FA: **Smart Energy**  
Lead Nation: **NATO HQ**

Syndicate leader: **Dr. Susanne MICHAELIS**

Participants: **CAN, FRA, ITA, LTU, USA, ENSEC COE (TBC) and NATO HQ**

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**SE MILU Commander:**
To be identified: A commander, who will be available for the entire exercise. (Italy to confirm.)

**Number of PAX:** 31 (+3 TBC)  
**Number of EQP:** 24 (+1 TBC)
CAPABLE LOGISTICIAN 2019
FPC Back Brief – Smart Energy

FA: Smart Energy  Lead Nation: NATO HQ

PAX: CAN (4), FRA (2), ITA (12+3 TBC), LTU (4), USA (9), NATO (1)

Equipment:

• SMART ENERGY DEPLOYABLE AIRFIELD (SEDA) consisting of six insulated tents (6x6m) with PV panels on the roofs, two diesel generators (2x40kW), six energy efficient A/C’s and electrical accessories – ITA

• One atmospheric water production unit “Veragon” (and one mobile water purification unit - TBC) - ITA

• One set of helipad lights - ITA

• One containerized Hybrid Power Generator System “Cross Power”: Diesel gen (2x75kW); PV (25kWp); wind (7.5kWp); battery (100kWh)- LTU

• One hybrid power trailer: Diesel gen (14.4kW); PV (1.86kWc); battery (19kWh) - FRA

• One distribution box with interoperable microgrid controller and two “AMMPS” generators (2x30kW) – USA connected to Italian power

• Three universal energy monitoring kits and a universal camp energy simulation software - CAN
## CAPABLE LOGISTICIAN 2019
### FPC Back Brief – Smart Energy

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<td>JLSG trains LOGFAS operator</td>
<td>coordinate with SE</td>
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<tr>
<td>Ziemsko Airfield</td>
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<td>Deployment of Italian SEDA tents</td>
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<td>Preparation by IEL</td>
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<td>Deployment HPBS “Cross Power”</td>
<td>coordination with MonCon - CFAR ok</td>
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<tr>
<td>Cross Power up and running</td>
<td>Responding to injects and SE tests</td>
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<td><strong>Ziemsko and Konotop</strong></td>
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<td>Hybrid power trailer moved on injects</td>
<td>FRA</td>
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<tr>
<td>Installation of energy monitoring kits</td>
<td>coordinate with SE, MonCon WATER, MAR, MCPU</td>
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<td>Energy metering</td>
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<td><strong>All SE sites</strong></td>
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<td>Re-deployment of all SE equipment</td>
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### CAPABLE LOGISTICIAN 2019 - EXERCISE GENERAL CONCEPT (EX PHASES)

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**Legend:**
- **START EX**
- **END EX**
- **Cultural Day**

**Dates:**
- D-13
- D-12
- D-11
- D-10
- D-9
- D-8
- D-7
- D-6
- D-5
- D-4
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- D+14
- D+15
- D+16
SE at Ziemsko Airfield:
SE Head Office
SE tents, microgrid, water units, mobile hybrid power trailer
➤ Interaction with MOVCON

SE at Konotop:
SE Hybrid Power Generation System (HPGS) “Cross Power”
➤ Interaction with M&R

SE near lake Jezioro Jelenie:
SE will move mobile hybrid power trailer
➤ Interaction with WATER
Smart Energy (SE):
SEDA: Six insulated tents (6x6m each) with diesel gensets (2x40kW), interoperable microgrid controller (2x30kW), hybrid power trailer (14.4kW) and energy metering kits
➢ interact with MOVCON
SE STAGING area (25-31 May)

SE: 9 Containers parked during LIVEX

SE: Power

SE: 6 shelters

MOVCON MILU

CONTAINER PARK

RSOM PARKING YARD

RSOM MILUs

PARKING YARD FOR INPROCESSING

SE: Power

Ziemsko Airfield

SE LAYOUT
Ziemsko Airfield: RSOM, MovCon, SE
Ziemsko Airfield: RSOM, MovCon, SE
Ziemsko Airfield

Smart Energy Deployable Airfield (SEDA) with Smart SE Head Office
SE EQUIPMENT

Ziemsko Airfield

- SEDA: Six 6x6m insulated tents (ITA)
- Genset (2x40kW) & diesel tank
- Atmospheric water production plant (up to 1000 l/day) (ITA)
- Interoperable microgrid with “Advanced Medium Mobile Power System” (AMMPS) (2x30 kW) (USA) - connected to Italian power
- One mobile hybrid power trailer - 8 kW (FRA)
- One set of helipad lights (ITA)
- Energy monitoring kit (CAN)
- Interaction with MOVCON

Smart Energy (SE) – Head Office

Atmospheric water production unit (ITA)
Mobile SE microgrid power at Ziemsko Airfield:
Distribution box with interoperable microgrid controller with two AMMPS generators – 2x30 kW (USA) connected to Italian power
SE EQUIPMENT

Ziemsko Airfield

A set of solar powered helipad lights (ITA) - without the helicopters
Hybrid power trailer parked at Ziemsko Airfield (ready to be towed):
Trailer with diesel generator (8.2kW), photo-voltaic panels (1.38kWp) and a battery (19kWh). Possibility to move to MCPU, WATER and M&R.
Konotop: M&R, IEL, SE
HPGS “Cross Power” integrated into M&R Camp

M&R Resting tents

SE HPGS

M&R 3D print
SE EQUIPMENT

Konotop

Hybrid Power Generation System (HPGS) “Cross Power” (LTU) providing 150 kW to M&R

Two 20-ft containers with 2x75kW diesel generator, battery (100 kWh), 37x7.5m PV panels (25 kWp) and wind turbine (7.5 kWp)
Three universal energy monitoring kits (10 cases in total) (CAN) connected non-intrusively to meter:

- Ziemsko Airfield: Italian SEDA (six tents) with interoperable microgrid controller (SE Head Office, workshop, SE and MovCon resting area)
- Konotop: M&R (workshops and tents)
- Konotop, near Lake Jezioro Jelenie: WATER (ROWPUs, tents)
Objectives (EXPLAN DEC 2018):

m. Smart Energy

(1) Evaluate emerging and existing STANAGs and recommend improvements

(2) Test possible solutions for interoperability of:
   • Energy monitoring, data collection & sharing
   • Integration of SE-components (hardware and software) into mobile power solutions

(3) Evaluate the value of energy monitoring and data analysis

(4) Identify opportunities for optimizing power production and reducing energy/fuel consumption

(5) Facilitate the dialogue among stakeholders and raise the awareness of Smart Energy’s ability to increase operational effectiveness
**FA: Smart Energy (SE)**  
**Lead Nation: NATO HQ**

**NATO References:**

<table>
<thead>
<tr>
<th>No.</th>
<th>Document ID</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>MC 626</td>
<td>Policy on Power Generation for Deployed Force Infrastructure (DFI) (FEB 2014)</td>
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<td>2</td>
<td>MC 469/1</td>
<td>NATO Military Principles and Policies for Environmental Protection (EP) (OCT 2011)</td>
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<tr>
<td>3</td>
<td>STANAG 2230 / AJP-4.6</td>
<td>Allied Joint Doctrine for the Joint Logistic Support Group (DEC 2018)</td>
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<td>4</td>
<td>STANAG 2394 / ATP-3.12.1</td>
<td>Allied Tactical Doctrine for Military Engineering (FEB 2016)</td>
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<td>5</td>
<td>STANAG 2632 / ATP-3.12.1.4</td>
<td>Deployed Force Infrastructure (AUG 2018)</td>
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<td>6</td>
<td>STANAG 4133 / AEP-4133</td>
<td>Electrical Power Supplies: Standard Types and Rotating Generating Sets (AC-DC) (MAR 2017)</td>
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<td>8</td>
<td>STANAG 7141 / AJEPP-4</td>
<td>Joint NATO Doctrine for Environmental Protection during NATO-led Military Activities (MAR 2018)</td>
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<td>9</td>
<td>STANAG 6500 / AJEPP-6</td>
<td>NATO Camp Environmental File during NATO-led Operations (AUG 2015)</td>
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<tr>
<td>10</td>
<td>STANAG 2582 / AJEPP-2</td>
<td>Environmental Protection Best Practices and Standards for Military Camps in NATO Operations (NOV 2018)</td>
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</table>
• For developing ODCRs, SE FA aims to:
  o Evaluate selected NATO references and identify the need for improving existing standards or developing new ones
  o Establish objectives and goals for materiel, procedural and human aspects to improve interoperability in the following areas:
    — Planning (loads, sources, data collection, etc.)
    — Metering
    — Transport
    — Electrical interconnection
    — Storage and distribution
    — Safety
QUESTIONS?
Now or later to:
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