## CP

### Solves the Case---2NC

#### No solvency deficits---the plan offers money for electricity, which incentivizes corporations to build nuclear reactors and sell their energy to DOD---the counterplan offers money for reactors, which obviously by the same logic would cause companies to build reactors and sell them to DOD.

#### Framing issue---none of their evidence compares alternative financing to procurement in a substantive sense---alternative financing’s useful because the government doesn’t usually do procurement of energy projects, and DOD had to learn to live within those constraints---the counterplan obviously changes that which renders their solvency takeouts irrelevant.

#### 1NC---CSPO, Silva

#### Definitely solves the case

Jim DiPeso 10, is policy director for Republicans for Environmental Protection, Winter 2010, “Can DOD Lead the Way to a Better Energy Future?,” Environmental Quality Management, Vol. 20, No. 2

Using DOD’s Purchasing Power

Finally, one sure way to create a market for innovative energy technologies is to buy them in large quantities. The Defense Department already works with energy-savings performance contractors who install efficiency measures and are paid through a share of the resulting savings on energy bills. For example, the Air Force is financing more than $5 million in energy-savings projects at Holloman Air Force Base in New Mexico, including lighting upgrades and installation of building occupancy sensors. The Air Force estimates that the investment will return annual energy-bill savings exceeding $1 million per year.23

As the military makes further progress on alternative fuels and renewables, the purchasing power of DOD is expected to have an even larger impact. A recent article in the New York Times noted, “While setting national energy policy requires Congressional debates, military leaders can simply order the adoption of renewable energy. And the military has the buying power to create products and markets. That, in turn, may make renewable energy more practical and affordable for everyday uses, experts say.”24

#### Zero solvency deficit to procurement vs. alternative financing

GAO 3 – Government Accountability Office, August 2003, “Budget Issues: Alternative Approaches to Finance Federal Capital,” http://www.gao.gov/assets/240/239391.pdf

Capital projects are fully funded when Congress provides budget authority for the full cost of an asset up front. Such up-front funding provides recognition for commitments that are embodied in budgetary decisions and maintains government-wide fiscal control. However, providing budget authority for the large up-front costs of capital assets creates challenges in an era of resource constraints. Agencies have been authorized to use an array of approaches to obtain capital assets without full, up-front budget authority. Our work identified 10 alternative financing approaches used by one or more of 13 agencies. These approaches, which are described in our letter, are:

• incremental funding,

• operating leases,

• retained fees,

• real property swaps,

• sale-leasebacks,

• lease-leasebacks,

• public private partnerships,

• outleases,

• share-in-savings contracts, and

• debt issuance.

From an agency’s perspective, meeting capital needs through alternative financing approaches (i.e., not full funding) can be very attractive because the agency can obtain the capital asset without first having to secure sufficient appropriations to cover the full cost of the asset. Depending on the financing approach, an agency may spread the asset cost over a number of years or may never even incur a monetary cost that is recognized in the budget. From a governmentwide perspective, however, as we have reported in the past, the costs associated with these financing approaches may be greater than with full, up-front budget authority. Regardless of the financing approach—up-front budget authority or any of the other approaches— agencies would receive the same program benefits.

#### The permutation means that DOD still gets all or nearly all of the electricity for bases from alternative financing projects. Several arguments:

#### 1) The plan:

#### a) it says “obtain electricity”---the word “obtain” is defined as receiving the transfer of property or securing the actual performance of a service

NRS 9 – Nevada Revised Statutes, 2009, CHAPTER 205 - CRIMES AGAINST PROPERTY, http://www.leg.state.nv.us/NRS/NRS-205.html

NRS 205.0827 “Obtain” defined. “Obtain” means to bring about or receive the transfer of any interest in property, or to secure performance of a service. (Added to NRS by 1989, 1204)

#### b) That means that the plan text commits to actually receving the electricity from the plan’s alternatively-financed SMRs---the counterplan text does not over-ride that because its only mandate is to procure the reactors for the bases---the most likely result of the permutation is that the plan’s reactors would supply the base with electricity while the counterplan’s reactors would functionally be un-used backup capacity just sitting on bases.

### AT: Do the CP

#### SCOTUS ev is about the word “SCOTUS”

#### Their GAO ev is about leasing it

#### Un-thinkable---the CP clearly excludes a mandate of the plan---reject severance to deter bad practices.

#### Appropriated funds and alternative financing are distinct

Jeffrey Marqusee 12, Executive Director of the Strategic Environmental Research and Development Program (SERDP) and the Environmental Security Technology Certification Program (ESTCP) at the Department of Defense, March 2012, “Military Installations and Energy Technology Innovation,” in Energy Innovation at the Department of Defense: Assessing the Opportunities, http://bipartisanpolicy.org/sites/default/files/Energy%20Innovation%20at%20DoD.pdf

Decisions on implementing these technologies will be made in a distributed sense and involve tens of thousands of individual decision makers if they are ever to reach large-scale deployment. These are the energy technologies that DoD installations will be buying, either directly through appropriated funds or in partnership with third-party financing through mechanisms such as Energy Saving Performance Contracts (ESPCs) or Power Purchase Agreements (PPAs). In the DOE taxonomy shown above, these distributed installation energy technologies cover the demand space on building and industrial efficiency, portions of the supply space for clean electricity when restricted to distributed generation scale, and a critical portion in the middle where microgrids and their relationship to energy storage and electric vehicles reside.

#### The CP is an explicit alternative to the CP

GAO 9 – Government Accountability Office, December 2009, “Defense Infrastructure: DOD Needs to Take Actions to Address Challenges in Meeting Federal Renewable Energy Goals,” <http://www.gao.gov/new.items/d10104.pdf>

DOD has funded renewable energy projects on its installations using both up-front appropriated dollars and various types of agreements with private sector entities. 23 DOD primarily uses funding from two kinds of appropriation accounts to develop renewable energy projects. First, DOD uses a military construction account to pay for the Energy Conservation Investment Program—funding that Congress provides directly to OSD and that OSD, in turn, allocates to each of the services. Program funds are specifically directed toward energy conservation and renewable energy projects. Second, the services’ annual operation and maintenance appropriations provide funding that many installations have used to support small renewable energy projects.24

DOD has also joined with private sector entities, entering into various types of arrangements to develop renewable energy projects. Because these different arrangements with the private sector provide DOD with an alternative to using only up-front appropriations to fund renewable energy projects, we refer to these arrangements as alternative financing approaches. For the purposes of this report, we define an alternative financing approach as any funding arrangement other than projects in which total project costs are funded only through full up-front appropriations. DOD has entered into several different types of these approaches that have resulted in renewable energy projects.

### Their Cards

#### Long term contracts key to market signal

Farrell 11

LIEUTENTANT GENERAL KEN EICKMANN, USAF (RET.) Former Commander, Aeronautical Systems Center, Wright-Patterson Afb, and LIEUTENANT GENERAL LAWRENCE P. FARRELL JR., USAF (RET.), Former Deputy Chief Of Staff For Plans And Programs, Headquarters U.S. Air Force, October 11, Ensuring America’s Freedom of Movement:, http://www.cna.org/sites/default/files/MAB4.pdf

Retired Air Force Lieutenant General Lawrence Farrell sees a limited, but important, role for the Pentagon in helping develop alternatives to petroleum. “I like relying on markets to do what they do well,” said Farrell. “For many years, market forces have inspired initiative, innovation, and creativity. I want to keep those forces intact. But one thing DOD can do well is to be a sort of forcing function. The Pentagon can say, ‘This is the direction we’re going, guys.’ You let the market know that there will be a consistent demand**.”** Changes may be required before the Pentagon can send the kinds of clear signals Farrell says are needed. “We need to make sure the Pentagon can effectively engage in long-term purchasing,” Farrell said. “Investors want to know how they’ll get paid back. If you want to rely on private money to develop alternatives to oil— and I think that’s the right approach—those investors need to understand there is a strong prospect of return. So you need this.” Retired Air Force Lieutenant General Kenneth Eickmann believes energy issues should be more visible within the DOD. “For too long, energy issues have been assumed away,” Eickmann said. “With respect to war games, until recently, you could always assume that whatever fuel you want or need is going to be there. We can’t do that anymore. And the same is true in society—we shouldn’t be taking our fuel for granted.” “With greater visibility should come better coordination within DOD, particularly if one of the goals is to send strong market signals,” he added.

#### Alt financing is key to utility operation of SMRs—CP causes expertise gap

GAO, April 2012, RENEWABLE ENERGY PROJECT FINANCING: Improved Guidance and Information Sharing Needed for DOD Project-Level Officials, http://gao.gov/assets/590/589883.pdf

Operation and maintenance of equipment. According to several officials, the operation and maintenance of equipment is a benefit of most alternatively financed projects and a drawback of projects funded with up-front appropriations. Projects financed with an alternative-financing approach generally involve the contractor operating and maintaining the equipment during the contract period, whereas the government typically is responsible for the operation and maintenance of equipment purchased with appropriated funds. Officials cited this as a significant benefit of alternatively financed projects—and a drawback of projects funded with up-front appropriations—because, according to the officials, installations often do not have personnel on-staff with the knowledge, skills, or expertise to operate and maintain the equipment needed to generate renewable energy. Officials noted, however, that for projects financed with Energy Savings Performance Contracts or Utility Energy Service Contracts, the contract period could be a relatively short period of time. According to these officials, after the contract period ends, the installation assumes ownership—and therefore the operation and maintenance—of the equipment, which can be a drawback of these two approaches.

### Yes Spillover

#### Yes commercialization

Marqusee 12 Jeffrey, Executive director at the Strategic Environmental Research and Development Program at the DOD, “Military Installations and Energy Technology Innovations”, Energy Innovation at the Department of Defense: Assessing the Opportunities, March, PDF online

Conclusion¶ DoD has been an enormous engine of innovation in America, driving the development of both defense technologies and, ultimately, very large sectors of commercial activity. In addition to its traditional focus on conventional military hardware, there is now great interest in applying those capabilities to energy innovation, an area of activity that can have enormous benefits both to the United States military and to the country as a whole. In thinking about this question, it is worth considering the two different (but complementary) models of innovation at DoD: the well-known Defense Advanced Research Projects Agency (DARPA) model, which has produced extraordinary technological breakthroughs (at great cost) that have allowed America to dominate the battlefield; and the more recent SERDP and ESTCP model, which focuses less on cost-insensitive breakthroughs and more on developing and demonstrating cost-effective technologies that can enhance the effectiveness of the overall fighting force. The SERDP and ESTCP’s test bed cost-consciousness and ability to work across the spectrum from basic to applied research and demonstration makes it uniquely effective at assisting innovative technologies across the Valley of Death and into commercial viability. While the extraordinary “leap-ahead” innovations of DARPA more easily capture the imagination, the ability of the ESTCP’s test bed program to improve the overall energy efficiency of the United States military—and the civilian economy—should not be overlooked. ESTCP offers both the military and the nation an effective approach that can leverage the large investments in energy technology developments at DOE and the private sector, and result in a real energy revolution.

### AT: No Experience/Capacity

#### The military is badass at handling SMRs

William Tucker 11, the author of Terrestrial Energy: How Nuclear Power Will Lead the Green Revolution and End America's Energy Odyssey, March 2011, “America’s Last Nuclear Hope,” http://spectator.org/archives/2011/03/21/americas-last-nuclear-hope/print

In fact, the whole idea of using small reactors has been accepted by the military for decades. Nuclear submarines are powered by 50-MW reactors that sit a few feet away from crew members and run for five years without refueling. Admiral Hyman Rickover operated the Nuclear Navy on impeccable standards and there has never been an accident or a life lost due to radiation exposure. Since the 1990s, nuclear reactors now power aircraft carriers as well. The reactors aboard Nimitz class carriers are slightly bigger -- 194 megawatts -- and supply electricity for what amounts to a small floating city of 2,000 people. Again, there has never been an accident.

### AT: Delay

This is about getting from DOE

#### Causes years delay

McCormick, 12

(“Interview with Colin McCormick,” This interview was conducted with Dr. Colin McCormick, (Senior Advisor for R&D in the Office of the Under Secretary at the Department of Energy. He previously served as the Team Lead for Emerging Technologies in the Building Technologies Program of the Office of Energy Efficiency and Renewable Energy (EERE). Prior to joining the Department of Energy he was an energy and security analyst at the Federation of American Scientists, a staff member with the House Science and Technology Committee, and an AAAS Congressional Fellow on the staff of Rep. Ed Markey of Massachusetts. Dr. McCormick received his PhD in atomic and optical physics from the University of California, Berkeley, and did post-doctoral work in quantum optics at the National Institute of Standards and Technology (NIST) in the group of 1997 Physics Nobel Laureate William Phillips. Dr. McCormick reviewed, revised and approved the below text for publication. Specifically, this interview began as discussions that took place on October 17, 2012 and October 22, 2012, with questions being asked by members of GWDebate (Francisco Bencosme, Kevin Bertram, Lauren Cashmore, Paul Hayes, Joseph Nelson and Kyla Sommers). 10/17, http://debateandtherealworld.com/article.php?id=3)

D+TRW: What is your view on the suggestion that the DOD should pursue its own SMR or nuclear project apart from the DOE? McCormick: The DOD could build their own lab to research nuclear power, but that would be very inefficient and duplicative. It would also hire people away from DOE labs that are working on important projects. The DOD would have to build equipment, test chambers, radiation shields, etc. All of that already exists and is used at the DOE labs. It would seem very wasteful to try to pursue that. It would also delay efforts, for several years easily. The DOD does have laboratory infrastructure, but if you wanted to actually build nuclear test infrastructure, you would have to find a site not near population centers, would then have to have the site inspected by the NRC. And that's true even when it's the military. That would be a very long start up time. Not to mention extremely costly.

### AT: No Land

#### They just have to own it, doesn’t have to go right in the middle of the base

## Net-Benefits

#### Accountability---DOD REC purchases destroy agency accountability and transparency

Loni Silva 12, J.D., The George Washington University Law School, Summer 2012, “THE PROBLEMS WITH USING RENEWABLE ENERGY CERTIFICATES TO MEET FEDERAL RENEWABLE ENERGY REQUIREMENTS,” Public Contract Law Journal, Vol. 41, No. 4

The second problem with RECs is that using them to meet EPAct 2005 and EO 13423 requirements implicates transparency and accountability. 101 EPAct 2005 and EO 13423 require agencies to consume renewable energy and neither policy indicates that purchasing RECs qualiﬁes as consuming renewable energy. 102 Rather, the FEMP guidance introduces the concept of allowing RECs to meet the policy requirements: “For purposes of the EPAct 2005 and EO 13423 Requirements, purchases of RECs are treated the same as renewable energy purchases.” 103

FEMP’s interpretation allowing RECs to satisfy the policy requirements violates the spirit of transparency because it provides an obscure way for agencies to meet the requirements. Transparency requires that “government business is conducted in an . . . open manner.” 104 If the policies themselves stated that their renewable energy requirements could be met with RECs, there would be no transparency concerns because the methods of compliance would be apparent on the face of the policies. 105 Instead, the policies only describe compliance through use of renewable energy—they never mention RECs. 106 Yet agencies can comply by using RECs because FEMP’s REC interpretation subsequently allows RECs to be treated as renewable energy. 107 The FEMP guidance allows a method of compliance one would not expect from the face of the statute, and this implicates signiﬁcant transparency concerns. This lack of transparency means that accountability is also sacriﬁced. 108 A taxpayer cannot know from the face of the statute that agencies can use RECs.109 A taxpayer is therefore less likely to hold the Government accountable.

#### Causes foreign policy catastrophes

Norman J. Ornstein 6, Resident Scholar at the American Enterprise Institute; and Thomas E. Mann, the W. Averell Harriman Chair and Senior Fellow in Governance Studies at the Brookings Institution, November/December 2006, “When Congress Checks Out,” Foreign Affairs

The making of sound U.S. foreign policy depends on a vigorous, deliberative, and often combative process that involves both the executive and the legislative branches. The country's Founding Fathers gave each branch both exclusive and overlapping powers in the realm of foreign policy, according to each one's comparative advantage -- inviting them, as the constitutional scholar Edwin Corwin has put it, "to struggle for the privilege of directing American foreign policy."

One of Congress' key roles is oversight: making sure that the laws it writes are faithfully executed and vetting the military and diplomatic activities of the executive. Congressional oversight is meant to keep mistakes from happening or from spiraling out of control; it helps draw out lessons from catastrophes in order to prevent them, or others like them, from recurring. Good oversight cuts waste, punishes fraud or scandal, and keeps policymakers on their toes. The task is not easy. Examining a department or agency, its personnel, and its implementation policies is time-consuming. Investigating possible scandals can easily lapse into a partisan exercise that ignores broad policy issues for the sake of cheap publicity.

### Leadership Net-Benefit---2NC

#### Large-scale reliance on renewable energy credit purchases to meet green tech mandates collapses DOD leadership in the clean tech transition---RECs get spotlighted as a form of corporate greenwashing because they’re a way to buy out of obligations to increase green energy---most RECs are generated by existing renewable capacity which means reliance on them obviates the need to increase overall renewable adoption---that’s Schendler.

#### The perception of greenwashing collapses the overall credibility of the DOD’s leadership in the clean tech transition---there’s skepticism about their follow-through in terms of efforts to spur broader renewable energy development---DOD credibility’s necessary to lead the cultural shift towards wide-scale adoption of a broad spectrum of renewables both in the U.S. and globally---that’s Hornton.

#### It turns the case---destroying DOD credibility on green energy issues means that the private sector doesn’t adopt SMRs as a result of the plan.

#### And a broad-based clean tech transition featuring a multiplicity of renewable energies is key to overall U.S. power relative to rising peer competitors---locks in U.S. competitiveness, solves warming, and prevents looming global resources wars, all of which get to extinction---that’s Klarevas.

### Uniqueness---2NC

#### It’s unique---DOD’s committed to showing leadership on sustainability by using renewables on installations---plan reverses that

DOD 11 – Department of Defense, 7/11/11, “Department of Defense Strategic Sustainability Performance Plan,” http://www.acq.osd.mil/ie/download/green\_energy/dod\_sustainability/DoD%20SSPP%20Public\_2011.pdf

Relating specifically to the fixed installations under the purview of this Plan, a final challenge is grid vulnerability. DoD’s reliance on the commercial grid to deliver electricity to more than 500 major installations places the continuity of critical missions at risk. In general, installations lack the ability to manage their demand for and supply of electrical power, making them potentially vulnerable to intermittent or prolonged power disruption caused by natural disasters, attacks, or sheer overload of the grid. With the increasing reliance of U.S. combat forces on “reach back” support from installations in the United States, power failures at those installations could adversely affect power projection and homeland defense capability. This means that an energy threat to bases in the United States can be a threat to operations abroad. The Department is committed to renewable energy not only because it is dedicated to showing leadership in sustainability, but because it improves resilience and thus mission readiness. Military installations are generally well situated to support solar, wind, geothermal and other forms of renewable energy, as long as the type of energy facility, its siting, and its physical and operational characteristics are carefully evaluated and mitigated as needed for any mission or readiness impacts.

### Nuclear Counts Under Mandates

#### Nuclear counts under the mandates---specifically SMRs

Marcus King et al 11, Associate Director of Research, Associate Research Professor of International Affairs, Elliot School of International Affairs, The George Washington University, et al., March 2011, “Feasibility of Nuclear Power on U.S. Military Installations,” <http://www.cna.org/sites/default/files/research/Nuclear%20Power%20on%20Military%20Installations%20D0023932%20A5.pdf>

Pursuant to Presidential Executive Orders and environmental policies and regulations, DoD may consider nuclear power as part of a strategy to reduce greenhouse gas emissions.

President Bush issued Executive Order 13423, “Strengthening Federal Environmental, Energy, and Transportation Management,” dated 24 January 2007. The order instructs agencies to conduct environmental, energy, and transportation activities in an environmentally sustainable manner. Specifically, EO 13423 assigns responsibility to the cabinet agencies to implement sustainable practices for energy efficiency, greenhouse gas emissions reductions, renewable energy use, high- performance construction, and vehicle fleet management.

President Obama issued two mandates related to energy use:

• Executive Order 13514, “Federal Leadership in Environmental, Energy, and Economic Performance,” dated 5 October 2009, instructs federal agencies to reduce greenhouse gas emissions, increase energy efficiency, eliminate waste, recycle, prevent pollution, foster markets for sustainable technologies, and operate sustainable buildings [29].

• On 29 January 2010, President Obama announced a government-wide target to reduce greenhouse gas emissions by 28 percent by 2020 [30].

In addition to Executive Orders, DoD is implementing policies at the department level to reduce its dependence on fossil fuels and reduce its carbon emissions. Accordingly, DoD announced on 29 January 2010 that the department would reduce its greenhouse gas emissions from noncombat activities by 34 percent by 2020 [31].

To meet its energy-related goals, DoD is engaging in interagency coordination. In the 2010 Quadrennial Defense Review, DoD expressed intent to collaborate with other U.S. agencies to research, develop, test, and evaluate new sustainable energy technologies. On 22 July 2010, DoD signed an MOU with DOE [17]. The background section of this MOU expresses DoD’s aims in entering into the agreement:

DoD aims to speed innovative energy and conservation technologies from laboratories to military end users, and it uses military installations as a test bed to demonstrate and create a market for innovative energy efficiency and renewable energy technologies coming from the DOE labs and other sources [17].

Specific activities related to nuclear energy in general and small modular reactors in particular covered under the MOU include, but are not limited to, the following:

• Maximization of DoD access to DOE technical expertise and assistance through cooperation in the deployment and pilot testing of emerging technologies. Technology areas may include, but are not limited to, energy efficiency, renewable energy, water efficiency, fossil fuels, alternative fuels, efficient transportation technologies and fueling infrastructure, grid security, smart grid, storage, waste-to-energy, basic science research, mobile/deployable power, small modular reactor nuclear energy, and related areas.

## CP

### Perm Both

### Perm CP

### Solvency---Grid---2NC

#### The counterplan deploys smart microgrids on military installations---it tailors an approach to each installation’s circumstances to provide the best mix of site-specific renewables, bolsters energy storage capacity and backup generation, and integrates smart management so mission-critical assets can operate independently of the grid---that’s SERDP and Ackerman.

#### None of their answers presume the combination of mechanisms---the full CP altogether resolves deficiencies of any single plank---that solves islanding, and DOD will remedy any failures in the system

Dr. Dorothy Robyn 12, Deputy Under Secretary of Defense for Installations and Environment, 3/27/12, Testimony before the Senate Appropriations Subcommittee on Military Construction, Veterans Affairs, and Related Agencies, Congressional Documents & Publications, lexis

The first two elements of our facility energy strategy contribute indirectly to installation energy security; in addition, we are addressing the problem directly. A major focus of my office is smart microgrid technology. Smart microgrids and energy storage offer a more robust and cost effective approach to ensuring installation energy security than the current one--namely, back-up generators and (limited) supplies of on-site fuel. Although microgrid systems are in use today, they are relatively unsophisticated, with limited ability to integrate renewable and other distributed energy sources, little or no energy storage capability, uncontrolled load demands and "dumb" distribution that is subject to excessive losses. By contrast, we envision microgrids as local power networks that can utilize distributed energy, manage local energy supply and demand, and operate seamlessly both in parallel to the grid and in "island" mode.

Advanced microgrids are a "triple play" for DoD's installations. Such systems will reduce installation energy costs on a day-to-day basis by allowing for load balancing and demand response. They will also facilitate the incorporation of renewable and other on-site energy generation. Most important, the combination of on-site energy and storage, together with the microgrid's ability to manage local energy supply and demand, will allow an installation to shed non-essential loads and maintain mission-critical loads if the grid goes down.

The Installation Energy Test Bed, discussed below, has funded ten demonstrations of microgrid and storage technologies to evaluate the benefits and risks of alternative approaches and configurations. Demonstrations are underway at Twentynine Palms, CA; Fort Bliss, TX; Joint Base McGuire-Dix-Lakehurst, NJ; Fort Sill, OK; and several other installations.

Although microgrids will address the grid security problem over time, we are taking steps to address near-term concerns. Together with the Assistant Secretary of Defense for Homeland Defense and Americas' Security Affairs, I co-chair DoD's Electric Grid Security Executive Council (EGSEC), which works to improve the security, adequacy and reliability of electricity supplies and related infrastructure key to the continuity of critical defense missions. In addition to working across DoD, the EGSEC works with the Departments of Energy and Homeland Security. The three agencies recently created an Energy Surety Public Private Partnership (ES3P) to work with the private sector. As an initial focus, the ES3P is collaborating with four utilities in the National Capital Region to improve energy security at mission critical facilities.

#### Microgrids solve the case and avoid all their answers---ensures islanding, effective on forward bases, and DOD leadership improves renewable tech which is already sweet

Amory B. Lovins 10, Chairman/Chief Scientist of the Rocky Mountain Institute, second quarter 2010, “DOD’s Energy Challenge as Strategic Opportunity,” Joint Force Quarterly, http://www.ndu.edu/press/lib/images/jfq-57/lovins.pdf

The U.S. electric grid was named by the National Academy of Engineering as the top engineering achievement of the 20th century. It is very capital-intensive, complex, technologically unforgiving, usually reliable, but inherently brittle. It is responsible for ~98–99 percent of U.S. power failures, and occasionally blacking out large areas within seconds—because the grid requires exact synchrony across subcontinental areas and relies on components taking years to build in just a few factories or one (often abroad), and can be interrupted by a lightning bolt, rifle bullet, malicious computer program, untrimmed branch, or errant squirrel. Grid vulnerabilities are serious, inherent, and not amenable to quick fixes; current Federal investments in the “smart grid” do not even require simple mitigations. Indeed, the policy reflex to add more and bigger power plants and power lines after each regional blackout may make the next blackout more likely and severe, much as suppressing forest fires can accumulate fuel loadings that turn the next unsuppressed fire into an uncontrollable conflagration.

Power-system vulnerabilities are even worse in-theater, where infrastructure and the capacity to repair it are often marginal: “attacks on the grid are one of the most common and effective tactics of insurgents in Iraq, and are increasingly seen in Afghanistan.” 39 Thus electric, not oil, vulnerabilities now hazard national and theater energy security. Simple exploitation of domestic electric vulnerabilities could take down DOD’s basic operating ability and the whole economy, while oil supply is only a gathering storm.

The DSB Task Force took electrical threats so seriously that it advised DOD— following prior but unimplemented DOD policy 40 —to replace grid reliance, for critical missions at U.S. bases, with onsite (preferably renewable) power supplies in netted, islandable 41 microgrids. The Department of Energy’s Pacific Northwest National Laboratory found ~90 percent of those bases could actually meet those critical power needs from onsite or nearby and mainly renewable sources, and often more cheaply. This could achieve zero daily net energy need for facilities, operations, and ground vehicles; full independence in hunker-down mode (no grid); and increased ability to help serve surrounding communities and nucleate blackstart of the failed commercial grid.

Implementing these sensible policies merits high priority: probably only DOD can move as decisively as the threat to national security warrants. And as with the Endurance capability, exploiting Resilience—building on DOD’s position as the world’s leading director-indirect buyer of renewable energy—would provide leadership, market expansion, delivery refinement, and training that would accelerate civilian adoption. Already, the 2008 NDAA requires DOD to establish a goal to make or buy at least 25 percent of its electricity from renewables by 2020, and study solar and windpower feasibility for expeditionary forces. Under 2007 Executive Order 13423’s Government-wide mandate, DOD must also reduce energy intensity by FY15 to 30 percent below FY03. The Resilience capability would focus all these efforts on robust architectures and implementation paths, ensuring that bases’ onsite renewables deliver reliable power to critical loads whether or not the commercial grid is working—a goal not achieved by today’s focus on compliance with renewables quotas.

Resilience is even more vital and valuable abroad, in fixed installations and especially in FOBs (whose expeditionary character emphasizes the Endurance logic of Fully Burdened Cost of Electricity). Foreign grids are often less reliable and secure than U.S. grids; protection and social stability may be worse; logistics are riskier and costlier in more remote and austere sites; and civilian populations may be more helped and influenced. Field commanders strongly correlate reliable electricity supplies with political stability. In Sadr City, Army Reserve Major General Jeffrey Talley’s Task Force Gold proved in 2008–2009 that making electricity reliable, and thus underpinning systematic infrastructure-building, is an effective cornerstone of counterinsurgency.

Reconstruction in Iraq and Afghanistan is starting to define and capture this opportunity to build civic cohesion and dampen insurgency, while reducing attacks’ disruption and attractiveness. A resilient, distributed electrical architecture can bring important economic and social side-benefits, as with Afghan microhydropower programs for rural development. Cuba lately showed, too, that aggressively integrating end-use efficiency with micropower can cut national blackouts—caused by decrepit infrastructure, not attacks—by one to two orders of magnitude in a year.

At home, DOD efficiency and micropower echo new domestic energy policy and startling developments in the marketplace. In 2006, micropower 42 delivered one-sixth of the world’s electricity, one-third of its new electricity, and 16 to 52 percent of all electricity in a dozen industrialized countries (the United States lagged with 7 percent). In 2008, for the first time in about a century, the world invested more in renewable than in fossilfueled power supplies; renewables (excluding big hydroelectric dams) added 40 billion watts of global capacity and got $100 billion of private investment. Their competitive and falling costs, short lead times, and low financial risks attract private capital. Shifting to these more resilient energy solutions goes with the market’s flow.

#### Comparative evidence---the CP is more effective than SMRs

Dylan Ryan 11, Masters in Mechanical Engineering, expertise in energy, sustainability, Computer Aided Engineering, renewables technology; Ph.D. in solar energy systems, 2011, “Part 10 – Small modular reactors and mass production options,” <http://daryanenergyblog.wordpress.com/ca/part-10-smallreactors-mass-prod/>

One of the other advantages of small or micro sized reactors, the ability to provide power for micro grids, may not be all its cracked up to be. In many cases a combination of renewables backed up by biomass fuel, or fossil fuels often works out cheaper and more practical.

### Cyber-Security---2NC

#### Key corporations developing microgrids are making them cyber-secure---and the military votes for the CP

Sandra I. Erwin 11, Editor, National Defense Magazine, July 2011, “High-Tech Weapon Makers Set Sights on ‘Smart Microgrid’ Market,” http://www.nationaldefensemagazine.org/archive/2011/July/Pages/High-TechWeaponMakersSetSightson%E2%80%98SmartMicrogrid%E2%80%99Market.aspx

SBI suggests that most of the military microgrid business will come from U.S. military bases that seek reliable and secure energy. “The majority of U.S. military bases are powered by public electrical grids, which in some instances lead to as many as 300 power outages per year,” the study says. “These interruptions weaken military readiness and security. In the face of a terrorist attack or natural disasters, reliance on conventional energy supplies may be inefficient and may even be detrimental to military functions.”

A Pentagon advisory panel, the Defense Science Board, noted in a 2008 study that military bases’ dependence on often unreliable commercial power suppliers makes Defense Department installations vulnerable. Many defense contractors viewed that study as a cue that they needed to get into the energy business.

Lockheed Martin Corp. is one of several top defense industry firms that are jockeying for position in the microgrid market.

The company recently expanded its “microgrid development center” in Dallas to increase its load capacity from 100 kilowatts to 500 kilowatts, and energy storage from 4 kilowatt hours to 20 kilowatt hours.

Lockheed officials not only see an emerging market in constructing microgrids but also in supplying cybersecurity systems to protect them from hackers or computer viruses.

Lockheed Vice President and Chief Technology Officer Ray Johnson says the company has been pursuing new business in the energy sector for about two years. Revenues from defense-related energy programs currently are minimal, but Lockheed officials anticipate greater Pentagon investments in green programs. “DoD has recognized the strategic importance of energy, and it uses 1.5 percent of the nation’s energy,” Johnson says in an interview. “Energy activities are part of each of our four business areas, and [they] are expanding broadly.”

He predicts smart grids increasingly will become an “imperative” for the Defense Department as it searches for ways in which deployed units and military installations can “operate independently when they’re off the [local] grid.” Smart grids also make it easier to bring renewable energy into a larger grid. Under a 2007 law, the Defense Department by 2025 must generate 25 percent of its electricity from renewable sources, such as wind and solar.

Advanced microgrids have been on the military’s wish list for years, and there is now fresh momentum to begin deploying them, says Elizabeth Porter, director of corporate energy initiatives at Lockheed Martin. The military services are beginning to see the data about potential fuel savings and are interested in moving projects forward, she says.

### DOD Wants---2NC

#### Framing issue---the DOD votes neg---they want renewables because bases are ideally situated to support them

DOD 11 – Department of Defense, 7/11/11, “Department of Defense Strategic Sustainability Performance Plan,” http://www.acq.osd.mil/ie/download/green\_energy/dod\_sustainability/DoD%20SSPP%20Public\_2011.pdf

Relating specifically to the fixed installations under the purview of this Plan, a final challenge is grid vulnerability. DoD’s reliance on the commercial grid to deliver electricity to more than 500 major installations places the continuity of critical missions at risk. In general, installations lack the ability to manage their demand for and supply of electrical power, making them potentially vulnerable to intermittent or prolonged power disruption caused by natural disasters, attacks, or sheer overload of the grid. With the increasing reliance of U.S. combat forces on “reach back” support from installations in the United States, power failures at those installations could adversely affect power projection and homeland defense capability. This means that an energy threat to bases in the United States can be a threat to operations abroad. The Department is committed to renewable energy not only because it is dedicated to showing leadership in sustainability, but because it improves resilience and thus mission readiness. Military installations are generally well situated to support solar, wind, geothermal and other forms of renewable energy, as long as the type of energy facility, its siting, and its physical and operational characteristics are carefully evaluated and mitigated as needed for any mission or readiness impacts.

The Department continues to pursue an investment strategy designed to reduce energy demand in fixed installations, while increasing the supply of renewable energy sources. Efforts to curb demand for energy— through conservation measures and improved energy efficiency—are by far the most cost-effective ways to improve an installation’s energy profile. A large fraction of DoD energy efficiency investments goes to retrofit existing buildings. Typical retrofit projects install high efficiency heating, ventilation and cooling systems, energy management control systems, improved lighting, and “green” roofs.

The Department is taking advantage of the fact that DoD’s fixed installations offer an ideal test bed for next-generation energy technologies developed by industry, the Department of Energy (DOE), and university laboratories, filling the gap between research and broad commercial deployment. Emerging energy technologies hold the promise for dramatic improvements in energy performance but face major impediments to commercialization and deployment. DoD’s built infrastructure and lands encompass a diversity of building types and climates in the United States, affording an exceptional opportunity to assess the technical validity, operating costs, and environmental impact of advanced, pre-commercial technologies. As both a real and a virtual test bed, our facilities can serve as a sophisticated first user, evaluating the technical validity, cost and environmental impact of advanced, pre-commercial technologies. The Department’s energy test bed concept is being applied to improve the energy efficiency of buildings, improve renewable energy technologies on or in proximity to installations, and develop smart microgrids. DoD can help create a market for those technologies that prove effective and reliable by serving as an early adopter, as it did with jet engines, computers and the internet. The test bed approach is key to meeting the Department’s needs, allowing DoD to leverage both cost savings and technology advances from the private sector. In addition, the test bed is an essential element of the national strategy to develop and deploy the next generation of energy technologies needed to support the nation’s infrastructure.

### Islanding---2NC

#### Solves islanding

John Romankiewicz 12, senior research associate at the China Energy Group at Lawrence Berkeley National Laboratory, 3/27/12, “Microgrids: Come “island” with me,” http://sustainablejohn.com/?p=174

Microgrid technology is an attractive way for military bases, schools, jails, and other electricity customers to pursue energy efficiency and clean energy in tandem. One of the most unique functions of microgrids is their ability to island, or operate autonomously and separated from the larger macrogrid. This function was critical for the Sendai microgrid, when the devastating earthquake hit Japan in March 2011. The Sendai microgrid was able to continue providing reliable power to a number of loads, including a hospital, for two days while the larger macrogrid had halted power supply amidst the disaster aftermath.

Indeed, the official U.S. Department of Energy definition of microgrids emphasizes the importance of islanding functionality, saying: “[a microgrid is] a group of interconnected loads and distributed energy resources within clearly defined electrical boundaries that acts as a single controllable entity with respect to the grid [and can] connect and disconnect from the grid to enable it to operate in both grid-connected or island-mode.”

On March 22 this year, a local microgrid project officially launched at the Santa Rita Jail in Dublin, just 30 miles east of Berkeley. Power reliability is a primary concern for the jail, which houses about 4,000 inmates. Over the past ten years, the project has slowly been coming to fruition as various power supply technologies and energy efficiency measures have been installed and implemented. The jail has over 1 megawatt of installed solar PV capacity, featuring both rooftop installations and ground-mounted tracking installations.

The jail also has a fuel cell and two back-up diesel generators, and its most recent addition was a 2 megawatt battery. The combination of these technologies allows the jail to significantly reduce its daily purchases from the macrogrid (saving the jail about $100,000 a year) and to operate as an island in the event of a power supply disruption. A switch detects when no voltage is coming from the macrogrid and immediately disconnects the jail from the grid. Simultaneously, microgrid controls and software allow the jail’s suite of backup supply and storage technologies to provide uninterrupted full power to the jail. The jail consulted with Lawrence Berkeley Lab (LBL) a number of times throughout the development of the microgrid, using the lab’s DER-CAM (Distributed Energy Resources-Customer Adoption Model) software to analyze electricity and heat requirements and develop a plan for the jail to meet its needs at minimum cost.

Chief engineer for the Sendai project, Keiichi Hirose of NTT Facilities, visited LBL on March 23 to give a talk on the microgrid development to date and operation during the earthquake period. Their microgrid project features a fuel cell, solar PV, batteries, and two natural gas-fired microturbines for a total peak output of 1 megawatt.

Both the Sendai and Santa Rita microgrid projects benefited from public funding, which helped to get these unique, groundbreaking projects built. The Sendai project received funds from Japan’s New Energy and Industrial Technology Development Organization, and the Santa Rita project received funds from the Department of Energy and California Energy Commission. Indeed, microgrid investment costs are still relatively for many commercial building customers. However, customers with high reliability demands, such as military bases and tactical operations centers, are actively pursuing microgrid solutions (such as the SPIDERS project). As successful experiences accumulate and costs come down for a number of the supply and storage technologies involved, opportunities for other customer applications will arise. Maybe, one day, we’ll all be on the island.

### AT: Renewables Fail/Bad

#### Several distinctions mean none of their generic “renewables fail” arguments cut it:

#### 1) The combination of the CP’s planks resolves deficiencies in each one---upgrades to efficiency and energy storage lower the bar for how much renewables have to generate---smart management means bases can instantly switch to the most optimal sources---that’s above.

#### 2) Bases resolve their generic “renewables bad” args:

#### a) U.S. bases are positioned in exactly the right locations to utilize renewables

Dr. Dorothy Robyn 10, Deputy Under Secretary of Defense for Installations and Environment, 1/27/10, Statement before the Senate Homeland Security and Governmental Affairs Committee, Subcommittee on Federal Financial Management, Government Information, Federal Services and International Security, http://www.acq.osd.mil/ie/download/robyn\_testimony\_27jan10.pdf

With respect to fixed installations, the Department has pursued a two-part investment strategy that is designed to (1) reduce the demand for traditional energy while (2) increasing the supply of renewable energy sources. In addition to the Department’s military construction budget, financing for these investments has come from our Energy Conservation Investment Program, Energy Savings Performance Contracts and mechanisms such as Enhanced Use Leases and Power Purchase Agreements.

Efforts to curb demand—through conservation measures and improved energy efficiency—are by far the most cost-effective way to improve an installation’s energy profile. A large fraction of our energy efficiency investments go to retrofit existing buildings; typical retrofit projects install high efficiency HVAC systems, energy management control systems, new roofs and improved lighting. We are also taking advantage of new construction to incorporate more energy efficient designs, material and equipment, using LEED Silver standards as a guide. From 2005 to 2008, we reduced the energy intensity of our facilities by 11 percent through conservation and investment in energy efficiency.

On the supply side, military installations—which are large and disproportionately located in the Southwest and on our coasts—are well-situated to support solar, wind, geothermal and other forms of renewable energy. For example, Nellis Air Force Base in southern Nevada built a 14- megawatt (MW) photovoltaic solar array using a public-private partnership. More than 72,000 solar panels track the sun to generate 30 million kilowatt-hours of electricity per year— equivalent to a quarter of the total power used at the 12,000-person base. Nellis saves $1 million a year in electricity costs and avoids 24,000 tons of carbon dioxide emissions. In October, the U.S. Army Corps of Engineers signed an agreement with two private companies to develop a 500-MW solar power plant at Fort Irwin in California’s Mojave Desert. The plant will be built using an Enhanced Use Lease—a mechanism that allows the private partners to finance the estimated $1.5 billion in capital costs. The military’s interest in renewable energy is nothing new. Naval Air Weapons Center China Lake in California has been operating a 270-MW geothermal plant since 1987. The heat from 166 wells, some of them 12,000 feet deep, is sufficient to light up 180,000 homes. The Navy is helping the Army tap into geothermal resources at its Weapons Depot in Hawthorne, Nevada, and that project will be capable of producing 30 MW of clean power.

### AT: Smart Grids Bad---Link Turn

#### All their “smart grids bad” args are about the civilian grid incorporating “smart grid” features---that’s obviously not the CP.

#### Also, this has to hurt---SMRs cause the civilian smart grid but the CP doesn’t because renewables can’t power large population centers---means their offense only links to them

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

Small nuclear reactors, however, like renewable sources, can provide enhanced, distributed, and localized power generation. As the US moves towards embracing smart grid technologies, power production at this level becomes a critical piece of the puzzle. Especially since renewable sources, due to sprawl, are of limited utility near crowded population centers, small reactors may in fact prove instrumental to enabling the smart grid to become a reality.