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Defense Energy Seminar Examines Navy's Future Use of Electrical Energy Tech

MC2 Patrick Dionne | November 7, 2018



Retired Navy Cmdr. Kevin Maher, far left, presents certificates of appreciation to, from left to right, retired Navy Capt. Lynn Petersen, Cmdr. John Stevens and retired Cmdr. Stephen Markle for offering the latest Defense Energy Seminar, Nov. 2.

A group of energy officials from across the Navy teamed up to provide the NPS community with an overview of the Navy's future electrical energy technology development during the latest Defense Energy Seminary, Nov. 2.

Retired Navy Capt. Lynn Petersen, program officer for the Office of Naval Research, Cmdr. John Stevens, Associate Chairman of U.S. Naval Academy's Department of Electrical and Computer Engineering, and retired Cmdr. Stephen Markle, Director of the Electric Ships Office, joined forces to provide an update titled, "U.S. Navy Electrical Leap Forward ... A Vision for the Future of ONR Technology Development."

The talk focused heavily on updating the power and energy requirements throughout the fleet to take better advantage of upcoming changes in technology, including energy weapons like lasers and stochastic electronic warfare systems, radiated energy systems such as the Air and Missile Defense Radar, and advances in kinetic energy weapons including electromagnetic railguns.

"We have determined that power is the foundation of the kill chain of the future, which means directed energy weapons and sensors are all dependent on power and energy," said Markle. "So, we are here to talk about where the Navy is headed in 30 years.

"Think of science fiction movies," he continued. "There are people in this room that are working on technologies like rail guns ... We are bringing science fiction into reality today."

"Our job at ONR is to give our warfighters an unfair technical advantage," added Petersen. "If we give them an equal playing field with our adversaries, we as scientists and engineers have not done our jobs. We at ONR are here to try to address those gaps so we can mature the technology and hand it off to the next step."

Part of that technology development includes the evolution of systems designed to handle the electrical requirements these new systems require. The team discussed the Integrated Power and Energy System (IPES), for example, which is a medium-voltage, direct-current (MVDC) system that offers the potential to provide significant warfighting capability at an affordable cost.

Ultimately, the officials agreed, ensuring the officers and scientists at NPS are well versed in these technologies helps ensure their integration into the fleet in the not-so-distant future.

"The operators on future naval platforms will have to think about power when they fight the ship in ways that they don't necessarily have to think about right now," said Stevens. "These young officers are the ones managing, building and operating our future fleet, and it's important for them to understand how to operate what new technology is being introduced, because they will be the ones living with it."

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