

SURGE



EAG QUARTERLY NEWSLETTER WINTER 2017

Highlights

SUPPORTING ENERGY SECURITY IN UKRAINE
OTTER OPERATIONAL TESTING UNDERWAY
NEW DEFENSE ENERGY CERTIFICATE



Kyiv, Ukraine

NPS EAG Supports Exercise Coherent Resilience 2017, Kyiv Ukraine

Energy Academic Group (EAG) supported Exercise Coherent Resolve (CORE17), a NATO sponsored exercise in Kyiv, Ukraine, as the Evaluation Group for the exercise that aimed to further the resiliency of Ukraine's energy systems against Russian attacks. The EAG partnered with the NATO Energy Security Center of Excellence (Vilnius, Lithuania) and Ukraine's National Institute for Strategic Studies to develop and execute Ukraine's first national-level exercise specifically related to critical energy infrastructure protection.

CORE17 was designed to further the resilience of Ukraine energy systems

against Russian hybrid warfare threats including cyber, information, physical sabotage, and invasion. The Government of Ukraine had twenty organizations participate across four exercise syndicates: cyber/terrorism, crisis management, strategic communications, and international organization response. Beyond being an extensive interagency exercise, several private energy companies—that own and operate critical energy facilities—also participated in order to identify the challenges regarding public-private cooperation during national security crises related to attacks against Ukraine's energy systems.

The NPS EAG assembled, deployed, and led the Exercise Evaluation Group, which included a wide range of subject matter experts. Participants included: the NPS faculty, NPS student body, and individuals from USNR, DLI, MARFOREUR,

MARFORCYBER, and MARSOC. The EAG, in coordination with the Ukraine National Institute for Strategic Studies and the NATO Energy Security Center of Excellence, will publish a final exercise report on 20 December 2017 that will capture key observations, best practices, and recommendations designed to support Ukraine's efforts to mature its critical energy infrastructure protection programs.



LEARN MORE

Visit nps.edu/web/eag/news for the latest news about our energy security programs or contact Lawrence M. Walzer at lmwalzer1@nps.edu



Dr. Daniel A. Nussbaum,
Principal, Energy Academic Group

EAG Principal Thoughts

It is my pleasure to welcome you to the Energy Academic Group (EAG) Newsletter. This publication is intended to provide easy access to information about EAG activities. EAG is one of the cross-cutting Academic Groups at NPS. Our mission is to create a Center of Excellence for Defense Energy, and we do this across three pillars that will be highlighted in future newsletters: curriculum, research, and outreach. Some examples of what EAG is currently working on are the ONR-funded Neptune program and the NATO supported CORE 2017 tabletop exercise. Neptune funds research into innovative energy projects and seeks research proposals among all NPS faculty. CORE 2017 is highlighted in the main article of this newsletter.

My team members are Alan Howard, Jack Templeton, Larry Walzer, Brandon Naylor, Nora O'Connor, Kevin Maher and Jonathan Phillips. Future newsletters will highlight these talented individuals, each of whom brings a rich background to our enterprise. As a team focused on pursuing Department of Navy and Department of Defense Energy goals, we hold regular meetings across campus for those interested in Defense Energy. Additionally, we present 24 Energy seminars per year and welcome your attendance. I invite your comments on ways to make the EAG more relevant to you as well as any suggestions you have for this newsletter.



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OTTER works on any ship class that uses conventional fuel and is designed to help ships finish transits with more fuel in the tank so they can conduct their missions without needing to refuel as often.

OTTER Begins Operational Testing

Surface ship fuel optimization program set to begin sea trials

The Energy Academic Group at NPS is ready to begin operational testing on a new tool that will help the surface fleet use fuel more effectively. Optimized Transit Tool & Easy Reference (OTTER) is designed to help ships finish transits with more fuel in the tank so they can conduct their missions without needing to refuel as often. Users simply enter their transit constraints into OTTER, and the program will calculate the most efficient transit solution that meets those requirements. Typical transits completed using OTTER are expected to see fuel savings of 10–15%, which can mean additional days on station before needing to refuel.

OTTER works on any ship class that uses conventional fuel and has access to Microsoft Excel. The program can be configured to adjust for hull-specific limitations or considerations, and OTTER

solutions can be set up to allow time for drill sets. Users can edit fuel profiles to reflect different operational or environmental conditions and improve the accuracy of OTTER's estimates.

OTTER is currently employed on the USS Wasp for operational testing, and the Energy Academic Group is seeking additional ships or commands who are interested in testing the OTTER program. Contact the Energy Academic Group to learn more.



LEARN MORE

Visit nps.edu/web/eag/research to download the OTTER brochure or contact Brandon Naylor at blnaylor@nps.edu

Defense Energy Seminar Series

NPS's academic programs in Defense Energy are supplemented by a seminar series which provides a forum for leading voices within the field, practitioners, and other Defense Energy influencers. These professionals give presentations, engage in brown bag discussions, and facilitate informal gatherings that encourage Defense Energy faculty and students to discourse over current issues in Defense Energy, supplementing classroom teaching with practical, professional experiences. The Defense Energy Speakers' Seminars are a permanent part of NPS's Defense Energy program, and a key to its real-world relevance.



LEARN MORE

Please see the Calendar of Events or visit nps.edu/web/eag/seminars for upcoming and archived seminars.

November 2017 Energy Education and Training Working Group (EETWG)

Developing enduring operational energy training and education policies

In close collaboration with NPS's EAG, the Office of the Deputy Assistant Secretary of Defense for Operational Energy (DASD OE) steered the sixth iteration of the EETWG at the Pentagon Library and Conference Center in Washington D.C. from 2–3 November, 2017. The purpose of the EETWG is to serve as an informal In-Progress Review (IPR) for the Services' efforts in OE and to discuss and develop actionable items to advance OE training and education initiatives. This EETWG focused on developing "Top Down" policy to guide OE training and education into the requirements generation process and proved to be a very productive forum for all participants.

Some of the key highlights of the Working Group included Service OECIF IPRs, OE updates, and Group and Breakout sessions focused on OE policy, doctrine, and implementation strategies. In an effort to advance top-level guidance, the group concluded that adequate policy for energy, education, and training exists; however, there is a clear need to develop OE doctrine across the Department, particularly at the Joint level. In addition, Service participants acknowledged the need to understand their OE requirements gaps through comprehensive mission essential task review.

The Working Group was privileged to welcome Mr. Tad Davis, Principal Deputy, ASD for Energy, Installations and Environment as the keynote speaker. He focused on the importance of energy to the readiness of our forces and challenged EETWG participants to think about how the DoD should change the way it thinks, change how it does business, and ensure those changes occur DoD-wide. In this context, the group identified the challenges in and the need for cultural change regarding OE throughout the Department.

Deliverables for the May 2018 EETWG include Joint and Service policy gap analysis, Service-defined OE intellectual capital end-states, and Service OE training and education emerging issues.



EAG conducts a workshop with representatives from U.S. Armed Forces to gather feedback for education programs related to operational energy.



Sailors refuel an MV-22 Osprey aircraft aboard the USNS Lewis B. Puller in the Atlantic Ocean, July 5, 2017. Marine Corps photo by Cpl. Austin A. Lewis.



LEARN MORE

For more questions about the November 2017 EETWG, contact Jack Templeton at jctemple1@nps.edu

EAG develops distributed learning resident Defense Energy Certificate

The Energy Academic Group has developed a distributed learning (DL) version of its resident Defense Energy Certificate program. The Energy Certificate Program is designed to support the Office of the Secretary of Defense and the Secretary of the Navy's Energy goals. The DL Energy Certificate provides those working

military and civilian employees of the Department of Defense the opportunity to understand the complex issues facing the Operational and Installation Energy segments of DoD. The first cohort will begin on 2 April 2018.

The Certificate requires successful completion of a sequence of four graduate level DL courses, one course per quarter for four quarters. The courses will be offered via a web-based design, which will allow the students flexibility in their schedule to complete the courses. The courses range from the technical (Fundamentals

of Energy, Electrical Energy: Present and Emerging Technologies) to the operational (Energy Logistics in Warfare Operations), and policy (Energy Security and Geopolitics) segments of the DoD Energy field. Details for enrollment will be forthcoming.



LEARN MORE

Visit nps.edu/web/eag/academics or email Kevin Maher at kjmaher@nps.edu to learn more about Defense Energy Certificate program.



EAG Calendar of Events

JAN

January 4, 2018
First Day of Winter Quarter

January 5, 2018
Defense Energy Seminar
Dr. Andy Hernandez,
COL, USA (Ret), Associate Professor, Systems Engineering Department, Naval Postgraduate School

January 26, 2018
Defense Energy Seminar
Mr. John Kutsch, V.P. Conceptual Development, Thorium Energy Alliance / Terrestrial Energy USA, Loyola University of Chicago

FEB

February 2, 2018
Defense Energy Seminar
Mr. Gary Dale, Research Engineer, Air Force Material Command, Air Force Research Laboratory, WPAFB

February 11-15, 2018
Critical Energy Infrastructure and Resilience Course in Kuwait

February 9, 2018
Defense Energy Seminar
Ms. Lee Anne Rutledge Program Manager/ Operational Analyst Aerospace Systems Directorate, Air Force Material Command, Air Force Research Laboratory, WPAFB

February 23, 2018
Defense Energy Seminar
Mr. Greg Vallery, Director Public Works, USAG Fort Hunter Liggett, Jolon, CA

MAR

March 2, 2018
Defense Energy Seminar
Mr. Brian Ernst JOEI/ CD2 Project Manager, United States Army Tank Automotive Research, Development and Engineering Center, Emerging Capability Office (ECO)

Upcoming

SAVE THE DATE!
1-3 May 2018 Energy Education and Training Working Group (EETWG)

The EETWG is a bi-annual working group consisting of the DoD's foremost energy professionals. This group focuses on energy knowledge sharing across DoD, USG, industry, and academia in order to:

- Promote the importance of energy through education and training across DoD,
- Strengthen the energy security of U.S. and Partner Nation military operations,
- Improve U.S. and Partner Nation military capabilities, and
- Lower operational and strategic risk to U.S. and Partner Nation military forces.



Interested in Energy-Related Thesis Research?

Over the past five years, NPS and the EAG supported a plethora of student thesis research in the area of energy. A compilation of abstracts on student thesis and other research is available on the EAG website: www.nps.edu/energy. The EAG's extensive resources, intellectual capital, and connections with multi-disciplinary faculty and energy professionals provide students enhanced support for energy-related research. If interested in energy research, please reach out to the EAG team!



Connect with EAG

The Energy Academic Group is located in Quarters D, Bldg 281 on the NPS campus in Monterey, California. A wide range of NPS faculty are affiliated with the energy program, actively participate in energy graduate education, energy executive education, and energy research. For questions about the Energy Academic Group, please contact one of the principal EAG faculty members:

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Contribute to Surge

If you would like to contribute or have your research/work published in the SURGE newsletter, please contact Jack Templeton via email at jctemple1@nps.edu or phone 831.656.1879.