

System of System Modeling, Analysis and Optimization of Expeditionary Energy Technologies for the USMC

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With Dr. Nadine Miner

Military and Energy Systems Analysis,
Sandia National Laboratories

Abstract:

The USMC Expeditionary Energy Office (E2O) has been collaborating with Sandia National Laboratories (Sandia) since 2012 to develop a set of modeling, simulation, analysis and optimization capabilities to inform and prioritize energy related investments across the Future Years Defense Program (FYDP). These capabilities form a holistic analytic framework that provides energy analyses to inform USMC planning, requirements development and acquisition decision making processes. System of systems (SoS) performance modeling provides evaluation and characterization of energy technologies within a mission context and ensures that the SoS will function as anticipated under different operating conditions prior to fielding. Optimization modeling provides the quantitative underpinnings to support technology selections given a multi-dimensional trade space. The combination of these capabilities is ideal for providing SoS performance evaluation in advance of costly expenditures thereby increasing the probability of program success while lowering program risk. This brief will outline the capabilities that comprise this energy analytic framework and provide examples of results applicable to expeditionary energy technology decisions for the USMC.

During this TDY Dr. Miner will be presenting her lecture entitled, "System of System Modeling, Analysis and Optimization of Expeditionary Energy Technologies for the USMC" to the students enrolled in EN3000 Defense Energy Seminar Series.

Biography:

Dr. Nadine Miner is a Principle Member of the Technical Staff at Sandia National Laboratories in the Advanced Military Systems and Analysis group. She is part of a team developing System of System modeling and simulation (M&S) and optimization tools for analysis of complex, energy systems and net-centric defense forces. She is the technical program lead for the US Marine Corps energy analysis, performance evaluation and optimization efforts. Dr. Miner holds a BS in Computer Engineering from the University of New Mexico (UNM), a MS in Electrical Engineering from the California Institute of Technology, and a PhD in Systems Engineering from UNM.



Dr. Nadine Miner



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