THE CENTER FOR CLIMATE AND SECURITY

BRIEFER

No. 31 | December 14, 2016

The U.S. Department of Defense Rationale for Innovative Energy Investments

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The Department of Defense (DoD) views energy from three perspectives:

- As an essential mission enabling resource;
- As a decisional factor in developing operational and logistical strategy, operations, tactics, and in developing and acquiring ships, planes, vehicles, and other weapon systems (the less energy required, the better from a mission capability perspective).
- As a vulnerability.

Essentially, all DoD energy policies and programs seek to do one or more of the following: decrease the need for energy; expand and diversify types and sources of energy; and decrease the vulnerability of energy and associated energy-delivery systems. This is currently enshrined in both the DoD Operational Energy Strategy, and in broader DoD energy policy through DoD Directive (DoDD) 4180.01. It is worth citing in full the basic policy statement in the latter document:

"It is DoD policy to enhance military capability, improve energy security, and mitigate costs in its use and management of energy. To these ends, DoD will:

a. Improve the energy performance of weapons systems, platforms, equipment, and products, and their modifications; installations, including both enduring and non-enduring locations; and military forces.

b. Diversify and expand energy supplies and sources, including renewable energy sources and alternative fuels.

c. Ensure that energy analyses are included in DoD requirements, acquisition, and planning, programming, budgeting, and execution (PPBE) processes.

d. Assess and manage energy-related risks to operations, training, and testing, to include assets, supporting infrastructure, equipment, supplies, platforms, and personnel.

e. Develop and acquire technologies that meet DoD energy needs and manage risks; utilize appropriate resources and energy expertise in other governmental organizations and the private sector.

f. Educate and train personnel in valuing energy as a mission essential resource."

None of the DoD energy policies, programs, or initiatives are driven directly by an effort to reduce the impact of DoD energy production and use on the climate. DoD views any such impact as a secondary co-benefit. Consider that if DoD suddenly stopped producing any greenhouse gases (GHGs), such an action would have little impact on the climate, as DoD uses just over 1% of total US use of liquid fuels, and less than 1% of electricity generated in the US).

However, technology and techniques developed by DoD to address one or more of the goals of DoD energy policy in both the operational and installation contexts could, if exported broadly to both the US and global energy sectors, have a major impact.

As one example, renewable energy projects on DoD installations in the US have minimal impact on overall US GHG emissions, and, if the power generated is simply fed in to the national grid, little or no impact on energy assurance or energy security at those installations. However, advances in energy monitoring and control systems, microgrids, and advanced energy storage being developed and fielded as part of the DoD program for enhancing energy assurance, security, and resilience at DoD installations could have a major impact if exported at scale beyond DoD. Similarly, DoD installations could be an important test bed for technology in the context of the development of subnational grids or distributed supply of low carbon power sources.

Further, developments in the wing design and propulsion systems of military aircraft designed to make such aircraft more energy efficient (with associated increase in range, payload, and "dwell time") have potential applications more broadly to decrease fuel use in the civil aviation sector.

Similarly, liquid biofuels at present don't have much operational or other benefit to DoD for a variety of reasons. However, using biofuel technologies being developed and tested by DoD (in partnership with others) could, if made economically competitive with liquid fossil fuels and adopted at a global scale, weaken the geopolitical and national security distortions created by the control of petroleum sources by a relatively few nations, while also reducing global GHG emissions.[1]

Finally, distributed power generation, energy management techniques, and energy efficiency measures developed for use at contingency bases and in contingency operations (including advanced techniques for energy storage) could have major application in current areas of energy poverty in ways that would simultaneously address that energy poverty and help address global GHG emissions.

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[1] Note that in recognition of the offsetting geopolitical and national security problems related to global food supply, the DoD research and development (R&D) effort in developing biofuels focuses on using feedstocks that would not otherwise be part of the global food supply, or feedstocks that would not displace food production).