NATO Smart Energy: Progress and Challenges

DR. SUSANNE MICHAELIS
FORUM “UNTERBRINGUNG IM EINSATZ”, BONN, 17 APRIL 2018
Energy Efficiency of our Military Forces

“Smart Energy”

**Efficiency:**
Less consumption  
-> less logistics

**Mobility:**
More flexibility  
-> more effectiveness

**Sustainability:**
less logistics  
-> less footprint

**Autonomy:**
More renewables  
-> more resilience
NATO Summit Declarations: How to empower the Nations?

- **Chicago 2012:** “We will work towards significantly improving the energy efficiency of our military forces; [...]”

- **Wales 2014:** “[...] continue to work towards significantly improving the energy efficiency of our military forces, and [...] note the Green Defence Framework.”

- **Warsaw 2016:** “We will further improve the energy efficiency of our military forces through establishing common standards, reducing dependence on fossil fuels, and demonstrating energy-efficient solutions for the military.”

- **Brussels 2018:** ?
NATO Agreements: How to boost their relevance?

- Policy for Systems Life Cycle Management, NOV 2015
  - Maximise effectiveness and minimise life-cycle costs

- Green Defence Framework, FEB 2014
  - 3 pillars: Operational Effectiveness, Environmental Protection and Energy Efficiency

- Policy on Power Generation for Deployed Force Infrastructure, JUN 2015
  - Goal: Make NATO’s Armed Forces more energy efficient and environmentally sustainable

- Minimum Capability Requirements, APR 2016
  - Annex A - Long Term Aspects: Sustainable Systems and Green Defence; Increased Battle-Space Mobility; Increased Self-Sustainment
Since 2011: Conference & exhibition “Innovative Energy Solutions for Military Applications” (IESMA)
- 2011, 2014 and 2016 - Upcoming: November 2018 in Vilnius, Lithuania
- Organised by the NATO Energy Security Centre of Excellence (ENSEC COE)
- Supported by NATO’s Science for Peace and Security (SPS) Programme

Since 2012: www.natolibguides.info/smartenergy
- NATO Documents; (Inter)National Strategies; Journal Articles; Videos; and more

Since 2013: Exercise Capable Logistician (CL)
- CL13 (SVK) and CL15 (HUN) - Upcoming: CL19, 3-15 June 2019 (POL)
- Organisers: Multinational Logistics Coordination Centre (MLCC) and Host Nation
CL15: Evaluating Smart Energy Activities

SPS Workshop “Smart Energy in CL15: From Observation to Recommendation” co-directed by NATO ENSEC COE and Austrian Climate Funds

The NATO Science for Peace and Security Programme
CL15: Smart Energy Players
NATO Smart Defence Project 2.110: Smart Energy Training and Assessment Camp (SETAC)

Assess interoperability and collect harmonised data in labs and exercises.
1st Milestone at “CL19”

Illustrations kindly provided by PFISTERER (DEU)
IPC, 16-20 OCT 2017 => SETAC experts agreed:
- Smart Energy Multinational Integrated Logistics Unit (MILU)
  - 23 PAX and 17 components by CAN, FRA, ITA, USA and ENSEC COE
  - Integrate microgrid components in a mobile and modular way (SETACs)
  - Interact with MILUs, e.g. WATER, FUEL, RSOM, EP
  - Assess interoperability and energy savings by using energy monitoring and camp simulation tools of NATO supported SPS project G5525

MPC, 20-25 MAY 2018
FPC, 04-08 FEB 2019
LIVEX, 03-15 JUN 2019
Harmonized Energy Monitoring & Camp Simulation Tools for Energy Efficiency (G5525)

- **Organisation**: Martin Kegel, CAN (lead) with AUS, NLD, USA (and DEU?)
- **Aim**: Collect energy data in a harmonised way and build an interoperable camp simulation model
- **Steps (to be confirmed)**: Kick-off summer CAN (2018); Transfer of first generation tools at IESMA 2018; Data collection exercise CL19; Update of data at IESMA 2020; Validated tools and final report (2021)

Approved for NATO SPS support on 3rd April
Conference & Exhibition “IESMA”
as part of NATO Smart Defence 2.110

• Innovative Energy Solutions for Military Applications (IESMA) (G5464)
• 14-16 NOV, Vilnius, LTU
• Organised by ENSEC COE
• Over 400 experts from academia, organisations, government, industry and the military

IESMA 2018


With more than 400 participants and over 35 companies exhibiting in 2016, IESMA is becoming a leading event in the field of energy efficiency for military.

IESMA 2018 aims to enable the information exchange on best practices and technologies for advancing energy efficiency in the military. It will bring together numerous experts from military, industry and academia and create the platform to present the expertise, discuss lessons learned. IESMA 2018 industrial exhibition will offer an opportunity for companies to present their innovative energy efficiency technology.

This event is organised by the NATO Energy Security Centre of Excellence in cooperation with State Military Scientific Technical Center “DELTA” of the Ministry of Defence of Georgia.

LOCATION DETAILS

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Welcome!

This Smart Energy LibGuide serves as an information sharing platform on the topic of energy efficiency in the military.

Did you know?

- For each gallon of fuel to Afghanistan up to 4 gallons are consumed for transport.
- 3000 US soldiers were killed or wounded from 2003 to 2007 in attacks on fuel and water convoys in Iraq and Afghanistan.
- On average there is one casualty for every 24 fuel resupply convoys to Afghanistan.
- Only one third of the fuel burnt by a conventional diesel generator is converted into electricity. Two thirds is blown out as heat.
- In a typical military camp, 60-70% of fuel is used to produce electricity to heat/cool water or air.
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