Lt. Col. Brandon Newell walks by solar panels at MCAS Miramar. (Photo Credits: US Marine Corps)

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The Hidden Security Challenge: Responding to Grid Capacity Constraints and Their Impacts on Military Installations

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The U.S. electric power grid is facing increasing strains on both generation and distribution, with demand reaching historic levels while underinvestment in the nation's infrastructure persists. Military installations face a governance gap, as state energy policy fails to systematically incorporate defense energy needs, despite states' increasingly important role in shaping the conditions of the very grid upon which the installations depend.

In the United States, the Department of Defense (DoD), its military installations, the defense industrial base (DIB), and surrounding defense communities rely almost exclusively on the civilian electric grid, powering everyday operations, training, critical missions, and emergency response. As a result, any strain on the nation's grid may pose significant energy security concerns, with fluctuations in power supply threatening a site's "mission readiness" and potentially undermining national defense capabilities.[1]

Today, a convergence of forces, including rapidly increasing demand growth, frequency of extreme weather events, and shifts in the generation mix, is reshaping the energy landscape across the country. This change is compounded by the shifting energy policies at the state and federal levels. These dynamics are straining the grid at a time when electricity has never been more critical to the nation's economy and security.

These pressures create distinct and major challenges for military installations, all of which rely on the commercial power system for generation and delivery. Unlike most customers, power disruptions can impact mission assurance, force readiness, and the ability of the Department to carry out national security objectives. While military installations are not "traditional" consumers, they remain dependent on a commercial system governed by a fragmented set of institutions, incentives, and jurisdictions.

Research, informed by a literature review and 26 semi-structured interviews with defense, energy, and government stakeholders, finds that **a central challenge facing military installation energy security and resilience is a governance gap, in which no single actor has clear authority or responsibility to ensure that installations receive the resources their missions require**. This governance gap arises when state policymakers treat military installations as standard customers despite their defense-critical functions, and installations are unable to effectively communicate their needs to the state in an actionable manner. While states influence the policy and conditions upon which installations depend, they are not solely responsible for national security objectives. They must instead balance defense concerns amongst other public priorities.

Energy Security Challenges for Defense Infrastructure

Over the last few decades, energy demand remained relatively flat, with military installations less concerned about obtaining energy resources[2] and instead focusing on "traditional" threats to grid reliability and resilience, including determined adversaries and increased extreme weather events. As energy demand places increased strain on the nation's grid, there is now increased focus on understanding the liability that the energy system could create for national defense capabilities.

Every military installation must follow Department of Defense requirements on energy security and resilience. Under Title 10, Sections 2911 and 2920, every installation must ensure that all energy load supporting its critical missions reaches at 99.9% availability by the end of 2030.[3] This mandate also requires the Department to promote the use of multiple and diverse sources of energy, install microgrids to ensure the energy security and resilience of critical missions, and to give priority to the use of "full-time, installed energy sources rather than emergency generation."[4] Congress bolstered these requirements in the 2026 National Defense Authorization Act which established "internal processes to support coordination with external regulatory and planning entities involved in grid reliability, transmission infrastructure, and long-term energy planning, in order to assess and mitigate risks to defense-critical installations."[5]

There are many challenges that active duty, reserve, and National Guard installations face when attempting to achieve these objectives:

- **Reliable energy is not a top priority for military installations and their operational needs.** When carrying out essential missions, checking for sufficient power falls to the bottom of the list of priorities, often because of assumptions that energy has been, and always will be, available. While each military installation has an energy manager, this person is often "dual-hatted" with other responsibilities, making energy security only a portion of a person's job. If a civilian, the energy managers often have limited authority to make installation-wide decisions, which are then left to senior leadership.
- **It is presumed that every installation has sufficient backup generation.** Backup stores are not frequently checked for readiness or operability, posing substantial uncertainty for their ability to perform under real emergencies. Missions often don't have backup generation that works or is even available, and some installations are not aware of what to do if there are outages.[6]
- **If installations were looking to increase their energy security and resilience, there are often insufficient funds to do so.** Installations are underfunded, despite being the source of housing and training of personnel across the country. When electricity prices increase, installations must re-allocate funds from other sources, demonstrating the constraints that individual installations regularly face when it comes to managing current supplies.[7]
- **It is uncommon for installations and the Department of Defense itself to communicate when there are resource challenges because of the national security implications that naming the issue could potentially expose.** DoD culture avoids transparency about gaps in operations, often leading installations not to admit when there is a problem because of the risks that it may expose to the base or larger operations.

To better understand these challenges, research examines current grid challenges and their impact on defense infrastructure, what barriers the DoD faces when engaging in state policymaking, and how stakeholders should coordinate to ensure military installations have sufficient energy security and resilience. The state of Michigan (MI) was used as a case study because it combines several conditions that are increasingly relevant across the country, including increasing grid strains, an active defense presence, and statewide clean energy goals. This brief aims to extrapolate its findings and recommendations nationwide, where energy security concerns are increasingly challenging for military installations (see Appendix "Research Methodology").

Challenges and Opportunities to Support Energy Security and Resilience for Military Installations

The State-Of-Play

1. **Rising energy demand is the dominant stressor among all stakeholders, which may contribute to delays, cost increases, or reliability tradeoffs.** Causes of rising demand include the recent buildout of data centers and additional computing infrastructure, new industrial growth, and the onshoring of manufacturing. As current demand growth outpaces generation supply and transmission upgrades, military installations and other critical infrastructure directly compete with other large customers for power.

2. **Concerns about grid reliability are split between bulk system confidence and transmission and distribution challenges.** While interviewees expressed general confidence in the large-scale transmission system, most were concerned about the distribution system's reliability, citing extreme weather events that damage infrastructure, insufficient investment, and long restoration times. Despite the higher frequency of distribution challenges, major risks to defense installations are those that occur at the bulk power level.

3. **DoD resilience goals are unevenly understood outside of the Department.** When stakeholders expressed awareness of DoD objectives, they were often perceived as "top-down" from the federal government, unrealistic, or not translated into enforceable planning mechanisms. There were also mentions that concrete "not achieved" signals were being received at the operational level, but were not elevated to leadership due to cultural barriers around disclosure.

4. **Military installation capacity continues to be a challenge, primarily due to a lack of personnel, conflicting priorities amongst them, and energy knowledge gaps.** DoD's limited capacity to engage in state policy is itself a roadblock to effective energy planning and in advocating for increased energy security and resilience.

Strengths

1. **Strong support for emergency coordination and recognition that there are active steps to improve the current state policy.** Stakeholders cited the notable partnership between emergency management personnel and critical infrastructure stakeholders, with issues being elevated and addressed promptly.
2. **Defense policies, when framed with economic development benefits, are effective at elevating military installation concerns.** Currently, stakeholders see economic development and defense industrial base partnerships as a strong coalition within the state, consisting of effective messengers and key political constituencies.

Weaknesses

1. **Military installation needs are not systematically included in state energy planning processes, and successful elevation is primarily relationship-driven.** Because resilience has traditionally not been the primary goal of utility regulation, there is a mismatch between state energy planning and military requirements. Stakeholders cited the lack of appropriate mechanisms for engagement as the primary challenge for military installations in energy planning. When installations are considered in the planning process, their needs are equated to those of other "large customers," without additional consideration for national security objectives that the missions would carry out.
2. **Policy barriers to long-term investments in energy security and resilience revolve around political volatility, but costs and authority constraints are also mentioned.** Changing federal and state administrations can hamper infrastructure buildout and investment momentum, highlighting the importance of political stability for goal identification and execution, as stakeholders can determine priorities and then initiate long-term solutions. Stakeholders also identified the cost of resilience infrastructure and the limited authority for the military to determine which types of energy supplies get built as barriers.
3. **Numerous barriers currently impede existing state government action.** Common weaknesses included coordination and engagement, ineffective or missing policies,

bureaucratic processes and red tape, and insufficient funding of government programs. There was common recognition that states can facilitate relationships amongst stakeholders and highlight current gaps, which can be used to elevate an issue area, mobilize political support, gain critical information, and bring about a forum to develop solutions with key stakeholders. There was widespread recognition that states cannot be expected to enforce and ensure national security objectives are met, especially without authority and sufficient funding.

Opportunities

1. **States are seen as conveners and coordinators.** Many noted the historic position and ability that state governments have in bringing together stakeholders and encouraging them to coordinate. Beyond convenings, states can set state agendas and elevate issues to overcome gaps in existing government processes.

2. **State policymakers need additional support from DoD and military installations.** Specific items include:

   a. Technical inputs, including future load projections and modeling

   b. Use cases to demonstrate use cases and vulnerability assessments that identify and prioritize threats, and where installations are unable to meet current resource needs without the help of the state or federal government[8]

   c. Regular briefs about the defense footprint in the state[9]

   d. Long-term plans about missions and subsequent priorities for energy needs[10]

   e. Clear timelines and points of contact within military installations

   There was also widespread support for better communication from the Department about concerns from stakeholders, preferably in ways that ensure that both sides are speaking in one common language. This can include 101 briefs on state missions and the role of the defense industrial base, developing a shared vocabulary, and providing real use cases to help translate challenges that installations are facing into terms that policymakers and planners can understand.

3. **DoD can become a better advocate for itself and leverage partnerships across the state.** DoD should do more direct outreach with state policymakers. When incorporated and paired with strong partnerships, this could be an effective catalyst for energy security and resilience improvements.

Threats

1. **The most repeated vulnerability categories are cyber, severe weather, transmission and distribution, and supply-chain fragility.** Findings were split amongst state and regional stakeholders and national security and energy experts, with a majority of state and regional stakeholders focused on cyber and extreme weather events.
2. **Mixed views on how state energy policies and DoD energy security and resilience objectives relate to one another.** Most state policymakers and energy security experts stated that policies to support a clean energy transition will help with overall energy security and resilience in the state and should make military installations, on net, better off.
3. **DoD needs to overcome its own barriers to better advance energy security and resilience objectives.** This includes communication and coordination, current authorities, budget constraints, and internal issue alignment.

Recommendations

For State Policymakers

1. **Establish a temporary working group to identify installation vulnerabilities and create formal coordination pathways.** Its purpose should be to identify current vulnerabilities, improve coordination among key stakeholders, and recommend more formal mechanisms for sustained engagement over time. Establishing a working group can serve as a first step to encourage cross-sector problem-solving and partnership development, without assuming that the state alone is responsible for meeting federal national security objectives. The working group should be time-bound and charged with producing concrete outputs, including a vulnerability assessment, a set of priority near-term actions, and proposals for how the state should institutionalize ongoing defense-energy coordination. If concerns extend beyond the state, the Governor's Office should use findings to elevate issues to regional and national actors.
2. **Encourage the MI Public Service Commission to incorporate military installation needs into routine planning.** Military installations should not be treated as generic "large-load customers" in energy planning. Utility commissions should develop formal pathways for incorporating installation needs into routine planning processes, including long-term resource planning and emergency coordination. At a minimum, PUCs should

work with installations to identify defense-critical loads, establish emergency contacts and restoration priorities, and better understand how DoD requirements differ from standard commercial reliability expectations.

3. **Improve regulatory and public funding frameworks for resilience investments in critical infrastructure.** State policymakers should pursue reforms that better recognize, finance, and prioritize resilience investments.

For the Department of Defense and Partners

1. **Provide state policymakers with actionable information, regular engagement, and a shared vocabulary.** This effort should go beyond general awareness-building and include state policymakers and utilities with specific inputs needed to respond effectively. Information should be paired with regular installation briefings, standardized information packets, and recurring engagement with the regulators, utilities, and relevant state agencies, which would help military needs become integrated within existing state planning systems.

2. **Strengthen installation-level capacity to participate in state policymaking and utility processes.** DoD should invest in stronger installation-level capacity for external policy engagement. This can include assigning dedicated staff with the expertise to engage in regulatory and utility processes and providing staff with clear authority to coordinate across installation leadership, community, and external stakeholders, and elevate emergency energy concerns before they become acute. The Department should also consider regional liaisons or "field operators" who can bridge the gap between state policymakers and military installations, maintain institutional knowledge across leadership changes, and translate technical energy issues into policy terms.

3. **Continue using economic-development framing to build durable political support.** Given the contribution of DoD to the state economy, DoD and partners should continue to frame installation resilience in national security terms alongside economic and regional development, using metrics around jobs, industrial competitiveness, and mission retention.

4. **Develop clearer strategies that align defense resilience objectives with state clean energy goals.** DoD and partners should be actively developing and communicating how resilience, reliability, and decarbonization priorities can reinforce and support one another. Proactive narratives that advance both state and defense interests should be actively invested in and shared broadly, while also pushing back on the claim that clean-energy goals can undermine reliability or mission readiness.

This brief finds that there is a structural governance gap, with state policymakers translating installation needs into ordinary customer demands, and the Department lacking the capacity to effectively advocate for itself in state policies and planning processes. As a result, energy security and resilience for military installations is not an aligned priority across all stakeholders involved. If left unaddressed, this governance gap will continue to grow, but stakeholders should use this opportunity to build more resilient systems to better protect critical infrastructure and mission-readiness.

Research Methodology

This brief seeks to address this tension and answer the following question: **What could and should state policymakers and the Department of Defense do to ensure that military installations achieve energy security and resilience, allowing them to stay "mission-ready"?** This brief addresses the following research objectives, using mixed methodology including a literature review and findings from 26 semi-structured interviews:

- Understand current state policymakers' actions and abilities to address grid capacity constraints;
- Highlight current Department of Defense challenges to state policy and regulatory engagement; and,
- Explore potential opportunities for coordination and collaboration amongst state policymakers and the Department to ensure military installations achieve energy security and resilience.

The interview questions and findings were developed using a Strengths, Weaknesses, Opportunities, and Threats (SWOT) framework, with strengths and weaknesses focused on the current system, and the opportunities and threats addressing future considerations.

This brief examines these research objectives through a case study of Michigan, which predominantly utilizes power from the Midcontinent Independent System Operator (MISO). Michigan offers a useful test case because it combines several conditions that are increasingly relevant across the country:

- Located in a region facing increasing energy demand and rising competition for electricity supply;
- 100% clean energy goals written into statute;[11]
- A prominent "battleground" state for presidential and state gubernatorial and legislative

elections,[12] signaling the need for strong bipartisan support to pass policies; and

- An active defense presence in the state, with the third-largest DoD spend in the region, despite having a limited number of active bases. Unlike states with a large proportion of active military bases, Michigan will need to find additional pathways to coordinate state policymakers, build political capital, and secure resources for its defense industrial base.

About the Author

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Endnotes

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