain unknown. Second, on a dyadic level. Copeland's (1996. 2000) theory of trade expectations suggests that "future expectation of trade' is a significant variable in understanding economic conditions and security behaviour of stales, lie argues that interdependent slates are likely to gain pacific benefits from trade so long as they have an optimistic view of future trade relations. However, if the expectations of future trade decline, particularly for difficult to replace items such as energy resources, the likelihood for conflict increases, as states will bo inclined to use force to gain access to those resources. Crises could potentially be the trigger for decreased trade expectations either on its own or because it triggers protectionist moves by interdependent states.4 Third, others have considered the link between economic decline and external armed conflict at a national level. Blomberg and Hess (2002) find **a strong correlation** between internal conflict and external conflict, particularly during periods of economic downturn. They write. I Ik- linkages between internal and external conflict and prosperity are strong and mutually reinforcing. Economic conflict tends to spawn internal conflict. which in turn returns the favour. Moreover. The presence of a recession lends to amplify the extent to which international and external conflicts reinforce each other (Blomberg & Mess. 2002. p. 89) Economic decline has also been linked with an increase in the likelihood of terrorism (Blomberg, Hess. & Weerapana, 2004). which has the capacity to spill across borders and lead to external tensions. Furthermore, crises generally reduce the popularity of a sitting government. 'Diversionary theory" suggests that, when facing unpopularity arising from economic decline, sitting governments have increased incentives to fabricate external military conflicts to create a 'rally around the flag' effect. Wang (1996). DeRouen (1995). and Blomberg. Hess, and Thacker (2006) find supporting evidence showing that economic decline and use of force are at least indirectly correlated. Gelpi (1997). Miller (1999). and Kisangani and Pickering (2009) suggest that the tendency towards diversionary tactics are greater for democratic states than autocratic states, due to the fact that democratic leaders are generally more susceptible to being removed from office due to lack of domestic support. DeRouen (2000) has provided evidence showing that periods of weak economic performance in the United States, and thus weak Presidential popularity, are statistically linked to an increase in the use of force. In summary, recent economic scholarship positively correlates economic integration with an increase in the frequency of economic crises, whereas political science scholarship links economic decline with external conflict at systemic, dyadic and national levels/ This implied connection between integration, crises and armed conflict has not featured prominently in the economic-security debate and deserves more attention.

# 1NC 2

#### Obama will win but it will be close

**Blumenthal, 10/1/12** - senior polling editor of the Huffington Post and the founding editor of Pollster.com (Mark, New 2012 Polls Show Little Change In State Of Race, <http://www.huffingtonpost.com/2012/10/01/2012-polls-obama-romney_n_1928472.html?utm_hp_ref=elections-2012>)

WASHINGTON -- With attention turning to the first of three upcoming national debates, new polls show President Barack Obama continuing to hold a narrow lead over Republican nominee Mitt Romney, both nationwide and in the key battleground states that are likely to decide the election.

Two new national surveys released on Monday morning both show a slightly closer race than most other recent polls, although those new results are consistent with previous surveys from the same organizations, indicating that Obama's September lead is holding.

The new Washington Post/ABC News survey finds Obama leading by just 2 percentage points nationwide (49 percent to 47 percent) among the voters deemed most likely to vote. But that result was no different than their previous survey, taken just after the Democratic convention three weeks ago, which showed Obama with a 1-point edge (49 percent to 48 percent).

However, among all registered voters nationwide, the new Post/ABC poll shows Obama leading by 5 percentage points (49 percent to 44 percent), again the same margin as their survey found three weeks ago. The Post also reports that Obama's lead over Romney is larger (52 percent to 41 percent) among a subset of likely voters in swing states.

Similarly, a new Politico/George Washington University Battleground poll also finds Obama leading by 2 percentage points among likely voters (49 percent to 47 percent), a finding essentially unchanged from the 3-point Obama margin (50 percent to 47 percent) found in their previous survey.

The four results have been collectively more favorable to Romney than those produced by other recent national polls, and more importantly, they have shown no statistically meaningful trend in September. The HuffPost Pollster tracking model, which draws on all national and state-level polling and corrects for consistent "house effect" differences among pollsters, continues to give Obama a slightly larger, 4 percentage point lead over Romney.

Similarly, a handful of new statewide surveys released over the weekend shows results consistent with a 3- to 4-point Obama lead nationwide.

In Iowa, a new Des Moines Register Iowa poll found Obama leading by 4 percentage points (49 percent to 45 percent), exactly the same margin as the Pollster tracking model.

In Ohio, an automated recorded-voice survey by the Democratic-affiliated firm Public Policy Polling gives Obama a 4 percentage point advantage, while a new Columbus Dispatch mail-in survey gives Obama a 9-point lead. Not surprisingly, Obama's lead on the Pollster tracking model falls somewhere in between.

Finally, another new PPP poll from North Carolina shows a dead-even race, with each candidate at 48 percent -- again, consistent with a similarly close margin on HuffPost's tracking model. North Carolina has been the closest of the 50 states over the last three weeks.

Thus, the combination of national and statewide polling continues to show Obama leading Romney by statistically meaningful margins in all of the battleground states except North Carolina. Were he to carry all of the states where he is currently leading, Obama would win 332 electoral votes -- far more than the 270 needed to win. Romney currently leads in states accounting for 191 electoral votes.

Can Wednesday night's nationally televised debates between Obama and Romney, the first of three to be held between now and late October, be a "game changer" for Romney? Not likely, according to George Washington University political scientist John Sides.

"When it comes to shifting enough votes to decide the outcome of the election," Sides writes in the Washington Monthly, "presidential debates have rarely, if ever, mattered."

Sides cites research by political scientists Robert Erikson and Christopher Wlezien, who studied polling from every election from 1952 to 2008 and found that while debates sometimes nudge results, they rarely produce substantial changes in voter preferences. Erikson and Wlezien found that since 1960, the leader in the polling before the debates remained the leader after the debates.

The most significant before-and-after debate shift was toward Gerald Ford in his 1976 race against Jimmy Carter. However, as Erikson and Wlezien note, "Carter's support was in steady decline" during the final month of the race.

It is worth remembering that while Obama enjoys a statistically meaningful lead in national polling, his margin remains relatively modest compared to past elections. So while a "nudge" toward Romney on the order of what debates produced in 1980, 2000 or 2004 might not be enough to move Romney ahead, it could make for a much closer race.

plan drives a wedge into Obama’s base --- they’re key to re-election
Mick ’10 (Jason Mick, 6-19-10, Daily Tech, Obama Fights For Nuclear, Environmentalists Label Him a Shill [http://www.dailytech.com/Obama+Fights+For+Nuclear+Environmentalists+Label+Him+a+Shill/article18781.htm](http://www.dailytech.com/Obama%2BFights%2BFor%2BNuclear%2BEnvironmentalists%2BLabel%2BHim%2Ba%2BShill/article18781.htm),)

Despite these small victories, President Obama's nuclear vision faces many impending obstacles.  Despite the fact that you could tear down one of the nation's old reactors, replace it with a dozen modern clean reactor designs and still have less net waste, some environmentalist groups remain adamantly opposed to new plant construction.  They have vowed to bury the bid for clean nuclear power under a flood of lawsuits.  If the suits succeed, they will raise the cost of nuclear so high, that it can't even compete with the most expensive forms of nuclear energy, like solar power.

And perhaps the biggest obstacle to Obama's nuclear vision will come in 2012.  That is the year when he will face reelection.  That may prove challenging given that one of his former key constituent groups -- the environmental lobby -- has become one of his staunchest critics.  Regardless, the U.S. is making its first true nuclear progress in 30 years, and that is among the many factors that will already make President Obama's presidency noteworthy.

Dem base is key- even if they win their links, we still make Obama win
Silver 9/6/2012 (Nate, Genius, writer for FiveThirtyEight, now under the New York Times, The blog is devoted to rigorous analysis of politics, polling, public affairs, sports, science and culture, largely through statistical means, Obama Would Be Big Favorite With ‘Fired Up’ Base, [http://fivethirtyeight.blogs.nytimes.com/2012/09/06/obama-would-be-big-favorite-with-fired-up-base/#more-34165)](http://fivethirtyeight.blogs.nytimes.com/2012/09/06/obama-would-be-big-favorite-with-fired-up-base/#more-34165%29)

There’s one advantage that President Obama has that Mitt Romney [probably doesn’t](http://fivethirtyeight.blogs.nytimes.com/2012/08/30/base-turnout-strategy-may-be-too-narrow-for-romney/). If he can get a good turnout from his base, he’ll be the heavy favorite to win in November — even if Mr. Romney gets a strong turnout as well.

On average over the [last five public surveys](http://elections.huffingtonpost.com/pollster/party-identification), 35 percent of registered voters identify themselves as Democrats and 30 percent as Republicans. That advantage is down somewhat for Democrats since 2008, but it is an advantage nevertheless.

In essentially every recent presidential election, however, the Democratic candidate has performed worse among actual Election Day voters than among the broader pool of registered voters. There is no reason to think that this year will be an exception. Recent surveys that compare likely-voter with registered-voter results suggest that there [could be a turnout gap](http://fivethirtyeight.blogs.nytimes.com/2012/08/25/aug-25-an-above-average-likely-voter-gap-for-romney/) of around three percentage points favoring Mr. Romney. That’s larger than the historical average, when it’s been in the range of one or two points.

Our election forecasts build in a [likely voter adjustment](http://fivethirtyeight.blogs.nytimes.com/2012/07/19/does-romney-have-an-edge-from-likely-voter-polls/) for this reason. If a pollster publishes both registered-voter and likely-voter results, we use the likely-voter version of their numbers. And if only a registered-voter version is available, we shift the numbers by two or three points toward Mr. Romney in order to make it equivalent to a likely-voter poll.

But what would happen if all those registered voters really did turn out?

I decided to run a version of our “now-cast” — our estimate of what would happen if the election were held today — on a registered-voter rather than likely-voter basis. (The “now-cast” is a little simpler than our Nov. 6 forecast, which also incorporates a [convention bounce adjustment](http://fivethirtyeight.blogs.nytimes.com/2012/08/29/measuring-a-convention-bounce/) and measures of economic performance, and so the now-cast is a little simpler to interpret for purposes of measuring the effects of the likely-voter adjustment.)

This special, registered-voter version of the “now-cast” applies just the opposite of our usual process. If both registered-voter and likely-voter versions of a poll are available, I instruct the model to use the registered-voter numbers. And if there’s only a likely-voter survey, the model shifts the numbers toward Mr. Obama by a couple of points as a proxy for a registered voter poll.

In the regular, likely-voter version of our “now-cast,” Mr. Obama is estimated to have a 68 percent chance of winning the Electoral College in an election held today. But on the basis of registered voters, he would be a 91 percent favorite. Instead of being ahead in the popular vote by a hair over one point, he’d be expected to win by around four. And he’d be projected to win 322 electoral votes, rather than 291.

It’s very unlikely, of course, that Democrats will turn out as high a percentage of their voters as Republicans do. The demographic groups that favor Democrats are just harder to get to the polls.

But if Mr. Obama can narrow Republicans’ advantage in this area — reducing the gap between registered-voter and likely-voter polls to one or two points rather than three, he can get halfway there, and make Mr. Romney’s task much harder.

That’s why, with the exception of the prime-time speeches by Michelle Obama and Bill Clinton, nearly every other speech a Democrat has given at the party’s convention in Charlotte, N.C., has been aimed at firing up different parts of the Democratic base, often with strident rhetoric. And it is why Mr. Obama may serve up a fair amount of “blue meat” in his speech on Thursday night. It will be worth watching the polls after Charlotte to see whether he can narrow the enthusiasm gap.

#### Romney would support an Israeli strike on Iran

Robert W. Merry 8-1-2012; editor of The National Interest and the author of books on American history and foreign policyRomney Edges U.S. toward War with Iran <http://nationalinterest.org/commentary/romney-edges-us-toward-war-iran-7275>

The major newspapers all understood that GOP presidential candidate Mitt Romney’s expressions in Jerusalem last weekend were important, which is why they played the story on page one. But only the New York Times captured the subtle significance of what he said. The paper’s coverage, by Jodi Rudoren and Ashley Parker, reported that Romney sought to adhere to the code that says candidates shouldn’t criticize the president on foreign soil. “But,” they added, “there were subtle differences between what he said—and how he said it—and the positions of his opponent.” Most significantly, while Obama talks about stopping Iran from obtaining nuclear weapons, Israel insists Tehran should be prevented from having even the capacity to develop nuclear weapons. This means no nuclear development even for peaceful purposes. Romney embraced the Israeli language. In doing so, he nudged his nation closer to war with Iran. Based on Israeli prime minister Benjamin Netanyahu’s oft-repeated expressions, he clearly seems bent on attacking Iran to destroy or delay its nuclear program and, if possible, undermine the Iranian regime. And he wants America at his side when he does it. Obama has been seeking to dissuade Israel from contemplating such an assault in order to give the president’s austere sanctions regimen a chance to work. But what does he mean by “a chance to work?” If he means a complete capitulation by Iran, he’s dreaming, of course. History tells us that nations don’t respond to this kind of pressure by accepting humiliation. That’s the lesson of Pearl Harbor, as described in my commentary in these spaces. Many close observers of the Iran drama believe there may be an opportunity for a negotiated outcome that allows Iran to enrich uranium to a limited extent—say, 5 percent—for peaceful purposes. Iran insists, and most experts agree, that the Non-Proliferation Treaty allows such enrichment for energy production. In any event, numerous signatories to the NPT do in fact maintain limited enrichment programs for peaceful ends. Obama seems torn between pursuing such an outcome and embracing the Israeli position, which demands that Iran foreswear all enrichment and any peaceful nuclear development. In last spring’s Istanbul meeting between Iran and the so-called P5+1 group (the United States, Britain, France, China, Russia and Germany), there seemed to be a genuine interest on the part of those six nations to explore an outcome that would allow for some enrichment by Iran. Five weeks later in Baghdad, the P5+1 group seemed to backtrack and insist upon zero enrichment. Talks are ongoing but only among low-level technical people; any serious negotiations are on hold pending the election. Thus Obama has managed to maintain his flexibility during the delicate campaign period. But now we have Romney in Israel essentially telling the people there that they need fear no ambivalence on his part. If elected, he will embrace the Netanyahu position, which is designed to ensure the collapse of any negotiations attending anti-Iran sanctions, which Netanyahu already has labeled a failure. “We have to be honest,” he said over the weekend, during Romney’s visit, “and say that the sanctions and diplomacy so far have not set back the Iranian program by one iota.” That’s the view that Romney subtly embraced in Jerusalem.

#### Great power war

Trabanco 2009 – Independent researcher of geopolitical and military affairs (1/13/09, José Miguel Alonso Trabanco, “The Middle Eastern Powder Keg Can Explode at Anytime,” http://www.globalresearch.ca/index.php?context=va&aid=11762)

In case of an Israeli and/or American attack against Iran, Ahmadinejad's government will certainly respond. A possible countermeasure would be to fire Persian ballistic missiles against Israel and maybe even against American military bases in the regions. Teheran will unquestionably resort to its proxies like Hamas or Hezbollah (or even some of its Shiite allies it has in Lebanon or Saudi Arabia) to carry out attacks against Israel, America and their allies, effectively setting in flames a large portion of the Middle East. The ultimate weapon at Iranian disposal is to block the Strait of Hormuz. If such chokepoint is indeed asphyxiated, that would dramatically increase the price of oil, this a very threatening retaliation because it will bring **intense** financial and **economic havoc upon the West**, which is already facing significant trouble in those respects. In short, the necessary conditions for a major war in the Middle East are given. Such conflict could rapidly spiral out of control and thus a relatively minor clash could quickly and **dangerously escalate by engulfing the whole region** and perhaps even beyond. There are many key players: the Israelis, the Palestinians, the Arabs, the Persians and their respective allies and some **great powers could become involved** in one way or another (America, Russia, Europe, China). Therefore, any miscalculation by any of the main protagonists can trigger something no one can stop. Taking into consideration that the stakes are too high, perhaps it is not wise to be playing with fire right in the middle of a powder keg.

# 1NC 3

#### Oil prices will stabilize now – prices will stick above OPEC break-even levels without significant changes

Irina Rogovaya August 2012; writer for Oil and Gas Eurasia, Oil Price Changes: Everyone Wants Stability <http://www.oilandgaseurasia.com/articles/p/164/article/1875/>

According to the current base forecast for the Eurozone prepared by Oxford Economics, within the next two years oil prices will continue to drift lower, but not beyond the bounds of the “green” corridor for the world economy – $80-100 per barrel. This forecast coincides with the expectations of the World Bank (see Fig. 4). Meanwhile, S&P analysts presented three scenarios for the energy market in June. In the base scenario, oil will remain at $100 per barrel. S&P calculates that the likelihood of a stressful scenario in which the price of oil drops below $60 per barrel (the bottom in 2009) is 1:3. Analysts believe that given today’s state of economic and geopolitical affairs, strong political will would be needed to force the price of oil below $70-80 (the current level of effective production). So far, that will is nowhere to be seen. Recent events have shown that nobody is interested in the Eurozone breaking apart. And nobody wants a war in the Persian Gulf. Furthermore, nobody today intends to force the production of less valuable oil. At least that is what OPEC leaders promised during the recent summit. “Stability on the market should be at the center of our attention,” General Secretary Abdalla El-Badri said. Even Saudi Arabia, which consistently violates OPEC discipline in over-producing its quotas, announced at the beginning of July that it would review its margins to determine a higher price for Saudi supplies ordered on August contracts. Analysts noted that the average price of oil supplied to Europe and Asia had jumped (by $0.85 and $0.66 per barrel respectively), a fact which could be seen as proof that the collective members of the cartel will not let prices fall under $100 per barrel.

#### Nuclear power reduces oil dependence – displaces oil power generation, powers maritime and ground transportation, and causes hydrogen transition

ANS 2012; American Nuclear Society, Top 10 Myths about Nuclear Energyhttp://www.new.ans.org/pi/resources/myths/

Myth # 10: Nuclear energy can't reduce our dependence on foreign oil. Truth: Nuclear-generated electricity powers electric trains and subway cars as well as autos today. It has also been used in propelling ships for more than 50 years. That use can be increased since it has been restricted by unofficial policy to military vessels and ice breakers. In the near-term, nuclear power can provide electricity for expanded mass-transit and plug-in hybrid cars. Small modular reactors can provide power to islands like Hawaii, Puerto Rico, Nantucket and Guam that currently run their electrical grids on imported oil. In the longer-term, nuclear power can directly reduce our dependence on foreign oil by producing hydrogen for use in fuel cells and synthetic liquid fuels.

#### High prices are key to the Russian economy and domestic stability

Michael Schuman 7-5-2012 ; writes about Asia and global economic issues as a correspondent for TIME in Hong Kong. B.A. in Asian history and political science from the University of Pennsylvania and a master of international affairs from Columbia; “Why Vladimir Putin Needs Higher Oil Prices” http://business.time.com/2012/07/05/why-vladimir-putin-needs-higher-oil-prices/

But Vladimir Putin is not one of them. The economy that the Russian President has built not only runs on oil, but runs on oil priced extremely high. Falling oil prices means rising problems for Russia – both for the strength of its economic performance, and possibly, the strength of Putin himself. Despite the fact that Russia has been labeled one of the world’s most promising emerging markets, often mentioned in the same breath as China and India, the Russian economy is actually quite different from the others. While India gains growth benefits from an expanding population, Russia, like much of Europe, is aging; while economists fret over China’s excessive dependence on investment, Russia badly needs more of it. Most of all, Russia is little more than an oil state in disguise. The country is the largest producer of oil in the world (yes, bigger even than Saudi Arabia), and Russia’s dependence on crude has been increasing. About a decade ago, oil and gas accounted for less than half of Russia’s exports; in recent years, that share has risen to two-thirds. Most of all, oil provides more than half of the federal government’s revenues. What’s more, the economic model Putin has designed in Russia relies heavily not just on oil, but high oil prices. Oil lubricates the Russian economy by making possible the increases in government largesse that have fueled Russian consumption. Budget spending reached 23.6% of GDP in the first quarter of 2012, up from 15.2% four years earlier. What that means is Putin requires a higher oil price to meet his spending requirements today than he did just a few years ago. Research firm Capital Economics figures that the government budget balanced at an oil price of $55 a barrel in 2008, but that now it balances at close to $120. Oil prices today have fallen far below that, with Brent near $100 and U.S. crude less than $90. The farther oil prices fall, the more pressure is placed on Putin’s budget, and the harder it is for him to keep spreading oil wealth to the greater population through the government. With a large swath of the populace angered by his re-election to the nation’s presidency in March, and protests erupting on the streets of Moscow, Putin can ill-afford a significant blow to the economy, or his ability to use government resources to firm up his popularity. That’s why Putin hasn’t been scaling back even as oil prices fall. His government is earmarking $40 billion to support the economy, if necessary, over the next two years. He does have financial wiggle room, even with oil prices falling. Moscow has wisely stashed away petrodollars into a rainy day fund it can tap to fill its budget needs. But Putin doesn’t have the flexibility he used to have. The fund has shrunk, from almost 8% of GDP in 2008 to a touch more than 3% today. The package, says Capital Economics, simply highlights the weaknesses of Russia’s economy: This cuts to the heart of a problem we have highlighted before – namely that Russia is now much more dependent on high and rising oil prices than in the past… The fact that the share of ‘permanent’ spending (e.g. on salaries and pensions) has increased…creates additional problems should oil prices drop back (and is also a concern from the perspective of medium-term growth)…The present growth model looks unsustainable unless oil prices remain at or above $120pb.

#### Russian economic collapse causes global nuclear war

Steven David, January/February 1999;Professor of International Relations and Associate Dean of Academic Affairs at the Johns Hopkins University, FOREIGN AFFAIRS, **,** http://www.foreignaffairs.org/19990101faessay955/steven-r-david/saving-america-from-the-coming-civilwars.html

If internal war does strike Russia, economic deterioration will be a prime cause. From 1989 to the present, the GDP has fallen by 50 percent. In a society where, ten years ago, unemployment scarcely existed, it reached 9.5 percent in 1997 with many economists declaring the true figure to be much higher. Twenty-two percent of Russians live below the official poverty line (earning less than $ 70 a month). Modern Russia can neither collect taxes (it gathers only half the revenue it is due) nor significantly cut spending. Reformers tout privatization as the country's cure-all, but in a land without well-defined property rights or contract law and where subsidies remain a way of life, the prospects for transition to an American-style capitalist economy look remote at best. As the massive devaluation of the ruble and the current political crisis show, Russia's condition is even worse than most analysts feared. If conditions get worse, even the stoic Russian people will soon run out of patience.  A future conflict would quickly draw in Russia's military. In the Soviet days civilian rule kept the powerful armed forces in check. But with the Communist Party out of office, what little civilian control remains relies on an exceedingly fragile foundation -- personal friendships between government leaders and military commanders. Meanwhile, the morale of Russian soldiers has fallen to a dangerous low. Drastic cuts in spending mean inadequate pay, housing, and medical care. A new emphasis on domestic missions has created an ideological split between the old and new guard in the military leadership, increasing the risk that disgruntled generals may enter the political fray and feeding the resentment of soldiers who dislike being used as a national police force. Newly enhanced ties between military units and local authorities pose another danger. Soldiers grow ever more dependent on local governments for housing, food, and wages. Draftees serve closer to home, and new laws have increased local control over the armed forces. Were a conflict to emerge between a regional power and Moscow, it is not at all clear which side the military would support.  Divining the military's allegiance is crucial, however, since the structure of the Russian Federation makes it virtually certain that regional conflicts will continue to erupt. Russia's 89 republics, krais, and oblasts grow ever more independent in a system that does little to keep them together. As the central government finds itself unable to force its will beyond Moscow (if even that far), power devolves to the periphery. With the economy collapsing, republics feel less and less incentive to pay taxes to Moscow when they receive so little in return. Three-quarters of them already have their own constitutions, nearly all of which make some claim to sovereignty. Strong ethnic bonds promoted by shortsighted Soviet policies may motivate non-Russians to secede from the Federation. Chechnya's successful revolt against Russian control inspired similar movements for autonomy and independence throughout the country. If these rebellions spread and Moscow responds with force, **civil war is likely**.  Should Russia succumb to internal war, the consequences for the United States and Europe will be severe. **A major power** like Russia -- even though in decline -- **does not suffer civil war quietly or alone**. An embattled Russian Federation might provoke **opportunistic attacks from enemies such as China.** Massive flows of refugees would pour into central and western Europe. Armed struggles in Russia could easily spill into its neighbors. Damage from the fighting, particularly attacks on nuclear plants, would poison the environment of much of Europe and Asia. Within Russia, the consequences would be even worse. Just as the sheer brutality of the last Russian civil war laid the basis for the privations of Soviet communism, a second civil war might produce another horrific regime.

# 1NC 4

**Organizing a more just society should be the primary goal of modern politics – the meticulously economic focus of energy system hamstrings our ability to accomplish this goal and destroys the biosphere and causes global war**

**Dahm and Bannas 2011** (Daniel, Stephen, “The decline of the Fossil Age is the rise of distributive justice” <http://poldev.revues.org/835>)

The many cultures of the world today face a huge challenge: the organisation of a sustainable and just society, which enables people to have a share in the essentials of life, in knowledge and political and cultural development, as well as access to and the use of technological infrastructure. Sustainable development demands more than simply maintaining and protecting the climatic and ecological balance of the bio-geosphere; it requires a constructive effort to enable and promote the evolution of living things and the cooperative development of the diversity of the Earth’s cultural forms as a complement to bio-ecological evolution. In the co-evolution of humanity, economics has taken on an increasingly significant interface function with relation to nature. Economics mediates between the ideas, needs and demands of human culture and social reality on the one hand, and natural resources on the other. The role of energy availability has become ever more important as a result of industrialisation and the increasing tendency to use material and technological methods for economic production. Energy became the means and the motor of economic development. Its availability and access to it increased in significance for the development of industry, wealth and the creation of infrastructure. Many alternative cultural forms had already been marginalised and consigned to history, and many geographical areas had already been restructured to become suppliers of resources for transport to the booming western European-style societies. Together with an increasing shift in the orientation of models of prosperity from “being” to “having” (cp. Fromm, 1976) and the expansion of the consumer goods industry necessary for this, energy availability and energy use became entrenched as a prerequisite for prosperity. Energy transformed ideas and wishes into material goods and legitimised the conception that everything was endlessly feasible. At the start of the 21st century, energy is the source, the prerequisite and the legitimation of the model of power and consumption of the last century. However, there is neither the material basis nor the energy availability for us to pursue further, and around the globe, the resource-hungry and energy-hungry lifestyle of the past decades. This lifestyle never brought happiness (cp. Kasser, 2002). It could never be achieved throughout the world. Today, energy no longer embodies the genie from the bottle, who works wonders, but rather a model for limitless economic growth, material excess and the accumulation of economic, social and political power by one group at the expense of the others. Energy is frequently seen as being synonymous with the climatic and ecological crisis, with greenhouse gases, global injustice and military conflicts. At the same time, though, energy today once again represents hope. The age of renewable energy has dawned and, with its potential for decentralised production, its polycentric supply infrastructure and ecological balance, it represents a new technological age. Renewable energy gives new strength to ideas of good governance, of justice, participation and stewardship of our social goods.

#### The belief in an entirely controllable and regulatable natural world causes extinction

**Dahm and Bannas 2011** (Daniel, Stephen, “The decline of the Fossil Age is the rise of distributive justice” <http://poldev.revues.org/835>)

The biosphere and geosphere exist in close dynamic interdependency. Their relational structure is gaining degrees of complexity whose causal relatedness is far beyond analytical objectivity. In particular, linear determinisms – still common in most scientific analyses – are reaching their limits. The fundamental uncertainty of ecological interdependencies and processes is multiplying within the cultural dimensions of the anthroposphere. Human value concepts and interpretations of reality (lat. res = thing) are becoming bio-ecological and climate ecological parameters. Economic and political strategies are directly affecting the geo-bio-ecological budgets, material and energy flows, accumulation, distribution and the ecological balance – in space as well as in time. 2The wide range of life-threatening conflicts today range from the destructive climate impacts by greenhouse gases as CO2, Methane and others and the atmospheric enrichment with particulate matter, up to the extensive degradation and desertification of soils and landscapes worldwide, the far-reaching pollution and exhaustion of water resources as well as the wasteful use of fossil resources, to the systematic destruction of marine and land ecosystems, and the rapid extinction of the wide variety of life forms. Humans are rarely able to understand clearly the complex chains of cause and effect, but we know that humans play a decisive role in these processes. But much easier to link directly to human behaviour and the human world of ideas is the broad spectrum of severe, destructive and far-reaching conflicts that humanity is facing daily. 3The only field in which humans are able to interact and communicate with their ecological environment is that of “culture”. It is only through culture that human-nature-relations are interpreted and strategically translated and realised. By means of cultures of knowledge, of economics, politics, social and civil relations, etc., humans set limits and openings for their position in “the world”, and their patterns of actions and opportunities. [2. The human-nature-relation: an epistemological disconnect](http://poldev.revues.org/835#tocfrom1n2) 4Scientifically this relationship represents one of the most fundamental epistemological (of the theory of cognition) schisms in history: the contact between a materialistic view of reality and the immaterial “Wirklichkeit” of a living world in dynamic interdependency. “The insights of modern physics – of quantum physics – suggest a new interpretation of the world that carries us beyond the materialistic-mechanistic worldview. Instead of the world assumed until now – a mechanical, temporally determined “reality” of objectifiable things, the real Wirklichkeit (a world that effects) turns out to be basically “potentiality”: an indivisible, immaterial, temporally essentially indeterminate and genuinely creative bonding of relations that determines only “can”-probabilities, a differentiated potential for a material-energetic realization.” (Dürr, Dahm & Lippe, 2005) Such a “schism” cannot be resolved (as historically expected for a long time in the development of the sciences particularly in the philosophies) primarily by means of a change in our spiritual relationship to our world. Rather, and more drastically, humanity is confronted with this epistemological schism through its interaction with the living world, which both includes and borders humanity. The scenarios of bio-geo-ecological crises present human beings in a life-threatening way with the narrowness of their interpretations of the world and of their patterns of behaviour, and challenge them to adopt a new course of action. This goes hand in hand with a confrontation between the diverse cultural strategies and views of reality. 5Living complexes do not follow the mechanistic ideas of the old physics. The manifestations of life emerge and vanish in a highly dynamic flow of interactions. In this way, reality is created in a permanent transformative process. The description of ecology, biological and cultural plurality, and human impacts on nature, demands the describing and consequent inclusion of the in-betweens and go-betweens (Turnbull, D. 2004), of aspects of an inter-connected relatedness that are not measurable. Within such intelligence, the aspects of fuzziness and uncertainty are indivisibly integrated in the comprehension of nature, life and ecology. The consequences for actions and strategies from the local to the global level are presumably drastic, calling for a re-orientation in economic, political, socio-cultural and ecological matters. 6Since the 15th century, a narrow, centralistic world view, which strives to iron out all differences between diverse philosophical outlooks and create homogeneity, has come to dominate as never before. This can be seen especially clearly in the colonisation of virtually the entire known world by western European powers. This was followed by the one-sided monopolisation of the spiritual, living and material resources of our Earth by the European-style power centres. 7These strategies and ways of thinking, adapted all over the world, and the view of humanity that is closely connected with them, have a causal link with the materialistic-mechanistic world view that is still favoured around the globe, i.e. the object-related division of life resulting from the desire to control it (frequently referred to as the Cartesian-Newtonian world view). 8At the start of the modern era, in the 17th century, the changes wrought by the Cartesian revolution engendered diverse and far-reaching processes of social restructuring. This intellectual and philosophical change, having matured for some time, also began to affect the nature of economic activity and the organisation of the state. Put simply, a “God-given” world order was replaced by an impression of unlimited power to shape the world. This brought with it a materialistic view of reality and reduced the relationship between humans and nature to one concerned first and foremost with the production of energy and materials.

#### The Alternative is to take a reality check – energy production follows a stringent line of historical reasoning believing that the next energy revolution will save everything – however through the alternative we can think historically to understand the massive inequalities and violence necessary for the energy regime

**Byrne and Toly 2k6** (john, Noah, “Energy as a Social Project: Recovering a Discourse” Transforming Power: Energy, Environment, And Society in Conflict. Eds John Byrne, Noah Toly, and Leigh Glover. Pgs 1-32. Transaction Publishers. )

From climate change to acid rain, contaminated landscapes, mercury pollution, and biodiversity loss,2 the origins of many of our least tractable environmental problems can be traced to the operations of the modern energy system. A scan of nightfall across the planet reveals a social dilemma that also accompanies this system’s operations: invented over a century ago, electric light remains an experience only for the socially privileged. Two billion human beings—almost one-third of the planet’s population—experience evening light by candle, oil lamp, or open fire, reminding us that energy modernization has left intact—and sometimes exacerbated—social inequalities that its architects promised would be banished (Smil, 2003: 370 - 373). And there is the disturbing link between modern energy and war.3 Whether as a mineral whose control is fought over by the powerful (for a recent history of conflict over oil, see Klare, 2002b, 2004, 2006), or as the enablement of an atomic war of extinction, modern energy makes modern life possible and threatens its future. With environmental crisis, social inequality, and military conflict among the significant problems of contemporary energy-society relations, the importance of a social analysis of the modern energy system appears easy to establish. One might, therefore, expect a lively and fulsome debate of the sector’s performance, including critical inquiries into the politics, sociology, and political economy of modern energy. Yet, contemporary discourse on the subject is disappointing: instead of a social analysis of energy regimes, the field seems to be a captive of euphoric technological visions and associated studies of “energy futures” that imagine the pleasing consequences of new energy sources and devices.4 One stream of euphoria has sprung from advocates of conventional energy, perhaps best represented by the unflappable optimists of nuclear power who, early on, promised to invent a “magical fire” (Weinberg, 1972) capable of meeting any level of energy demand inexhaustibly in a manner “too cheap to meter” (Lewis Strauss, cited in the New York Times 1954, 1955). In reply to those who fear catastrophic accidents from the “magical fire” or the proliferation of nuclear weapons, a new promise is made to realize “inherently safe reactors” (Weinberg, 1985) that risk neither serious accident nor intentionally harmful use of high-energy physics. Less grandiose, but no less optimistic, forecasts can be heard from fossil fuel enthusiasts who, likewise, project more energy, at lower cost, and with little ecological harm (see, e.g., Yergin and Stoppard, 2003). Skeptics of conventional energy, eschewing involvement with dangerously scaled technologies and their ecological consequences, find solace in “sustainable energy alternatives” that constitute a second euphoric stream. Preferring to redirect attention to smaller, and supposedly more democratic, options, “green” energy advocates conceive devices and systems that prefigure a revival of human scale development, local self-determination, and a commitment to ecological balance. Among supporters are those who believe that greening the energy system embodies universal social ideals and, as a result, can overcome current conflicts between energy “haves” and “havenots.” 5 In a recent contribution to this perspective, Vaitheeswaran suggests (2003: 327, 291), “today’s nascent energy revolution will truly deliver power to the people” as “micropower meets village power.” Hermann Scheer echoes the idea of an alternative energy-led social transformation: the shift to a “solar global economy... can satisfy the material needs of all mankind and grant us the freedom to guarantee truly universal and equal human rights and to safeguard the world’s cultural diversity” (Scheer, 2002: 34).6 The euphoria of contemporary energy studies is noteworthy for its historical consistency with a nearly unbroken social narrative of wonderment extending from the advent of steam power through the spread of electricity (Nye, 1999). The modern energy regime that now powers nuclear weaponry and risks disruption of the planet’s climate is a product of promises pursued without sustained public examination of the political, social, economic, and ecological record of the regime’s operations. However, the discursive landscape has occasionally included thoughtful exploration of the broader contours of energy-environment-society relations. As early as 1934, Lewis Mumford (see also his two-volume Myth of the Machine, 1966; 1970) critiqued the industrial energy system for being a key source of social and ecological alienation (1934: 196): The changes that were manifested in every department of Technics rested for the most part on one central fact: the increase of energy. Size, speed, quantity, the multiplication of machines, were all reflections of the new means of utilizing fuel and the enlargement of the available stock of fuel itself. Power was dissociated from its natural human and geographic limitations: from the caprices of the weather, from the irregularities that definitely restrict the output of men and animals. By 1961, Mumford despaired that modernity had retrogressed into a lifeharming dead end (1961: 263, 248): ...an orgy of uncontrolled production and equally uncontrolled reproduction: machine fodder and cannon fodder: surplus values and surplus populations... The dirty crowded houses, the dank airless courts and alleys, the bleak pavements, the sulphurous atmosphere, the over-routinized and dehumanized factory, the drill schools, the second-hand experiences, the starvation of the senses, the remoteness from nature and animal activity—here are the enemies. The living organism demands a life-sustaining environment. Modernity’s formula for two centuries had been to increase energy in order to produce overwhelming economic growth. While diagnosing the inevitable failures of this logic, Mumford nevertheless warned that modernity’s supporters would seek to derail present-tense7 evaluations of the era’s social and ecological performance with forecasts of a bountiful future in which, finally, the perennial social conflicts over resources would end. Contrary to traditional notions of democratic governance, Mumford observed that the modern ideal actually issues from a pseudomorph that he named the “democraticauthoritarian bargain” (1964: 6) in which the modern energy regime and capitalist political economy join in a promise to produce “every material advantage, every intellectual and emotional stimulus [one] may desire, in quantities hardly available hitherto even for a restricted minority” on the condition that society demands only what the regime is capable and willing to offer. An authoritarian energy order thereby constructs an aspirational democracy while facilitating the abstraction of production and consumption from non-economic social values. The premises of the current energy paradigms are in need of critical study in the manner of Mumford’s work if a world measurably different from the present order is to be organized. Interrogating modern energy assumptions, this chapter examines the social projects of both conventional and sustainable energy as a beginning effort in this direction. The critique explores the neglected issue of the political economy of energy, underscores the pattern of democratic failure in the evolution of modern energy, and considers the discursive continuities between the premises of conventional and sustainable energy futures.

# 1NC Prolif

#### SMRs can’t prevent prolif.

Doyle & Newman, ‘11

[Neal, Former Program Coordinator -- Project on Managing the Atom, Andrew, Former Research Associate -- Project on Managing the Atom, 1-18, “Modular Nuclear Reactors Can Meet Safe, Secure, and Proliferation Resistant Energy Demands,” http://belfercenter.hks.harvard.edu/publication/20960/modular\_nuclear\_reactors\_can\_meet\_safe\_secure\_and\_proliferation\_resistant\_energy\_demands.html]

Smaller, modular reactors are a potentially important part of the nuclear future because they could potentially reduce the risk of accidents, terrorism, and proliferation. However, there are many other risks from the existing nuclear complex that need to be managed. As nuclear energy use spreads, making sure it is safe, secure, and used only for peaceful purposes will require a new global management framework. This should include new or strengthened institutions that can effectively accomplish agreed safety, security, and nonproliferation goals while respecting states’ interests in sovereignty and energy security. Russia and the United States, working with other countries, should lead an international negotiation of effective global nuclear safety standards, binding on all participants. Improving safety will also require all states to: strengthen existing regulatory approaches, and establish effective nuclear regulation in “newcomer” states building their first nuclear power plants, to align with the global standard; build “reporting cultures” in which all staff are encouraged to report and resolve all problems that arise that could have an effect on safety; and commit to accepting IAEA-led peer reviews for major civilian facilities. Leading nuclear states must also work together to forge effective global standards for nuclear security, building on agreements already in place, such as the amended Convention on Physical Protection of Nuclear Materials and Facilities, the International Convention on the Suppression of Nuclear Terrorism, and the IAEA’s physical protection recommendations. Expanded exchange of international best practice and more comprehensive and detailed reporting on safety and security-related incidents is vital to this mission. If, on the other hand, nuclear energy is pursued *without* such measures, the result could be both dangerous and inimical to the conditions necessary to achieve and sustain large-scale nuclear growth. Even a single catastrophe – whether a Chernobyl-scale accident, a successful sabotage (a “security Chernobyl”), or worse yet, a terrorist nuclear bomb – would severely undermine prospects for nuclear growth.

**Middle East prolif will be slow and countermeasures prevent breakout prolif.**

**Riedel & Samore, 2008** [Bruce and Gary, Senior Fellow in foreign policy at the Saban Center for Middle East Policy of the Brookings Institution; \*\*vice president, director of studies, and Maurice R. Greenberg chair at the Council on Foreign Relations**,** CFR, "Managing Nuclear Proliferation in the Middle East.” Dec., Google Scholar]

To prepare for dealing with these difficult choices—and mitigating the downsides of whatever decision is taken—the next U.S. administration will need early on to begin a quiet discussion with countries, especially Israel and the Arab Gulf states, which will be most directly affected by a nuclear-armed Iran. Iran is already a dangerous adversary and a nuclear- capable or -armed Iran would be more dangerous. If Iran acquires nuclear weapons, it is likely to behave like other nuclear weapons states, trying to intimidate its foes, but not recklessly using its weapons, nor giv- ing them to terrorists, if faced with a credible threat of retaliation by the United States. While a nuclear Iran will prompt a regional nuclear arms race—indeed it already has begun—**none of the Arab states has a capa- bility to develop an indigenous weapons program for at least a decade**.1 American diplomacy will have an opportunity to shape the regional reac- tion to a nuclear Iran but will also be constrained by the universal per- ception of inconsistency in its handling of the Israeli nuclear arsenal. If diplomacy or force fails to prevent Iran from acquiring nuclear weapons, a declared U.S. nuclear umbrella for the region or parts of it should be a key mechanism for deterring Iran, reassuring Israel, and incorporating our other allies into an effective regional balance.

#### The US can’t prevent proliferation.

Mez, ‘12

[Lutz, senior Associate Professor at the Department of Political and Social Sciences, Freie Universität Berlin, and managing director of the Environmental Policy Research Centre, “Nuclear energy – any solution for sustainability and climate protection?” Energy Policy, Science Direct]

Viewed in historical terms, military use of nuclear energy has gone hand in hand with the development of civil nuclear technology, because most countries attached first priority to the development of nuclear weapons and other military uses, with production of energy in nuclear power plants at first only being a waste product. This by-product developed its own momentum, however: nuclear power became an icon for clean, highly modern technology and technological progress. Moreover, it was a risk-free, highly profitable business for operators of plants because governments paid considerable sums in subsidies and producers could pass on costs to electrical power customers. Branches of the economy which are the most intensive users of electrical power profited from cheap nuclear power —as did the militaries in countries with nuclear weapons—because civil nuclear facilities offer many possibilities for military use.¶ The borderlines between military and civil nuclear technology and thus between war and peace are often hazy (Mez et al., 2010). In order to minimize the risks of military use, regulation of civil use of nuclear energy have been contemplated within a multilateral framework for some time. The idea of establishing an international atomic energy agency (IAEA), to which states are to transfer uranium stocks and other fissionable material, was proposed by former US President Dwight D. Eisenhower in his Atoms for Peace speech3 as far back as 1953 and during the first Geneva atomic conference in 1955. The purpose of the IAEA was to develop methods to ensure that fissionable nuclear material can be used by humankind in a peaceful manner—in agriculture, medicine and energy production for countries and regions of the world with limited energy resources. The Non-Proliferation Treaty, which went into effect in 1970, constituted an attempt to prevent nuclear beggarsfrom becoming nuclear powers through civil nuclear technology transfer. In reality, however, a series of countries including Israel, India, Pakistan and North Korea have obtained nuclear weapons under the pretext of civil use of nuclear power, while other countries such as Iran are accused of having this same intention. This development shows that it is difficult to prevent nuclear weapons from being built and that there is a great likelihood that more and more countries will obtain nuclear capabilities in the future. When a nuclear infrastructure is in place and the basic material for weapons is being produced in facilities for enrichment or reprocessing—in military reactors, dual-purpose reactors or fast breeder-reactors—then it is merely a question of political will and willingness to invest in nuclear technology which decides whether a country develops nuclear weapons or not.

#### Nuclear leadership is impossible -- US arsenal creates hypocrisy and international resentment.

Perkovich, ‘8

[George, vice president for studies and director of the Nonproliferation Program at the Carnegie Endowment for International Peace, “Abolishing Nuclear Weapons: Why the United States Should Lead,” October, http://www.carnegieendowment.org/files/abolishing\_nuclear\_weapons.pdf]

This Brief summarizes four security interests that would be served by making the longterm project of abolishing nuclear weapons a central purpose of U.S. policy: preventing proliferation; preventing nuclear terrorism; reducing toward zero the unique threat of nuclear annihilation; and fostering optimism regarding U.S. global leadership. Each of these objectives can be (and has been) pursued without the larger purpose of eliminating nuclear weapons. However, the chances of success will steadily diminish if the few nuclear-armed states try to perpetuate a discriminatory order based on haves and have-nots and if they enforce it firmly against some states and hollowly against others. Such inequity breeds noncooperation and resistance when what is needed now is cooperation to prevent proliferation, nuclear terrorism, and the failure of deterrence. Why should everyone cooperate in enforcing a system that looks like it was designed to favor just a few?

#### US won’t be able to exert prolif leadership -- too many bureaucratic constraints.

**NEI, ‘12**

[“Improved Policies for Commercial Nuclear Trade Will Create American Jobs,” June, http://www.nei.org/resourcesandstats/documentlibrary/newplants/policybrief/improved-policies-for-commercial-nuclear-trade-will-create-american-jobs?page=1]

While U.S. firms offer some of the most innovative and safest nuclear energy technologies, they are hampered by cumbersome trade regulations, lack of coordination among the federal agencies involved, an inefficient export licensing process, limited options for financing nuclear exports and the absence of an international liability regime. These companies face intense competition from suppliers in nations with less restrictive policies and substantial government subsidies for their nuclear industries. To facilitate a greater U.S. role in the global commercial nuclear market, government support must be integrated into a seamless mechanism that includes coordination of nuclear trade policy, creation of bilateral agreements, export control reform and enhanced export financing. It also is vital that the United States pursue the international adoption of effective civil nuclear liability regimes.

#### Expanding nuclear leadership increases tech transfer and causes prolif -- the US won’t be able to control the process.

**Keeny, ‘7**

[Spurgeon, former deputy director of the U.S Arms Control and Disarmament agency, 6-18, “PANEL II OF A COUNCIL ON FOREIGN RELATIONS SYMPOSIUM; SUBJECT: CAN NUCLEAR ENERGY GO BEYOND THE ENERGY POLICY ACT OF 2005?” Lexis]
MR. KEENY: I'd just like to add one point. Going back half a century, President Eisenhower had a well-intentioned unfortunate initiative and that his "Atoms for Peace" proposal and it was well- intentioned and was based on a thesis that nuclear power would be so commonplace that it had to be accepted as a worldwide phenomenon, and by encouraging it on our terms we would have a better role. And I think that with based on a misunderstanding status for nuclear power at that time that led to a different -- a very foolish program of spreading nuclear reactors all over the world to people who hadn't the remotest idea what to do with them -- how to use them. And -- (inaudible) -- last couple of decades trying to retrieve the remnants of that program, I think we should -- not totally analogous but should carefully examine what we do in introducing -- (off mike) -- because we're going to have to subsidize it. These really poor undeveloping countries can't afford the capital costs of any kind of nuclear program. We should be very careful in thinking it through as to whether we can control the inevitable by doing things at our initiative that will soon get out of -- (inaudible) -- not necessarily stay under our control because I think -- I sort of see that theme emerging again and themes that are strangely reminiscent of that -- (off mike) -- fast -- (inaudible).

# 1NC Grid

**Alt cause to deterrence Nuke threat not credible now**

**Gerson 9** – senior fellow at CFR, was at Heritage Foundation (9/29, Michael, "Rethinking US Nuclear Posture" http://carnegieendowment.org/files/0929\_transcript\_nuclear\_posture.pdf)

On the one hand, I think you can make a case that U.S. threats, whether they’re implicit or explicit – and really what we’re talking about here is the ambiguous threat – is simply not credible. It’s not credible for a variety of reasons. I mean, one is the nuclear taboo, this moral and political aversion to using nuclear weapons that has emerged in the long absence of nuclear use and conflict. In the nuclear arena, the United States is largely seen as cool-headed, risk-averse and sensitive to casualties and collateral damage. The United States does not seem to be able to benefit from the sort of rationality of irrationality type argument. The prospect that the United States would unilaterally shatter the almost seven-decade record of non-use in conflict I think contributes to the belief that the United States would in fact not use nuclear weapons.

Another argument is I think that one could make the case that an unintended consequence of the United States first use – the United States efforts to lead to the global non-proliferation regime is that it reduces the credibility of the United States to use nuclear weapons first. If the United States spends all of this time working on the efforts to prevent others from getting nuclear weapons, it seems – it makes it less credible that the United States would risk shattering that and throwing it all away by using nuclear weapons first.

And finally, in the Gulf War, despite the threats of calculated ambiguity and the ambiguous threat of nuclear weapons, which some believe deterred Saddam, Bush, Scowcroft, Powell, and Baker, all said after the conflict that they had actually never intended on using nuclear weapons. And such public admission I think reduces the credibility of those threats.

**Nuke threat not credible now—crushes deterrence.**

**Gerson 9** – senior fellow at CFR, was at Heritage Foundation (9/29, Michael, "Rethinking US Nuclear Posture" http://carnegieendowment.org/files/0929\_transcript\_nuclear\_posture.pdf)

On the one hand, I think you can make a case that U.S. threats, whether they’re implicit or explicit – and really what we’re talking about here is the ambiguous threat – is simply not credible. It’s not credible for a variety of reasons. I mean, one is the nuclear taboo, this moral and political aversion to using nuclear weapons that has emerged in the long absence of nuclear use and conflict. In the nuclear arena, the United States is largely seen as cool-headed, risk-averse and sensitive to casualties and collateral damage. The United States does not seem to be able to benefit from the sort of rationality of irrationality type argument. The prospect that the United States would unilaterally shatter the almost seven-decade record of non-use in conflict I think contributes to the belief that the United States would in fact not use nuclear weapons.

Another argument is I think that one could make the case that an unintended consequence of the United States first use – the United States efforts to lead to the global non-proliferation regime is that it reduces the credibility of the United States to use nuclear weapons first. If the United States spends all of this time working on the efforts to prevent others from getting nuclear weapons, it seems – it makes it less credible that the United States would risk shattering that and throwing it all away by using nuclear weapons first.

And finally, in the Gulf War, despite the threats of calculated ambiguity and the ambiguous threat of nuclear weapons, which some believe deterred Saddam, Bush, Scowcroft, Powell, and Baker, all said after the conflict that they had actually never intended on using nuclear weapons. And such public admission I think reduces the credibility of those threats.

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# 1NC Solvency

#### SMRs will substantially increase the risk of meltdowns

**Lyman, 11** - A physicist, Edwin S. Lyman is a senior staff scientist in the Global Security Program at the Union of Concerned Scientists in Washington. (Edward, Surviving the one-two nuclear punch: Assessing risk and policy in a post-Fukushima world, Bulletin of the Atomic Scientists, Sept/Oct, sage pub)

One of the early lessons from Fukushima is that prevention of serious nuclear accidents requires significant margins of safety to protect against extreme events. Earlier this week, UCS and the NRC’s Fukushima Near-Term Task Force each issued recommendations for strengthening nuclear safety requirements. Consider the following examples:

Emergency planning zones around U.S. nuclear plants extend to a radius of ten miles. Yet significant radiological contamination from the Fukushima accident has been detected well beyond a distance of ten miles from the plant. In fact, radiation levels high enough to trigger resettlement if they occurred in the United States have been detected over 30 miles away from the Fukushima site. The discussion we should be having today is whether current emergency planning zones need to be increased, not whether we can shrink them for SMRs.

As we have seen at Fukushima, nuclear plants with multiple reactors that experience severe accidents present extreme challenges. In its June 2011 report to the International Atomic Energy Agency, the Nuclear and Industrial Safety Agency of Japan (NISA) stated that:

“The accident occurred at more than one reactor at the same time, and the resources needed for accident response had to be dispersed. Moreover, as two reactors shared the facilities, the physical distance between the reactors was small ... The development of an accident occurring at one reactor affected the emergency responses at nearby reactors. “Reflecting on the above issues, Japan will take measures to ensure that emergency operations at a reactor where an accident occurs can be conducted independently from operation at other reactors if one power station has more than one reactor. Also, Japan will assure the engineering independence of each reactor to prevent an accident at one reactor from affecting nearby reactors. In addition, Japan will promote the development of a structure that enables each unit to carry out accident responses independently, by choosing a responsible person for ensuring the nuclear safety of each unit.”

The NRC will need to consider these issues in developing its licensing approach for small modular reactor sites, which may host two to four times the number of units present at the largest U.S. nuclear plant site today. The NRC has acknowledged that some of its current regulations and procedures do not account for events affecting multiple units on a site. For instance, according to the NRC, emergency planning regulations focus on single-unit events with regard to requirements for emergency operations staffing, facilities and dose projection capability. Also, the NRC’s guidance for probabilistic risk assessment, an analysis tool which is used in many regulatory applications, does not require the consideration of multiple-unit events. The NRC Fukushima Near-Term Task Force is recommending that emergency preparedness requirements be revised to address multiunit events, which could have a significant impact on SMR licensing.

Fukushima also demonstrated how rapidly a nuclear reactor accident can progress to a core meltdown if multiple safety systems are disabled. A well-planned and executed terrorist attack could cause damage comparable to or worse than the earthquake and tsunami that initiated the Fukushima crisis, potentially in even less time. And although Osama bin Laden is gone, the terrorist threat to domestic infrastructure may actually increase over time if al Qaeda seeks to retaliate. This is the wrong time to consider reducing security requirements for nuclear power plants, regardless of their size. However, SMR vendors have emphasized that reducing security staffing is critical for the economic viability of their projects. Christofer Mowry of B&W told the NRC in March that “whether SMRs get deployed in large numbers or not is going to come down to O&M [operations and maintenance]. And the biggest variable that we can attack directly … is the security issue.” A Nuclear Energy Institute representative said in a presentation in June that “optimal security staffing levels [for SMRs] may appreciably differ from current levels.”

#### Safety vulnerabilities turn every advantage

**Baker, 6-22-12**

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

The speakers at the DESC briefing suggested a surge is needed in SMR production to combat a major vulnerability in America’s national security: possible attacks to the power grid. Such attacks could cause blackouts for over a year according to Congressman Bartlett, leading to blackouts never before experienced in the United States. In such an event the U.S. military would still need to function 24/7. Current predictions made by the DESC suggest that up to 90% of the US military’s energy needs could be supplied by SMRs.¶ Congressman Bartlett also pointed out that current military bases such as Guam – which is fueled by the transport of diesel – are extremely vulnerable should the energy transport system be disrupted. Fuel supplies are even more unstable in Afghanistan, where one out of every twenty-four convoys results in a casualty. According to Congressman Bartlett, SMRs could make such bases energy self-sufficient.¶ Unfortunately all the hype surrounding SMRs seems to have made the proponents of SMR technology oblivious to some of its huge flaws.¶ Firstly like large reactors, one of the biggest qualms that the public has to nuclear is problems associated with nuclear waste. A more decentralized production of nuclear waste inevitably resulting from an increase in SMRs production was not even discussed. The danger of transporting gas into some military bases in the Middle East is already extremely volatile; dangers of an attack on the transit of nuclear waste would be devastating.¶ Secondly, SMRs pose many of the same problems that regular nuclear facilities face, sometimes to a larger degree. Because SMRs are smaller than conventional reactors and can be installed underground, they can be more difficult to access should an emergency occur. There are also reports that because the upfront costs of nuclear reactors go up as surface area per kilowatt of capacity decreases, SMRs will in fact be more expensive than conventional reactors.¶ Thirdly, some supporters of SMR technology seem to have a skewed opinion of public perception toward nuclear energy. Commissioner of the U.S. Nuclear Regulatory Commission, William C. Ostendorff, didn’t seem to think that the recent Fukushima disaster would have any impact on the development on SMRs. Opinion polls suggest Americans are more likely to think that the costs of nuclear outweigh its benefits since the Fukushima disaster. For SMRs to be the philosopher’s stone of the military’s energy needs the public needs to be on board.¶ The DESC’s briefing did illustrate the hype that the nuclear community has surrounding SMRs, highlighting some pressing issues surrounding the military’s energy vulnerability. But proponents of SMRs need to be more realistic about the flaws associated with SMRs and realize that the negative impacts of nuclear technology are more costly than its benefits.

#### The aff can’t solve -- lots of structural obstacles prevent SMR commercialization.

Spencer & Loris, ‘11

[Jack, Research Fellow in Nuclear Energy in the Thomas A. Roe Institute for Economic Policy Studies, Nicolas, Research Associate in the Roe Institute, The Heritage Foundation, 2-2, “A Big Future for Small Nuclear Reactors?” http://www.heritage.org/research/reports/2011/02/a-big-future-for-small-nuclear-reactors]

If SMRs Are So Great, Where Is the Construction?¶ While some designs are closer to market introduction than others, the fact is that America’s regulatory and policy environment is not sufficient to support a robust expansion of existing nuclear technologies, much less new ones. New reactor designs are difficult to license efficiently, and the lack of a sustainable nuclear waste management policy causes significant risk to private investment.¶ Many politicians are attempting to mitigate these market challenges by offering subsidies, such as loan guarantees. While this approach still enjoys broad support in Congress and industry, the reality is that it has not worked. Despite a lavish suite of subsidies offered in the Energy Policy Act of 2005, including loan guarantees, insurance against government delays, and production tax credits, no new reactors have been permitted, much less constructed. These subsidies are in addition to existing technology development cost-sharing programs that have been in place for years and defer significant research and development costs from industry to the taxpayer.¶ The problem with this approach is that it ignores the larger systemic problems that create the unstable marketplace to begin with. These systemic problems generally fall into three categories:¶ Licensing. The Nuclear Regulatory Commission (NRC) is ill prepared to build the regulatory framework for new reactor technologies, and no reactor can be offered commercially without an NRC license. In a September 2009 interview, former NRC chairman Dale E. Klein said that small nuclear reactors pose a dilemma for the NRC because the commission is uneasy with new and unproven technologies and feels more comfortable with large light water reactors, which have been in operation for years and has a long safety record.[11] The result is that enthusiasm for building non-light-water SMRs is generally squashed at the NRC as potential customers realize that there is little chance that the NRC will permit the project within a timeframe that would promote near-term investment. So, regardless of which attributes an SMR might bring to the market, the regulatory risk is such that real progress on commercialization is difficult to attain. This then leaves large light water reactors, and to a lesser extent, small ones, as the least risky option, which pushes potential customers toward that technology, which then undermines long-term progress, competition, and innovation.¶ Nuclear Waste Management. The lack of a sustainable nuclear waste management solution is perhaps the greatest obstacle to a broad expansion of U.S. nuclear power. The federal government has failed to meet its obligations under the 1982 Nuclear Waste Policy Act, as amended, to begin collecting nuclear waste for disposal in Yucca Mountain. The Obama Administration’s attempts to shutter the existing program to put waste in Yucca Mountain without having a backup plan has worsened the situation. This outcome was predictable because the current program is based on the flawed premise that the federal government is the appropriate entity to manage nuclear waste. Under the current system, waste producers are able to largely ignore waste management because the federal government is responsible. The key to a sustainable waste management policy is to directly connect financial responsibility for waste management to waste production. This will increase demand for more waste-efficient reactor technologies and drive innovation on waste-management technologies, such as reprocessing. Because SMRs consume fuel and produce waste differently than LWRs, they could contribute greatly to an economically efficient and sustainable nuclear waste management strategy.¶ Government Intervention. Too many policymakers believe that Washington is equipped to guide the nuclear industry to success. So, instead of creating a stable regulatory environment where the market value of different nuclear technologies can determine their success and evolution, they choose to create programs to help industry succeed. Two recent Senate bills from the 111th Congress, the Nuclear Energy Research Initiative Improvement Act (S. 2052) and the Nuclear Power 2021 Act (S. 2812), are cases in point. Government intervention distorts the normal market processes that, if allowed to work, would yield the most efficient, cost-effective, and appropriate nuclear technologies. Instead, the federal government picks winners and losers through programs where bureaucrats and well-connected lobbyists decide which technologies are permitted, and provides capital subsidies that allow investors to ignore the systemic problems that drive risk and costs artificially high. This approach is especially detrimental to SMRs because subsidies to LWRs distort the relative benefit of other reactor designs by artificially lowering the cost and risk of a more mature technology that already dominates the marketplace.¶

#### You should be skeptical of their ev -- SMR designs are untested on a commercial scale -- tons of technical details could hinder effectiveness.

Szondy, ‘12

[David, freelance writer -- Gizmag, 2-16, “Feature: Small modular nuclear reactors - the future of energy?” <http://www.gizmag.com/small-modular-nuclear-reactors/20860/>]

As impressive as many of these reactors sound, most of them are still in one stage or another of development or approval. It is a long way from there to flipping a switch and watching the lights go on. Most of these designs have roots that go back over half a century.¶ In the 1950s, Admiral Hyman Rickover, the architect of the US nuclear fleet, pointed out that the small research reactors, the precursors of SMRs, had a lot of advantages. They were simple, small, cheap, lightweight, easy to build, very flexible in design and needed very little development. On the other hand, practical reactors must be built on schedule, need a huge amount of development spent on "apparently trivial matters", are expensive, large, heavy and complicated. In other words, there's a large gap between what is promised by a technology in the design phase and what it ends up as once it's built.¶ So it is with the current stable of SMRs. Many hold great promise, but they have yet to prove themselves. Also, they raise many questions. Will an SMR need fewer people to run it? What are its safety parameters? Will they fulfill current regulations? Will the regulations need to be changed to suit the nature of SMRs? Will evacuation zones, insurance coverage or security standards need to be altered? What about regulations regarding earthquakes?

#### Decades to operational readiness.

ITA, 11

[International Trade Administration -- U.S. Department of Commerce, February, “The Commercial Outlook for U.S. Small Modular Nuclear Reactors,” http://trade.gov/mas/ian/build/groups/public/@tg\_ian/@nuclear/documents/webcontent/tg\_ian\_003185.pdf]

Although SMRs have significant potential and the market for their deployment is growing, their designs must still go through the technical and regulatory processes necessary to ensure that they can be safely and securely deployed. Lightwater technology–based SMRs may not be ready for deployment in the United States for at least a decade, and advanced designs might be even further off. Light-water SMRs and SMRs that have undergone significant testing are the most likely candidates for near-term deployment, because they are most similar to existing reactors that have certified designs and significant operating histories. NuScale is on track to submit its reactor design to the NRC by 2012, as is Babcock & Wilcox for its mPower design. In addition, GE-Hitachi, which already completed an NRC