Air Force Mission Energy Surety
Supporting the Warfighter Through Innovation and Collaboration

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22 Oct 2024

Disclaimer

This briefing is for discussion only and is not AF or DOD policy or decision

BLUF: Mission Energy Security, Surety

- **Potential Cyber, Kinetic, HEMP, EMP attacks made us more vulnerable**
- **The threat to Conus, O-Conus energy, communication, logistics and space systems have evolved**
  - **Energy, communication systems worldwide are targets**
  - **Space assets are now vulnerable**
  - **Logistics' freedom of movement challenged**
- **Russia has demonstrated their TTPs include largescale attack and shut down of energy and communication grids to disrupt, limit our capabilities**
- **China has included these TTPs in their maneuver, response plans**
  - From: Prohibition Order Securing Critical Defense Facilities "The PRC has a military rationale for its disruption capabilities. Broadly speaking**, it is targeting operational systems that can be undermined as a way to degrade an opponent's capabilities or to coerce an opponent's decision-making or political will**. China calls this "system destruction warfare"—a way to cripple an opponent at the outset of conflict, by deploying sophisticated electronic warfare, counter-space, and cyber-capabilities to disrupt what are known as C4ISR networks (command, control, communications, computers, intelligence, surveillance, reconnaissance hereby disrupting U.S. military logistics required to defend the homeland, support Allies and partners, and protect key U.S. national security interests"
  - "**Attacks are most likely during crises abroad where Chinese military planning envisions early cyberattacks against the electric power grids around CDFs in the U.S. to prevent the deployment of military forces and to incur domestic turmoil"**

BLUF: Mission Energy Security, Surety

- **Our focus is on Mission Energy Security, Surety**
- **Critical Missions - Different from Critical Assets**
- **Operational Mission Requirements drive Mission Energy Security, Surety Requirements**
  - Requirements are based on a peer-peer and or near-peers sustained contested environment at a fully operational Installation, Site, GSU
  - Operational Requirements Classified:
    - Mission Energy Security, Surety Requirement Identification is Mission Commander's and Installation Commander's Responsibility
  - Requirements are not based on funding or Installation Proficiency
  - Potential Contested Environment Assumptions: CONUS, O-CONUS
    - No Host Nation, Local Gov or Commercial Energy is available
    - Duration of outage depends on the threat, mission and location
    - 30 – 60+ days in forward theaters should be considered
    - On site, Dispersed Generation, Storage likely Required

Energy Surety Policy Documents

- 10 USC Code 2911-2920
- NDAA FY21 SEC. 316. Energy Resilience and Energy Security Measures on Military Installations
- DOD Policy: Metrics and Standards for Assessment of Energy Resilience, Supporting Policy and Guidance and Associated Reporting Requirements
- AFPD 90-17 Energy and Water Management
- DAF Installation Energy Strategic Plan 2020
- DAFI 90-1701
- DODI 4170.11 Installation Energy Management
- AFPD 10-24 Mission Assurance
- DODD 3020.40

NDAA FY21 SEC. 316. Energy Resilience and Energy Security Measures: Military Installations

- "§ 2920. Energy resilience and energy security measures on military installations

The Secretary of Defense shall, by the end of fiscal year 2030, provide that 100 percent of the energy load required to maintain the critical missions of each installation have a minimum level of availability of 99.9 percent per fiscal year

- "(2) Planning under paragraph (1) shall—"(A) promote the use of multiple and diverse sources of energy, with an emphasis favoring energy resources originating on the installation such as modular generation; "(B) promote installing microgrids to ensure the energy security and energy resilience of critical missions; and "(C) favor the use of full-time, installed energy sources rather than emergency generation

- "(c) DEVELOPMENT OF INFORMATION.—The planning required by subsection (b) shall identify each of the following for each installation: "(1) The critical missions of the installation (2) The energy requirements of those critical missions "(3) The duration that those energy requirements are likely to be needed in the event of a disruption or emergency (4) The current source of energy provided to those critical missions (5) The duration that the currently provided energy would likely be available in the event of a disruption or emergency, Any currently available sources of energy that would provide uninterrupted energy to critical missions in the event of a disruption or emergency (7) Alternative sources of energy that could be developed to provide uninterrupted energy to critical missions in the event of a disruption or emergency

- The term 'critical mission'—"(A) means those aspects of the missions of an installation, including mission essential operations, that are critical to successful performance of the strategic national defense mission

Mission Assurance through Energy Assurance
AF Installation Energy Strategic Plan 2021

- The DAF has taken on a mission-centric view of mission assurance through Energy Assurance. While DAF installations are weapon system platforms, they are not the mission themselves, so resilience of the installation should not come at the expense of the resilience of the discrete missions housed at an installation.
- From a mission perspective, this means the DAF must consider how its weapon systems and capabilities are potentially "tethered" to different installations and a diverse collection of DoD and industry nodes. These nodes are dispersed around the world and are not confined to a single installation. From an installation perspective, the Enterprise must recognize there are various missions and tenants housed at one location, and balancing the requirements of each must be considered when looking at the supporting infrastructure needed at any one installation.
- By taking a more mission-centric approach, DAF analyses can better identify interdependencies impacting mission success that may have otherwise been overlooked, and recognize that additional vulnerabilities and adaptive capacities come with the geographical dispersion of its missions. In order for this mission-centric view to be realized, mission owners and installation personnel must collaboratively engage in energy assurance planning and execution

Installation Energy Strategic Plan 2020

- **The DAF recognizes it can no longer expect traditional mission assurance methods to deliver results in a technology-driven world of interconnected capabilities, unprecedented changes to the natural operating environment, more prevalent asymmetric threats**
- **Key mission assets require the support of systems like energy, communication and water to enable mission capabilities**
- **As the DAF's dependence on these enabling systems grows in scale and complexity system disruptions can expose the Enterprise to unacceptable risk**

USAF Energy Surety Challenges

- Overseas installations highly dependent on Host Nation energy supplies
- Standby generation may carry critical assets for a short duration; however, not reliable for a long term sustained outage
- Emergency generators do not meet OSD's critical mission requirements
- Different mindset, approach required to achieve mission assurance
  - Reliance on traditional energy supplies may not be appropriate
  - Installation, Sites must have dedicated generation and storage assets
  - On Site Generation and Large Scale Storage required for Critical Missions
  - Mission requirements can be difficult to understand and quantify
    - Interlinked across the world
    - Dynamic vs. static
    - Often classified and technically complex

Lessons Learned

- **Energy Resiliency Readiness Exercise (ERREs): Different mindset and approach required**
  - Reliance on undersized Standby Generators not appropriate/sufficient
  - Continuous generation, renewables and large-scale storage necessary
  - Outsourcing responsibility to supplying utilities, UP, BOS Providers for Energy Surety, Resiliency may not achieve mission requirements
  - Microgrids not a blanket solution
  - Renewables have limited but important role
  - Significant push for new technology and alternative, clean energy sources
- **Installations now tasked to Identify Enabling System Vulnerabilities, Improve Resilience Planning, and Ensure Resilience Results**
  - Identify, Plan, Install, Test and Verify
  - On-Going testing and verification significant
- **Installations tasked to provide 100% of energy required to maintain Installation's critical missions at a minimum 99.9% availability**
- **Critical missions defined by Mission Owners**

Energy Surety Challenges

- **Mission Assurance through Energy Assurance is a significant change**
  - **Traditional energy approach based on economics and efficiency**
  - **Traditional AF's Energy funding and staffing based on economics, efficiency**
  - **Quantifying mission assurance is new and extremely challenging**
  - **Understanding mission value and determining mission impact is complex**
  - **Traditional AF energy infrastructure guidance limited mission resilience focused**
    - AFI's, AFMANs, playbooks based on traditional approach to energy and funding limitations
    - Traditionally Installation Energy surety, resiliency outsourced to utility suppliers: (Limited Gov. responsibility)
- **Climate: Installations must comply with EU, NATO, HN and US Climate Policies, Directions while still ensure Military Missions**
- **Cost: Weapons System Cost Approach…. Solutions should be cost effective based on a whole of mission criteria: (Value of ensured, enabled mission)**
  - Installation as a weapons platform plus value of the Missions the Installation enables
  - Initial and sustainment cost must be evaluated when determining solutions
  - HN, US ability to appropriately staff, train and sustain labor force
  - Future energy demands, opportunities restrictions evaluated and planned for

Energy Surety Challenges

- **Mission owners now share responsibility for energy and water mission assurance with the installation**
- **Policy:**
  - **Promote the use of multiple and diverse sources of energy, with an emphasis favoring energy resources originating on the installation such as modular generation**
  - **Promote the installation of cyber-resilient microgrids to ensure the energy security and energy resilience of installation critical missions**
  - **Favor the use of full-time, installed energy sources rather than emergency generation**
  - **Plan for 14 days of energy disruption, unless otherwise prescribed by the military department (For relocatable missions)**
  - **Non-Relocatable missions must plan to sustain missions' long term**
    - **The USAF fights from our Installations, MOBs**
    - **Relocation plans, COOPs are suboptimal**
    - **ACE is dependent on MOBs**

Your Success is Our Mission!