Chapter 8
Energizing Interdisciplinarity: Addressing Army Energy Use through Curricular Reform at West Point

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EXECUTIVE SUMMARY

The U.S. military is the largest single consumer of energy in the United States. Global attention to the management of energy resources will require the Department of Defense (DoD) to address its energy consumption. Prompted by a DoD directive on environmental sustainability, this chapter provides a case study on West Point's potential to assist the Army with the problem of energy consumption through its participation in the DoD's Net Zero Energy initiative. To be successful, West Point must transform its largely compartmentalized curriculum into one with interdisciplinary potential. Although its mission—to develop commissioned leaders of character for the Army—has changed very little during the past two centuries, its approach to leader development has shifted from a pedagogical orientation on attrition to development. This pedagogical model, when coupled with the energy initiative, is positioned to transform undergraduate education at West Point with an enhanced sense of urgency and action.

DOI: 10.4018/978-1-4666-2214-2.ch008

SETTING THE STAGE

The United States, with five percent of the world's population, is the second-largest energy consumer in the world; it consumes approximately 19 percent but was bumped from the top spot in 2010 by China, which has nearly 20 percent of the world's population (Barr, 2011). In 2009, the U.S. Department of Defense (DoD) consumed 819 trillion Btu of total U.S. energy at a cost of $13.3 billion (Karbuz 2011; Powers 2011).[2] This level represents two percent of total U.S. national energy consumption and 93 percent of energy consumed by the U.S. government (Karbuz, 2011). The U.S. DoD, which uses 360,000 barrels of oil each day, is the single largest oil consumer in the world; only 35 countries consume more oil than the DoD. In 2010, approximately $4 billion was spent by the DoD on electricity to power DoD installations worldwide (Karbuz, 2011).

If the U.S. is to meaningfully address its energy consumption, it must direct the DoD to be part of the solution. The Pentagon, which has not made saving energy much of a priority, has recently undertaken several initiatives.[3] One of these initiatives involves piloting test cases within major Army installations to determine the challenges and opportunities associated with the transformation of Army installations into net zero energy and waste consumers. In February 2011, Katherine Hammack, the Assistant Secretary of the Army for Installations, Energy, and Environment, distributed an invitation to Army installations, an RFP of sorts, to submit a proposal for review of inclusion in a pilot initiative to examine and model environmental sustainability on Army installations. Five Army installations were to be selected for each of three areas: energy, waste, and water; one other installation would focus on the systemic integration of all three areas. Selected posts would be referred to as "Net Zero Installations," reflecting a post that applies an integrated approach to the management of energy, water, and waste to capture and commercialize the resource value and/or enhance the ecological productivity of land, water, and air.

A Net Zero Energy Installation is one that produces as much energy on its site as it consumes over the course of a year. A Net Zero Waste Installation is one that reduces, reuses, and recovers waste streams, converting them to resource values with zero landfill over the course of a year. A Net Zero Water Installation is one that limits the consumption of freshwater resources and returns water back to the same watershed on which it is drawn so as not to deplete and/or contaminate the ground and surface water resources of that geographical area.

The question Hammack asked was: Can Army installations design innovative strategies that reduce their natural resource demands? The Army, as one of the country's largest energy consumers and waste producers, has sought to reduce its annual operating costs while maintaining mission performance capabilities, quality