

**PhD Dissertation**  
**Department of Environmental Science and Policy**  
**George Mason University**

Candidate: C. E. Jane Dudik

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Title: Integrating the Technology Acceptance Model and Diffusion of Innovation: Factors Promoting Interest in Energy Efficient and Renewable Energy Technologies at Military Installations, Federal Facilities, and Land-Grant Universities

Dissertation Director: Dr. Katherine Rowan

Committee: Dr. Frank Manheim, Dr. Star Muir, and Dr. Lee Talbot

**ABSTRACT**

Energy managers are tasked with identifying energy savings opportunities and promoting energy independence. Energy-efficient (EE) and renewable-energy (RE) technology demonstrations enable energy managers to evaluate new energy technologies and adopt those that appear most effective. This study aimed to determine whether energy technology demonstrations increased energy managers' acceptance of innovative EE and RE technologies by tapping into the Diffusion of Innovation Theory (DOI) and the Technology Acceptance Model (TAM). In-depth interviews were conducted with 36 energy managers at Department of Defense (DoD) installations, federal facilities, and land-grant universities to determine their acceptance of innovative energy technologies at their respective DoD installation, federal facility, or land-grant university. Results showed that interviewees understood participation in energy technology demonstrations could be difficult but were furthering the adoption of innovative EE and RE technologies. However, they highlighted several adopter-level and system-level issues that need to be addressed so energy managers can adopt more of these technologies. These issues included maintenance manpower and expertise deficits due to lack of funding; outdated and restrictive regulations from electric utility companies; and employees' hesitation to adopt innovative technologies. The policy implications for this study's results call for increasing funding for maintenance staff, creation of federal renewable portfolio standards (RPS) mandates, establishing a federal demonstration program, and exposing energy managers to more educational opportunities, conferences, and social media.