Overview:

Capable Logistician (CL) is a bi-annual NATO standardization and interoperability Field Training Exercise designed to address NATO interoperability challenges on the coalition battlefield. The exercise is a fixed facility field trial with a tactical scenario that involves a Humanitarian Assistance Crisis Response Operation (CRO). The focus is directed toward planning logistics support and interoperability trials in several logistics functions. Logistics training objectives are designed around planning, identifying standardization deficiencies; and ultimately producing Standardization Deficiency Questionnaires (SDQs) that will be used to make recommendations for improvements to commonly used logistics systems and NATO operational procedures.

See Capable Logistician video: https://www.youtube.com/watch?v=a-0yW35ock0

The exercise allows subject matter experts from participating nations to test, evaluate and assess 13 functional areas:

- Ammunition
- Fuel
As part of NATO’s Capable Logistician 2015, a range of energy-efficient technologies were evaluated in an effort to analyze how different National solutions interact. A total of 1,700 troops from 35 nations took part in the exercise and more than 50 pieces of energy related equipment were tested. Energy technologies evaluated included micro grids to improve base camp energy management; renewable energy sources, such as wind and solar power; shelter insulation; low-energy technologies for water purification; LED lights; Soldier Power solutions; and small portable fuel cells for NATO soldiers. Featured operational scenarios consisted of responding to power cuts, diesel and water contaminations and generator break down.

NATO’s Smart Energy program began in 2011 and aims to improve the energy efficiency of Allied armed forces through a wide range of means such as the increased use of renewable energy and better energy management. During the final days of the CL15 exercise (15-17 June), NATO hosted a “Science for Peace and Security (SPS)) Smart Energy Workshop”, which brought together subject matter experts from within academia, Ministries of Defense and industry. OEPP was invited and funded by NATO to participate in this workshop, which was
comprised of over 20 Operational Energy experts from over 11 NATO nations. The goal of this 3 day workshop was to exchange information on National perspectives, evaluate interoperability challenges and provide recommendations to NATO HQ. NATO “Smart Energy” goals for CL15 included:

- Evaluate NATO Standard Agreements (STANAGs) and recommend improvements
- Test interoperability
- Identify opportunities for reducing the energy consumption in other logistics units
- Demonstrate possible solutions
- Enhance dialogue with industry

See NATO Smart Energy video: https://www.youtube.com/watch?v=YIXIQXhF5Wo

Day 1, 15 June

The first half of day one included a series of briefings from the NATO Energy Security Center of Excellence (ENSEC COE) and from National SMEs on Smart/Operational Energy. These briefings were intended to update the group on NATO’s Smart Energy objectives, and to educate the group on how member nations are addressing challenges in this area.


See all CL15 Smart Energy Briefings:
\rsrcrefs05\atl_org_1\operational_energy\Current Operations\NATO\CL15 Briefings

A NATO Standardization Agreement (STANAG), and its accompanying Allied Engineering Publication (AEP), defines processes, procedures, terms, and conditions for common military or technical procedures or equipment between the member countries of the alliance. Each NATO state ratifies a STANAG and implements it within their own military. The purpose is to provide common operational and administrative procedures and logistics, so one member nation’s military may use the stores and support of another member’s military. STANAGs form the basis for technical interoperability between a wide variety of systems essential for NATO and
Al lied operations. The most important objective for the CL15 Smart Energy team was to validate current NATO STANAGs for Smart Energy interoperability and to identify Smart Energy gaps not governed by a NATO STANAG.

Our day 1 agenda included a briefing from Mr. Rene Roy – NATO Branch Chief for Acquisition and Follow-on Support. One of his responsibilities is to manage the procurement and fielding of the NATO Deployable Camp. The NATO Deployable Camp includes integrated accessories from 28 member nations, and from contracts awarded to over 20 countries. There are presently two Deployable Camps stored in Italy as part of NATO pre-positioned war reserve. NATO has yet to deploy one of their camps in support of an actual mission. LTC Ross Poppenberger, United States PM-FSS/Force Provider, met with Mr Roy later that day to exchange thoughts and ideas on how best to proceed with standardization.

NATO Deployable Camp Assets include: 100, 200 and 500-man Camps

- Waste and Sewage Treatment
- Water Treatment & Distribution
- Tented Offices & Accommodations
- Containerized facilities (21 sub-projects)
- Power Generation and Distribution
- Ancillary Equipment (25 sub-projects)
- Environmental control equipment
- Vehicle Wash Rack
- Mobile Incinerators

See NATO Deployable Camp video: https://www.youtube.com/watch?v=zRdnRebg1-o
After lunch, the group was shuttled to an adjacent camp to observe a multinational, combined-arms live fire demonstration. This live fire event included support from air, vehicle and dismounted forces, and included combat logistic scenarios such as vehicle recovery, air drop, tactical resupply and combat refuel. The live fire highlighted the lethality of a NATO Combined Arms Task Force, and demonstrated the effective integration of multiple combat arms and combat logistic support units from over 30 nations. This reenactment distilled over 8 hours of combat activity into a 45 minute demonstration. This live fire was later repeated and attended by the President of Hungary.

Following the live fire, the SPS Smart Energy Workshop returned to base camp to receive a NATO briefing on behavior change. We discussed Smart/Operational Energy as a planning factor and where it ranks as part of our National strategies. We discussed factors that influence/compel an organization to be more intentional about how they plan for energy considerations, and finished the day with a behavior change survey.

See all CL15 Smart Energy Briefings:
\rsrncvfs05\atl_org_1\operational_energy\Current Operations\NATO\CL15 Briefings

Day 2, 16 June

**Interoperability:** The focus of day two was primarily on interoperability and how best to achieve it. The group rolled up its sleeves and got into the technical details of physical and electrical interoperability for a variety of National solutions. First on the list was base camp interoperability, and the acquisition challenges related to procuring a compliant NATO standard. It was mentioned that from an acquisition perspective, it is difficult to enforce an international standard when the National requirement does not support it, or may create interoperability challenges for other equipment.
**STANAGs:** During our discussion, we talked about the National obligation to adhere to ratified STANAGs and the reasons why so many STANAGs are ignored by member Nations. It was mentioned that most Program Managers simply don’t know what STANAGs are, or how/when/why they should be used. Moreover, stakeholders are generally unfamiliar with the process for accessing STANAGs from the NATO portals. It was agreed that Nations must do a better job at educating Program Managers on our commitment to procure equipment that is interoperable and compliant with a ratified NATO standard. And NATO must do a better job at making STANAGs more available and accessible to the community.

**Metering and Monitoring:** After lunch, the group began a detailed discussion on the merits of metering and monitoring of base camps and tactical equipment. It was mentioned that standardization in the area of metering cannot begin until we establish a baseline set of data collection requirements for all NATO Nations and Base Camps. Most Nations agreed that they would likely adopt a NATO standard for Base Camp metering if a standard was ratified in a STANAG. Few nations are willing to make the initial investment without establishing a baseline requirement first.

**E-KPP:** The highlight of the US briefing was the Energy KPP. Specifically, how it has forced Program Managers to consider energy equities as part of their overall acquisition strategy. Several Nations have a similar version of our Energy KPP, and it often serves as a civil/military requirement for the procurement of energy related capability. For example, because Turkey has limited energy resources, they have adopted a National “E-KPP” for all acquisition; military and civil. In an effort to reduce their energy dependency on regional neighbors, Turkey has enacted a National policy that requires all government procurement to require maximum energy efficiency. Those Nations who do not yet have an Energy KPP were very intrigued by the idea and requested information on where they could learn more about the US Policy.
Day 3, 17 June

After spending 2 days discussing the problem, we were now ready to evaluate the interoperability of military and industry energy solutions represented and CL15. NATO uses what’s called an “ODCR Report” to initiate a STANAG. ODCR stands for Observation – Discussion – Conclusion - & Recommendation. An ODCR report represents step one in the process for early STANAG development. At a minimum, an ODCR report must include the following:

- **Observation**
  - What actually happened? FACT!
- **Discussion**
  - What was supposed to happen? FACT!
  - Why was there a difference?
- **Conclusion**
  - What can we Learn from this?
- **Recommendation**
  - What should we Do to benefit from what we learned?
  - Who should do it?

Following a brief explanation on how to fill out the ODCR report, our group was broken down into 6 smaller focus teams. These focus teams deployed to the various camps throughout the CL15 training area and evaluated multiple energy systems for interoperability.
The 6 focus teams included:

- Smart Energy Production
- Smart Energy Consumption
- Smart Energy Storage
- Smart Energy Water Purification
- Smart Energy Data Logging and Management
- Smart Energy Soldier Power

Since I am familiar with the subject of Soldier Power and its associated STANAGs, I joined the Soldier Power focus team. Additionally, I joined a second focus team for Smart Energy Data Logging and Management (base camp level). As an outcome of our work, our two teams submitted 4 separate ODCRs to the ENSEC COE. We recommended a new STANAG for the standardization of power management on the Soldier and for the base camp; we recommended and update to STANAG 4619 (Level 1 Soldier Power connector) for vehicle integration; and we recommended an update to STANAG 4695 (Level 2 Soldier Power connector).

In total, the 6 focus teams submitted 18 ODCRs for interoperability. These ODCRs will now be reviewed by the ENSEC COE and, if accepted, sent higher for approval. If the ODCRs are accepted at the HQ level, NATO will establish Teams of Experts to write new STANAGs for those gaps not represented by an existing standard. For those ODCRs recommending a revision of an existing STANAG, NATO will direct the respective writing group to update their document.

The work done at CL15 directly informs ongoing work conducted by the USMC for Warfighter Power requirements and standardization. The USMC and the US Army have both acknowledged the NATO STANAGs for Soldier Power and are taking steps to insure future acquisitions are in compliance.

LTC Ross Poppenberger – PM FSS was part of multiple focus teams and observed that few, if any, STANAGs exist for the Base Camp. LTC Poppenberger stated that several standards must be
established for the Base Camp before we can achieve optimal interoperability. LTC Poppenberger and his group recommended multiple Base Camp STANAGs to the ENSCEC COE, ranging from electrical to physical interfaces. LTC Poppenberger will change Charter at the end of June 2015 but will include lessons learned from this exercise as part of his transition briefing to the incoming PM for Force Sustainment Systems.

The next Capable Logistician is tentatively scheduled for 2017. See list of participants below.

Steve Mapes
Deputy Director-Current Operations
OUSD(AT&L)EI&E/OEPP
Pentagon 5C755A
571-256-0793
G5018 ARW “SMART ENERGY IN CL15: FROM OBSERVATION TO RECOMMENDATION”

List of participants and contact details
(2 June 2015)

Dr. Ed ANDRUKAITIS – CAN
Group Leader Power and Energy
Defence Scientist
Defence R&D Canada
101 Colonel By Drive
Attn. H/AVRS Ottawa Ontario K1A 0K2
CANADA
Tel: +1 613 9*90 0638
Ed.andrukaitis@nrc-cnrc.gc.ca

Mr Mathieu BERVAS - FRA
Expert, Electrical Engineering
DGA
7-9 rue des Mathurins, 92221 Bagneux Cedex
FRANCE
Phone: 0146197742
bervas_mathieu@hotmail.com

Steven CARD – MILENG COE
Major, OF-3, CAN
Military Engineering Centre of Excellence SO Policy Concepts and Doctrine
Tel: +49 (0)841 88660 5411
Mobile: +49 (0)1525 46 21 082
sopcdconc@milengcoe.org

Dr. Carsten CREMERS - DEU
Team Leader Fuel Cells
Fraunhofer Institute for Chemical Technology ICT
Department for Applied Electrochemistry
Joseph-von-Fraunhofer- 7
76327 Pfinztal, Germany
Tel: +49-721-4640-665
carsten.cremers@ict.fraunhofer.de

Sara De la FUENTE – ESP
Expert, ISDEFE
Beatriz de Bobadilla, 3. 28040 Madrid
Tel. +34 91 271 92 84
Fax +34 91 411 47 03
email: sdelafuente@isdefe.es
Marc D. GIETTER - USA
Project Leader
Power Division
CERDEC Command, Power and Integration Directorate
Tel: +1 (443) 395-4817
FAX: +1 (443) 395-4361
e-mail - marc.d.gietter.civ@mail.mil

CPT Kennard HOFLAND - NLD
Staff Officer
Force Support Engineering
Military Engineering Centre of Expertise, Engineer Training Centre
Brederodekazerne, Building H, Room 105
Lunettenlaan 201
5263 NT Vught
Tel: +31 (0)73 688 20 12
Mobile:+31 (0)6 11 08 57 51
K.Hofland@mindef.nl

Prof. Dr.-Ing. Martina HOFMANN - DEU
Hochschule Aalen – Technik und Wirtschaft
Elektrotechnik – Erneuerbare Energien
Anton-Huber-Straße 25
73430 Aalen
Tel: 49 (0) 7361 576-4250 oder 4101
Mobile: 49 (0) 172-8616704
martina.hofmann@htw-aalen.de

Sigita KAVALIŪNAITE, PhD – ENSEC COE
Subject Matter Expert
Strategic Analysis and Research Division
NATO Energy Security Centre of Excellence
Silo Str. 5 A, Vilnius
Tel: +370 5 203 23 86
sigita.kavaluniute@enseccoe.org

Mehmet KINACI - ACT
Strategic Analyst
Strategic Plans and Policy Directorate, Strategic Analysis Branch
HQ Supreme Allied Command Transformation (ACT)
mehmet.kinaci@act.nato.int
Tel: +1-757-747-3991
Mobile: +1-757-842-1459
Haydar LIVATYALI – TRK
Professor
Yildiz Technical University
Department of Mechatronics Engineering
E2 Block Rm.211
Besiktas Istanbul TR-34349
Ph: +90-212-383 2925
Mobile: +90-532 402 06 22
E-mail: hlivatya@yildiz.edu.tr

COL Assoc. Prof. Pavel MAŇAS, PhD. - CZE
Chief of Engineering Department
CZE University of Defence
mobile: +420 603163196 (preferable)
work: +420 973442552
pavel.manas@unob.cz

Anders MATHIASEN, B.Sc. – DNK
PM Army Communications and Power Sources
Danish Defence Acquisition and Logistics Organisation (DALO)
Lautrupbjerg 1-5, DK-2750 Ballerup, DENMARK
Tel: +45 7257 5999
Tel direct: +45 7257 1520
Mobile: +45 5089 7218
fmt-la-fko07@mil.dk

Steve MAPES - USA
Deputy Director-Current Operations
OUSD(AT&L)/EI&E/OEPP
Pentagon 5C755A
Washington DC
Tel: +1 571-256-0793
steven.s.mapes2.civ@mail.mil

Susanne Michaelis, PhD – NATO HQ
Officer, SPS Advisor (Environment and Smart Energy)
Emerging Security Challenges Division (ESCD),
Energy Security Section,
NATO Headquarters,
Bd. Leopold III, 1110 Brussels, BELGIUM
Tel.: +32 2 707 4520,
Mobile: +32 475 78 78 26,
Fax ESCD: +32 2 707 5228,
Email: michaelis.susanne@hq.nato.int
Jonathan NOVOA – USA
Team Lead, Soldier Power Management
US Army CERDEC (APG)
CP&I, Power Division
Tel: +1 443-395-4820
5100 Magazine Road
Aberdeen Proving Ground, MD 21005
Email: Jonathan.Novoa.civ@mail.mil

Rasa PAŽARAUSKIENĖ – ENSEC COE
Expert, Doctrine & Concept Development Branch
NATO Energy Security Centre of Excellence
Silo str. 5A, LT-10322 Vilnius
Tel: +370 706 71012
Mobile: +370 686 71645
rasa.pazarauskiene@enseccoe.org

LTC Ross POPPENBERGER – USA
PdM Force Sustainment Systems
US Army
Tel: +1 508-233-5312
Mobile: +1 508-314-0831
ross.c.poppenberger.mil@mail.mil

Jose Felix PORRAS – ESP
Head of the Energy Security Department
ISDEFE
Beatriz de Bobadilla 3
Madrid 28040
Mob. +34608350889
E-mail: jfporras@isdefe.es

Dr. Billur SAKINTUNA
Environmental Officer
General and Cooperative Services Programme
NATO Support Agency (NSPA)
Luxembourg
Tel: +352 3063 6997
billur.sakintuna@nspa.nato.int
www.nspa.nato.int

Roger SORKIN
Fellow, Truman National Security Project
14 Park St.
Florence, MA 01062
U.S.A.
Tel: +1 202 270 0652
roger@theburdenfilm.com
Namık ÜNLÜ – TRK
Chief Researcher
TUBİTAK Marmara Research Center - Energy Institute
Dr. Zeki Acar St. No: 1, 41470, Gebze, Kocaeli, Turkey
Tel: +902626772714
Mobile: +905325928918
namik.unlu@tubitak.gov.tr

Ms Theresia VOGEL – AUT
Director
Austrian Climate- and Energy Fonds
Gumpendorferstraße 5/22
1060 Wien
Austria
Office: +43 1 5850390-21
Mobile: +43 664 1423 545
theresia.vogel@klimafonds.gv.at