ARTICLE

The Military-Environmental Complex

by Sarah E. Light

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Two competing theories vie for dominance regarding the relationship between the U.S. military and the natural environment. On the one hand, because legal rules permit the military to disregard environmental laws when they conflict with the military's national security mission, one might be left with the impression that the military's mission conflicts inexorably with environmental protection. Yet, the military is currently engaged in an extensive undertaking to improve its sustainable energy use by reducing demand for fossil fuels and developing renewable energy sources. The military is undertaking such actions not only in response to congressional directives and presidential executive orders, but also voluntarily in response to its operational and national security needs. In some cases, the military is leveraging private financing rather than taxpayer funds to drive innovation. Such cooperation among the military, private financiers, and technology firms has the potential to transform for the better not only our nation's energy profile, but also the military-industrial complex. This new Military-Environmental Complex should become a factor in the debate over regulatory instruments to combat climate change. At the same time, however, these relationships warrant some caution to prevent rent-seeking.

I. Military Exceptionalism

Environmental law doctrine tells us that the military is exceptional; when needs of national security and preparation for war conflict with environmental goals, environmental goals must bend. Indeed, many federal statutes not only acknowledge but support the view that the environment and national security are in conflict.

Under virtually all federal environmental laws, the President may grant time-limited, renewable waivers from environmental obligations for specific agency activities if such waivers are "in the paramount interest of the United States" or in the interest of national security.[1] In some cases, the agency head—for example, the Secretary of Defense—rather than the President, may make that determination without further executive review.[2] In addition, in a time of national emergency or after a declaration of war, Congress has provided a blanket exemption for military construction projects "not otherwise authorized by law that are necessary to support such use of the armed forces."[3]

In reality, however, the relationship between national security and the environment is far more complex.

A. *Exceptional Mission Alignment*

Despite these exemptions, the U.S. Department of Defense (DoD) has demonstrated that national security and the military's mission are deeply intertwined with the need to reduce energy use and develop alternative, renewable fuel sources. In fact, the DoD's exceptional energy use creates a unique synergy between the military's mission and the need for energy sustainability.

The DoD is the largest single consumer of energy in the nation.[4] The military's total energy costs in fiscal year 2013 were $18.9 billion, approximately $4.1 billion of which were facility energy costs and $14.8 billion of

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1. *See, e.g.*, Toxic Substances Control Act, 15 U.S.C. §2621 (2012); Coastal Zone Management Act, 16 U.S.C. §1456(c)(1)(B) (2012); Clean Water Act, 33 U.S.C. §1323(a) (2006 & Supp. V); Safe Drinking Water Act, 42 U.S.C. §300h-7(h) (2006 & Supp. V); Resource Conservation and Recovery Act, 42 U.S.C. §6961(a); Clean Air Act, 42 U.S.C. §7418(b) (2006 & Supp. V); Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. §9620(j) (2006 & Supp. V); *see also* Federal Leadership in Environmental, Energy, and Economic Performance, Exec. Order No. 13514, 3 C.F.R. 248 (2010) [hereinafter Executive Order on Sustainability].
2. *See* National Historic Preservation Act, 16 U.S.C. §470h-2(j) (2012); Marine Mammal Protection Act, 16 U.S.C. §1371(f)(1); Endangered Species Act, 16 U.S.C. §1536(j) (2012).
3. 10 U.S.C. §2808 (2012).
4. Office of the Deputy Under Sec'y of Def. for Installations and Env't, Department of Defense Annual Energy Management Report: Fiscal Year 2013, at 16 (2014), *available at* http://www.acq.osd.mil/ie/energy/energymgmt_report/FY%202013%20AEMR.pdf [hereinafter AEMR FY 2013].

which were operational energy costs.[5] The DoD is also the nation's largest landlord[6]; it manages more than 500 installations in the United States and overseas, covering approximately 2.3 billion square feet of building space.[7] The DoD manages approximately 28 million acres of land in the United States.[8]

The military's mission aligns with the goals of reducing energy demand, increasing energy efficiency, and increasing use of renewable energy. In the context of its fixed installations, the military has recognized potential threats if the electric power grid is disrupted, and is now seeking independent, renewable sources of energy to power its facilities. The military has recognized that dependence on fossil fuels on the battlefield creates security threats—such as the threat to soldiers protecting fuel convoys supporting combat missions. From fiscal year 2003 to fiscal year 2007 in Iraq and Afghanistan, more than 3,000 Army personnel and Army contractors were wounded or killed in action as a result of attacks on fuel and water resupply convoys.[9] In 2010, ground convoys were attacked 1,100 times.[10] These numbers may not even reflect all efforts to transfer fuel from forward operating bases to patrol bases. In both Iraq and Afghanistan, the challenges of securing fuel convoys made the need to reduce petroleum consumption paramount.[11] The military also recognizes that climate change, which is caused in part by fossil fuel consumption, will lead to further geopolitical instability. Unlike abstract concerns over the environment or energy independence, the military's national security mission has the power to stimulate innovation through specific demand in ways that echo the power of the historic military-industrial complex.

B. Exceptional Opportunities: Lessons From the Military-Industrial Complex

The military's role in supporting technological innovation that has spilled over into the civilian realm is a familiar phenomenon. Technological advances originally created for military needs have come into widespread civilian use. Such technologies include computers, satellites for aerial reconnaissance, certain kinds of aircraft, the internet, semiconductors, and the Global Positioning System.[12] Although perhaps most well-known for this explosion of scientific growth in the twentieth century, military stimulation of technological innovation has deep historical roots. For example, although the military originally produced its own armaments in national armories, beginning in the early 19th century, the Army began to rely on private firms to increase the supply.[13] Because the quality of produced armaments was poor, the Army imposed certain requirements on manufacturers, including uniformity and the use of interchangeable parts.[14] This led not only to the development of new armaments, but also to new "machine tools and precision instruments" which were subsequently adapted to manufacture civilian goods such as sewing machines.[15]

Today, rather than contracting for new, DoD-specific products, the military prefers to adopt preexisting civilian technologies—a process that at least one scholar has called "spin-on" to the military from the private sector, rather than "spin-off" to the private sector from the military.[16] And sometimes, technology development and diffusion in the military-industrial complex took hybrid forms—neither completely "spin-off" nor "spin-on."[17]

The key to obtaining military funding has always been articulating how the technological innovation is in the military's interest—or, more broadly, in the interest of national security. Civilian spin-offs have largely been a secondary benefit.[18] In some cases, direct federal research and development (R&D) funding was not necessary to stimulate the development of these new technologies.[19] Instead, the "prospect of large procurement contracts appears to

5. Facility energy "includes energy needed to power fixed installations and non-tactical vehicles." *Id.* at 6 n.1. Operational energy is "the energy required for training, moving, and sustaining military forces and weapons platforms for military operations. The term includes energy used by tactical power systems and generators and weapons platforms." *Id.* (citing 10 U.S.C. §2924(5) (2012)).
6. *See Fostering a Federal Community of Green Building Leaders*, Closing the Circle News, Spring 2008, at 2, *available at* http://www1.eere.energy.gov/femp/pdfs/ctcspr08.pdf, *archived at* http://perma.cc/B8YX-SYYM.
7. AEMR FY 2013, *supra* note 4, at C-2; Office of the Deputy Under Sec'y of Def. for Installations and Env't, Department of Defense Annual Energy Management Report: Fiscal Year 2011, at 14 (2012), *available at* http://www.acq.osd.mil/ie//library/FY.2011.AEMR.PDF, *archived at* http://perma.cc/8HVW-9P3Q [hereinafter AEMR FY 2011].
8. *See* Amy L. Stein, *Renewable Energy Through Agency Action*, 84 U. Colo. L. Rev. 651, 708 (2013); Press Release, U.S. Dep't of Def., Interior and Defense Departments Join Forces to Promote Renewable Energy on Federal Lands (Aug. 6, 2012), *available at* http://www.defense.gov/releases/release.aspx?releaseid=15498, *archived at* http://perma./CS7K-NBT8.
9. Dep't of Defense, Energy for the Warfighter: Operational Energy Strategy 4-5 (2011) (citing Army Envtl. Policy Inst., Sustain the Mission Project: Casualty Factors for Fuel and Water Resupply Convoys, Final Technical Report (2009)), *available at* http://energy.defense.gov/Portals/25/Documents/Reports/20110614_Operational_Energy_Strategy.pdf, *archived at* http://perma.cc/S3G7-E3J2).
10. *Id.* at 5 (citing Gen. Duncan McNabb, Commander, U.S. Transp. Command, Address at the Military Strategy Forum at the Center for Strategic and International Studies (Feb. 7, 2011)).
11. *Greenery on the March*, Economist, Dec. 10, 2009, at 3, 3-4.
12. *See, e.g.*, David C. Mowery, *Federal Policy and the Development of Semiconductors, Computer Hardware, and Computer Software: A Policy Model for Climate Change R&D?*, *in* Acceleration Energy Innovation: Insights From Multiple Sectors 163-66 (Rebecca M. Henderson & Richard G. Newell eds., 2011).
13. *See* Merritt Roe Smith, *Military Arsenals and Industry Before World War I*, *in* War, Business, and American Society: Historical Perspectives on the Military-Industrial Complex 24-32 (Benjamin F. Cooling ed., 1977).
14. *See id.* at 31.
15. *Id.* at 32.
16. Jay Stowsky, *From Spin-Off to Spin-On: Redefining the Military's Role in American Technology Development*, *in* The Highest Stakes: The Economic Foundations of the Next Security System 114-16 (Wayne Sandholtz et al. eds., 1992).
17. *See id.* at 118.
18. *Cf.* Timothy Simcoe & Michael W. Toffel, *Government Green Procurement Spillovers: Evidence From Municipal Building Policies in California* 30-32 (Harvard Bus. Sch., Working Paper No. 13-030, 2013), *available at* http://papers.ssm.com/sol3/papers.cfm?abstract_id=2142085, *archived at* http://perma.cc/V4AP-EU3T.
19. *See* Mowery, *supra* note 12, at 165.

have operated similarly to a prize, leading [one firm] to invest its own funds in the development of a product that met military requirements."[20]

Given that the DoD is already both actively pursuing technological innovation to military specifications through R&D and exhibiting vast, mission-driven demand for commercial off-the-shelf technologies through procurement and long-term Power Purchase Agreements (PPAs), two questions arise. First, how should policymakers craft institutions and rules to make this government-sponsored innovation more successful? And second, how can policymakers guard against abuses such as rent-seeking, cost overruns and delays, and the lack of diffusion of knowledge that may have plagued government-supported innovation in the past? After examining the forces that are shaping the Military-Environmental Complex, this Article addresses these questions.

C. *Advantages of the Military-Environmental Complex*

There are certain unique advantages to military participation in this technological innovation process. First, the mere fact that a project supports military interests—rather than general commercial interests—may drive support among key institutional players who feel more strongly connected to the value of protecting national security than other values such as supporting commerce or protecting the environment.[21] The construction of roads in 19th-century America provides an example of how an engineering project with both civilian and military applications obtained congressional funding and presidential support largely because of its alignment with the military's mission.[22] Presidential support was only forthcoming if the road could be deemed a "military" road, rather than a road to support general commerce.[23] Reliance on the synergy between the military's interests and energy conservation may provide political cover for those who otherwise might not support investment in clean energy technology solely for civilian purposes or environmental reasons.

Second, the DoD's exceptional hierarchical nature allows its leadership to consider the importance of changing norms and behavior in ways that might be unthinkable in the private sector. One well-known historical example is the racial integration of the military long before parts of the civilian world in the United States. By issuing an executive order and exploiting the hierarchical nature of his relationship with the military as Commander-in-Chief, Truman was able to have an impact on behavior and attitudes toward racial integration that, some scholars argue, spilled over into the civilian realm.[24]

II. Governmental Institutions and Values Driving the Military-Environmental Complex

Institutional players shaped by different values are driving the Military-Environmental Complex. This Part examines the role of Congress, the President and the DoD itself in creating this phenomenon.

A. *Congressional Mandates*

Despite its inability to pass comprehensive climate change legislation governing the private sector,[25] Congress has played a key role in the Military-Environmental Complex, both substantively—in directing the military to meet conservation and sustainability goals—and procedurally—by strengthening the institutions within the DoD that can make those goals self-reinforcing. Congress has imposed a number of mandates on all federal agencies to promote conservation, efficiency, and the development of renewable energy sources. These statutes require all federal agencies, including the military, to conserve energy and water in federal facilities[26]; procure Energy Star products or Federal Energy Management Program (FEMP)-designated products,[27] among other requirements; and further create a federal energy efficiency fund to provide grants to agencies for such projects.[28] The focus of these mandates has largely been on facilities energy, rather than operational energy, which is often exempt from the mandates.

Congress has also authorized the DoD to enter into different creative financing agreements, including 30-year PPAs with private developers to promote the development of alternative energy generation on military lands.[29] These agreements are contracts for the "provision and operation of energy production facilities on real property under the Secretary's jurisdiction or on private property and the purchase of energy produced from such facilities."[30]

20. *Id.*
21. *See* Sarah E. Light, *Valuing National Security: Climate Change, the Military, and Society*, 61 UCLA L. Rev. 1772 (2014) (arguing that framing climate change as a national security issue, rather than an environmental issue, can affect individual attitudes, beliefs, and behavior in ways that implicate the debate over climate policy in the United States).
22. *See* Thomas E. Kelly, *The Concrete Road to MIC: National Defense and Federal Highways*, *in* War, Business, and American Society, *supra* note 13, at 133, 134-35.
23. *Id.* at 134.
24. *Cf.* Samuel A. Stouffer et al., The American Soldier: Adjustment During Army Life 594-95 (1949); John Sibley Butler & Kenneth L. Wilson, The American Soldier *Revisited: Race Relations and the Military*, 59 Soc. Sci. Q. 451, 465 (1975).
25. For example, the American Clean Energy and Security Act of 2009, also known as the Waxman-Markey cap-and-trade bill, passed in the House but was defeated on the Senate floor. H.R. 2454, 111th Cong. (2009); *see American Clean Energy and Security Act of 2009*, GovTrack.us, http://www.govtrack.us/congress/bills/111/hr2454, *archived at* http://perma.cc/CTQ4-HHPV (last visited Jan. 27, 2015).
26. 42 U.S.C. §8253.
27. *Id.* §8259b.
28. *Id.* §8256(b).
29. 10 U.S.C. §2922a.
30. *Id.* This specific authorization by Congress is necessary to avoid violating the Antideficiency Act, which prohibits the obligation of funds in excess of an appropriation without authorization. 31 U.S.C. §1341 (2012); *see* Geraldine E. Edens et al., *Government Purchasing of Efficient Products and Renewable Energy*, *in* The Law of Clean Energy: Efficiency and Renewables 123 (Michael B. Gerrard ed., 2011).

B. Presidential Directives

Congress is not the only political institution shaping the Military-Environmental Complex. The President has likewise played a role, directing all federal agencies, including the DoD, to improve their energy profiles and thereby lead the nation by example. For example, in 2009, President Barack Obama signed Executive Order 13514, which requires all federal agencies to disclose greenhouse gas emissions information annually from their direct and indirect activities. The order also directs each agency to propose to the White House agencywide greenhouse gas emissions reduction targets to reach by fiscal year 2020 as compared to a fiscal year 2008 baseline.[31] The executive order, however, includes a number of exemptions from these reduction targets for military operational energy use and in the case of national security conflicts.

C. Operational Energy

Although Congress and the President largely exempted operational energy from *substantive* mandates to reduce energy intensity, develop renewable fuel sources, and reduce greenhouse gas emissions, Congress employed *procedural* methods to encourage the military to reduce operational energy use. In the National Defense Authorization Act (NDAA) for Fiscal Year 2009, Congress created a new Office of Operational Energy Plans and Programs (OEP&P) within the DoD.[32] The Office of OEP&P serves as a mechanism to render the goals of reducing demand and pursuing alternative energy sources self-sustaining within the agency, even if Congress does not or cannot mandate reductions in the operational energy sphere.[33]

Congress tasked the OEP&P Director "to manage and be accountable for, operational energy plans and programs within the Department of Defense and the Army, Navy, Air Force, and the Marine Corps," and to "establish the operational energy standard" for the DoD.[34]

Thus, Congress initially created the Office of OEP&P to consolidate these strategic concerns and decisionmaking in one office and to report directly to the Secretary of Defense.[35] In contrast, the DoD's policy for facilities energy was carried out through the Office of the Deputy Under Secretary of Defense (DUSD) for Installations and Environment.[36] In December 2014, pursuant to the 2015 National Defense Authorization Act, these two offices merged, and are now under the direction of the Assistant Secretary of Defense for OEP&P.[37] This push to promote the focus on operational energy through procedural mechanisms did not come from Congress—it came largely from within the military itself.

D. The DoD's Role as Self-Driver

Long before Congress created the Office of OEP&P or required reporting on operational energy use, military commanders serving in both Iraq and Afghanistan sought to decrease reliance on fuels out of a concern for soldiers' lives and the mission. In July 2006, Marine Corps General Major Richard Zilmer, who at the time was the Commander of Multinational Force West in Iraq, sent the Pentagon a "Priority 1" rapid resource response request, asking for a "renewable and self-sustainable energy solution . . . to augment our use of fossil fuels with renewable energy, such as photovoltaic solar panels and wind turbines" so that fewer troops would die guarding fuel convoys in the theater of war.[38] For the DoD, therefore, fuel use is a source of risk to its soldiers.

More broadly, climate change is a source of geopolitical instability that affects the military's mission. The DoD has played a key role in the Military-Environmental Complex as a validator of climate science,[39] and recognizes that climate change can accelerate conflict in ways that affect the national security of the United States. The solution, from the DoD's perspective, is to reduce demand for energy, to increase energy efficiency, and to use renewable fuels that do not require the same long convoys to bring to the theater of war. Energy efficiency and reduced use can act as a "force multiplier"—missions can go farther without refueling, running generators, or bringing fuel convoys to the battlefield.[40]

III. The Private Sector

A focus on governmental institutions should not obscure the significant role that the private sector plays in driving the Military-Environmental Complex. First, banks and

31. Executive Order on Sustainability, *supra* note 1.
32. Duncan Hunter National Defense Authorization Act for Fiscal Year 2009, Pub. L. No. 110-417, §902, 122 Stat. 4356, 4564-66 (2008).
33. *Cf.* Matthew D. McCubbins et al., *Structure and Process, Politics and Policy: Administrative Arrangements and the Political Control of Agencies*, 75 Va. L. Rev. 431, 435-45 (1989).
34. Duncan Hunter National Defense Authorization Act for Fiscal Year 2009, *supra* note 32, §902(a).
35. *See* National Defense Authorization Act for Fiscal Year 2010, Pub. L. No. 111-84, §§903(a)(4)-(5), 903(b), 123 Stat. 2190, 2424 (2009).
36. *See* Dep't of Def., Instruction 4170.11, at 6 (Dec. 11, 2009), *available at* http://www.dtic.mil/whs/directives/corres/pdf/417011p.pdf, *archived at* http://perma.cc/TNE6-X3GT.
37. Office of the Deputy Under Sec'y of Def. for Installations and Env't., I&E Featured News, http://www.acq.osd.mil/ie/ (last visited Mar. 19, 2015).
38. Paul McLeary, *Army and Marines Go Fossil Fuel-Free*, WorldWaterSolar.com (May 24, 2011), http://www.worldwatersolar.com/wp-content/uploads/2011/08/PEAK-Army-And-Marines-Go-Fossil-Fuel-Free-May-24-2011-Aviation-Week.pdf, *archived at* http://perma.cc/6N6S-6LDN.
39. U.S. Dep't of Def., Quadrennial Defense Review Report, at vi (2014), *available at* http://www.defense.gov/pubs/2014_Quadrennial_Defense_Review.pdf, *archived at* http://perma.cc/4JV8-TKER; U.S. Dep't of Def., Quadrennial Defense Review Report, at iii, 84-88 (2010), *available at* http://www.defense.gov/qdr/images/_as_of_12Feb10_1000.pdf, *archived at* http://perma.cc/DLM6-474Z.
40. Memorandum of Understanding Between the U.S. Dep't of Energy and the U.S. Dep't of Def. 1 (July 22, 2010), *available at* http://energy.gov/sites/prod/files/edg/media/Enhance-Energy-Security-MOU.pdf, *archived at* http://perma.cc/9R2Z-KTPU ("Energy efficiency can serve as a *force multiplier*, increasing the range and endurance of forces in the field while reducing the number of combat forces diverted to protect energy supply lines, as well as reducing long-term energy costs." (emphasis added)).

private developers pay significant upfront costs for major energy infrastructure projects on military lands to power the DoD's installations. Second, the DoD, at times in cooperation with other agencies, provides funding to private sector firms to finance the development of new technologies in test bed initiatives that may ultimately have civilian spin-off potential. Third, the private sector educates the DoD about lessons that private firms have already learned in the area of energy conservation. Finally, the DoD may be able to educate the private sector about its demand reduction strategies and new technologies as well.

A. The Commercialization Valley of Death: Private Demand for Government Financing

Part of the reason why government financing for new technology is so important lies in the so-called "Commercialization Valley of Death."[41] With nearly all renewable energy technologies currently more expensive per kilowatt-hour than conventional fossil-fuel based energy,[42] demand for and private investment in renewable energy generation is limited. This is in part due to the longer time horizon that is required to recoup capital investments in renewable energy technology. In particular, experts in new energy finance have identified two locations of insufficient capital.[43] The first is "early in a technology's development, just as it is ready to exit the lab"—immediately after the so-called "Technology Creation stage" in which universities or national laboratories fund technology development, but before venture capital becomes available.[44] The second valley occurs after venture-capital financing but before the technology becomes commercially available, and before the technology is proven on a widespread-enough scale that banks are willing to lend capital for large projects.[45] The Military-Environmental Complex lies at the crossroads of the private sector's need for financing support and the government's demand for new infrastructure, new technology, and existing technology on a large scale. It is no wonder that the private sector is trying to obtain DoD support for new technologies, given the private sector's needs for capital, and the DoD's track record of supporting the development of new technologies. If such new energy technology and sustainable methods are a social good, this demand for DoD support may be of great social benefit.

B. Government Financing for New Technology Development

There are significant disincentives to be a first-user of new technology. First-time users bear the largest costs on which others can free ride.[46] Thus, the DoD can serve two important roles in the Military-Environmental Complex: as a first-user to evaluate the new "precommercial" technology, and as an early customer "thereby helping create a market, as it did with aircraft, electronics, and the internet."[47]

Congress has supported this interaction between the military and the private sector explicitly by providing funding sources and other vehicles for cooperation. But government financing of private sector technology development is not the only face of the Military-Environmental Complex. Financing is also moving in the opposite direction. The DoD is actively leveraging private financing to adopt existing commercial technologies that reduce demand and generate renewable energy.

C. Government Demand for Private Financing of Energy Infrastructure

On the flip side of the private sector's demand for government financing lies the DoD's active quest for private financing as it seeks energy security for its facilities. Key statutory authority enables the DoD to leverage private financing by, for instance, entering into 30-year PPAs for renewable energy,[48] enhanced-use leases,[49] and energy-savings performance contracts.[50] Congressional authorization for these financing partnerships has been crucial.

First, the DoD has unique statutory authority among federal agencies to enter into PPAs of up to 30 years "for the provision and operation of energy production facilities on real property under the Secretary's jurisdiction or on private property and the purchase of energy produced from such facilities."[51] In contrast, other federal agency PPAs for the purchase of utility services are limited to terms of 10 years or less.[52] Second, the DoD can also lease property for large-scale renewable energy generation projects under its so-called "enhanced-use lease" authority.[53] Upon a determination by the Secretary of Defense that such a lease will "promote the national defense or . . . be in the public interest," the DoD may lease certain real or personal property that is not needed for public use, receiving in return either cash or in-kind consideration at fair market value.[54] Installations using enhanced-use lease authority can accept in-kind consideration in the form of a discount on the DoD's electric bill or in the form of infrastructure that will enhance energy security.[55] Under such an enhanced-use lease, a private developer may enter into

41. *See* Bloomberg New Energy Fin., Crossing the Valley of Death: Solutions to the Next Generation Clean Energy Project Financing Gap 3-7 (2010).
42. *See id.* at 4.
43. *See id.* at 5.
44. *Id.*
45. *Id.* at 5-6.
46. *See Installation Energy Test Bed*, SERDP, http://www.serdp.org/Featured-Initiatives/Installation-Energy, *archived at* http://perma.cc/5PP7-7T98 (last visited Mar. 19, 2015).
47. *Id.*
48. 10 U.S.C. §2922a (2012).
49. *Id.* §2667.
50. *Id.* §2913; 42 U.S.C. §8287 (2006 & Supp. V).
51. 10 U.S.C. §2922a(a).
52. 40 U.S.C. §501(b)(1)(B) (2006 & Supp. V); FAR 41.103(a)(1).
53. *See* 10 U.S.C. §2667.
54. *Id.* §2667(a), (b)(4).
55. Interview with John Lushetsky, Former Exec. Dir., Army Energy Initiatives Task Force (May 14, 2013).

an agreement with the Secretary of Defense to lease DoD land to construct (among other things) a renewable energy generation facility.

Third, under an energy-savings performance contract, the energy service company (ESCO) "incurs the costs of project implementation, including audits, acquiring and installing equipment, and training personnel, in exchange for a predetermined price. Payment to the ESCO is contingent upon realizing a guaranteed stream of future savings, with excess savings accruing to the Federal Government."[56] Each of these vehicles allows and encourages the DoD to leverage private financing for renewable energy projects.

D. Taking Advantage of Private Financing: The Energy Initiatives Task Force

The DoD is taking advantage of private financing in what was formerly known as the Energy Initiatives Task Force (EITF) program, now known as the Army's Office of Energy Initiatives (OEI).[57] The Army initially created the EITF in September 2011, with the explicit goal of "collaborating with the private sector to invest in cost-effective, large scale (10 MW+) renewable energy projects" on Army installations.[58] These projects, which include solar, wind, biomass, and geothermal projects, are designed to promote "energy security and sustainability."[59] Congress has mandated that the DoD produce or procure not less than 25% of its energy on installations from renewable sources by 2025,[60] which the military has translated into one gigawatt each for the Army, Navy, and Air Force.[61] The OEI is the Army's central management office for the execution of due diligence for potential projects, as well as for the initiation of permitting and other legal obligations like environmental impact assessments.[62]

IV. Some Modest Recommendations

To the extent that congressional or presidential mandates or procedural mechanisms support the DoD's drive to sustainable energy use, such legal rules should be encouraged. But a deeper understanding of the DoD's own incentives must underlie any legislation or presidential action. The DoD is focused first and foremost on its mission, not simply on an abstract desire to protect the environment or to promote energy independence. Some modest recommendations follow regarding how best to harness this exceptional alignment between the military's mission and the need to change the way that energy in the United States is both generated and consumed.

First, Congress and the President should take steps to encourage both further efforts by the DoD to reduce energy demand and investment by private firms in the generation of renewable energy that benefits the military. Such steps would include expanding the financial incentives that encourage the military to reduce demand and invest in renewables. They would also include expanding the federal requirement that the DoD obtain 25% of its energy from renewable energy sources by 2025 to ensure that all players, both within the DoD and in the private sector, understand that these investments in renewables are long-term investments. Although the above analysis demonstrates that the DoD's military goals have been the key underlying driver of the push to reduce energy demand and increase the development of alternative fuels, the underlying legal rules have undoubtedly shaped the DoD's actions and priorities in the Military-Environmental Complex. They have also ensured a greater degree of continuity across administrations in ways that can encourage more stability in private investment. To the extent that Congress can incorporate into legislation additional incentives for private firms to continue to finance these major renewables generation projects, either through the tax code or other programs, taxpayers could save dollars in the long run.

Second, Congress should extend to agencies other than the DoD—most importantly, the General Services Administration, which purchases energy on behalf of other agencies—the ability to use 30-year PPAs as under 10 U.S.C. §2922a.[63] Congress should make universally available to agencies this provision that, according to the former Director of the EITF, has been essential in attracting private capital to finance the development and construction of large-scale renewable energy facilities that benefit both the military and the private sector.[64] Other agencies should be permitted to share in this potential for public-private partnerships.

Third, successful dissemination of information about technological innovation beyond government agencies requires openness rather than secrecy. Thus, to the extent that the military is driving innovation, it should promote the diffusion of technologies that can reduce conventional energy demand and develop renewables into the civilian world, rather than holding such technology close to the vest in the name of national security. Given the military's role as a validator of climate science and its recognition that climate change has the potential to increase violent conflict in the world, diffusion is likely to be in the military's interests in this context.

Relatedly, the DoD and the private sector should voluntarily create more mechanisms for interaction to share best

56. Barack Obama, Memorandum on the Implementation of Energy Savings Projects and Performance-Based Contracting for Energy Savings §6(b) (2011), *available at* http://www.gpo.gov/fdsys/pkg/DCPD-201100920/pdf/DCPD-201100920.pdf, *archived at* http://perma.cc/8Z6L-8URC.
57. *See* AEMR FY 2011, *supra* note 7, at 34; *see also* Office of the Deputy Under Sec'y of Def. for Installations and Env't, Dep't of Defense Annual Energy Management Report: Fiscal Year 2012, at 36 (2014), *available at* http://www.acq.osd.mil/ie/energy/energymgmt_report/FY%202012%20AEMR.pdf.
58. *Id.*
59. *Id.*
60. 10 U.S.C. §2911(e) (2012).
61. *See* AEMR FY 2011, *supra* note 7, at C-12.
62. Telephone Interview with John Lushetsky, Former Exec. Dir., Army Energy Initiatives Task Force (Apr. 12, 2013).
63. 10 U.S.C. §2922a (2012).
64. *See* Telephone Interview with John Lushetsky, *supra* note 62.

practices, experiences with new technology, and behavioral approaches.[65] Universities could play an important role in this arena, and they should recognize that this area may prove fruitful for innovation. As centers of innovation both in technology and ideas, universities—and, more specifically, business schools, with their focus on promoting innovation in the private sector as well as investment and finance—could bring leaders from business and the DoD together on a regular basis.

Fourth, it is essential to be aware of the potential for the Military-Environmental Complex to lead to rent-seeking. Any time government funds are available, fraud, waste, and abuse are always a risk. Existing laws regulating lobbying and disclosure of contacts between the private sector and both Congress and the Executive branch, including the Lobbying Disclosure Act of 1995,[66] as amended by the Honest Leadership and Open Government Act of 2007,[67] go a long way to ensuring that contacts between industry and government are transparent. In addition, the qui tam provisions of the False Claims Act protect whistleblowers who report on fraud in government contracting.[68] Because the Military-Environmental Complex is new and developing, more empirical research is warranted regarding whether and in what circumstances there may be undue influence as opposed to normal political lobbying activity. Such research might include, for example, determining which interest groups contact members of Congress and the military to seek support for particular projects, which geographic areas of the country stand to benefit, whether those projects are actually in the interest of national security and reducing climate change-related risks, whether the projects promote values other than the DoD's core mission, and the impact such contacts have as to whether particular projects are funded. Such research can inform policy questions about whether any more must be done to prevent rent-seeking and fraud.

V. Conclusion

The military's need to reduce its consumption of energy—a need deeply entwined with its national security mission—renders it a potential leader in the development and use of sustainable energy resources. The DoD has already taken important steps to reduce energy use, especially through partnering with the private sector. Keeping in mind the lessons of the military-industrial complex—and with controls to limit fraud, abuse, and rent-seeking behavior—these efforts should be expanded in the new Military-Environmental Complex. Properly regulated, the Military-Environmental Complex has an important role to play within the regulatory toolkit as a way to foster energy sustainability in the long term.

65. *Cf.* Goldberg Prods., Marstel Day & Darden Sch. of Bus., The Business Case for Sustainability in the U.S. Army (Mar. 2013) (on file with author).
66. Lobbying Disclosure Act of 1995, Pub. L. No. 104-65, 109 Stat. 691 (1995) (codified as amended at 2 U.S.C. §§1601-1611 (2012) and in scattered sections of 2, 15, 18, 22, 31, and 42 U.S.C.).
67. Honest Leadership and Open Government Act of 2007, Pub. L. No. 110-81, §§201-215, 121 Stat. 735, 741-51 (2007) (codified as amended at 2 U.S.C. §§1601-1611 (2012) and in scattered sections of 2 and 22 U.S.C.).
68. *See* 31 U.S.C. §§3729-3733 (2012).