National Conference of State Legislatures

Renewable Energy, the Military, and How States are Contributing to Success

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Army Installation Universe

Installation Population: 3,002,873
Total Army Installations: 156
National Guard & Reserve Centers: >2,800
Total Land (acres): 13,591,251
Buildings (ft²): 982,668,264

Army Installation Energy & Water Consumption Costs

Energy Use Intensity since FY03

16.6%

$1.1B Energy 75.5T BTUs/year

Water Use Intensity since FY07

34.6%

$86.9M Potable Water 31.2B GALs/year
The Office of Energy Initiatives was established by the Secretary of the Army as a task force in 2011, then as a permanent office in 2014

- Serves as central program management office for Army’s development, implementation and oversight of large-scale renewable and alternative energy projects that leverage private financing
- Secures Army installations with energy that is resilient, affordable and sustainable
- Focused on creating an “islandable” capability – energy security projects that include onsite generation, storage, and controls

- **Fort Hood, Texas:** 65 MW AC Hybrid Wind & Solar Projects; Expected to provide $100 million in cost avoidance over the term of the 30-year contract
- **Redstone Arsenal, Alabama:** 10 megawatt (MW) alternating current solar project with Army’s first privately funded, commercially available battery storage solution
- **Schofield Barracks, Hawaii:** 50 MW Biofuel/Multi-fuel Project operational since May 2018. Full “Islandable” energy capability expected for Schofield Barracks, Camp Kunia and Wheeler Army Airfield
The 50-megawatt power plant can provide 100 percent of the power needed to keep Schofield Barracks, Wheeler Army Airfield and Field Station Kunia running during a grid power emergency.
Georgia 3 x 30 Projects

Fort Benning

Fort Stewart

Fort Gordon
5 MW Solar Array

(Photo by Megan Locke Simpson)
825kW (3 Turbines)

Provides 5% of installation’s power.
21,824 panels, producing 5.5MW of power and at least 60% of installation’s power.
4.1MW Ground Array  365kW Solar Carport

White Sands Missile Range, NM
Potential Issue 1 -- Radar Interference
Type 101 Mobile Air Defense Radar
EFFECTS OF WIND TURBINES ON RADAR SURVEILLANCE

Obstruction of target
- Wind turbine return on radar screen
- Strength of return swamps primary radar
- Rotating blades defeat the processing capacity of smart radar

Diffraction
- Partial obstruction of aircraft causes aircraft to appear in different location or jitter on radar

SSR reflection (uplink)
- SSR energy is reflected directly back at radar
- SSR interrogation

SSR reflection (downlink)
- SSR response reflects off blades giving inaccurate location
2006 DoD Report to Congress
The Effect of Wind Farms on Military Readiness
Potential Issue 2 – Airspace Interference
DOD Siting Clearinghouse

• Created by Congress in January 2011
• Works with industry to overcome risks to national security while promoting compatible domestic energy development (wind, solar, transmission lines, cell towers, etc.).
• Acts as a single point of contact for Federal agencies; State, Indian tribal, and local governments; developers; and landowners, and provides a central forum for internal staffing.
Missile Flight Area

- Missile Alert Facility (MAF)
- Launch Facility (LF)
- Launch Control Center (LCC)

Minimum 3 nautical miles
Field of Regard

Vertical visibility

Horizontal visibility

499 ft

50 ft

720 ft
“L” Attack Pattern
“U” Attack Pattern
“J” Attack Pattern
Racetrack Attack Pattern
Spooky Reconnaissance Pattern
• AF and DOD Levels
  - AFGSC/A3O working with Air Force Flight Standards Agency (AFFSA) to have the FAA recognize LF and MAF’s as areas in which projects that are submitted to the FAA for a hazard determination are provided to the AF for input. This requires changes in the business rules between the AF and the FAA, ECD: October 2019
  - 20 AF & 582 HG to complete Geographic Area of Concern (GAOC) for approval by the DOD. GAOC designates areas in which there is a risk of adverse impact on military operations and requires any project within that area to proceed to mitigation. The designation will be for a 2 NM radius for every LF and MAF within all three missile complexes.
  - DOD Clearinghouse now engaged.
• **Installation – Community Engagement**
  • Engage with County Planning Boards, developers, and landowners to identify projects and inform them of operational impact
    • Will require additional manpower given scope of missile complex
      • F.E. Warren: 3 States, 7 Counties
      • Minot: 8 Counties
      • Malmstrom: 9 Counties
  • Reinvigorate Installation Encroachment Management Teams
  • Engagement at State level to highlight missile field encroachment issues
State Statutory/Regulatory Change

- Seek Legislation or Regulation in CO, WY, NE, MT, and ND that would forbid construction or expansion of wind energy facilities within 2 NM of a Launch Facility or Missile Alert Facility unless there is an approved mitigation plan from the DOD Siting Clearinghouse.

- Any other State action prohibiting construction or expansion of wind energy facilities within 2 NM of a Launch Facility or Missile Alert Facility.
State Action

Oklahoma: Passed in 2018/2019 – Requires DOD Determination of No Hazard
New York State Board on Electric Generation Siting and the Environment – Requires DOD Review
Washington Energy Facility Site Evaluation Council – Requires DOD Notification
Texas: No Tax Abatement if within 25 Miles of Military Aviation Installation
California: Provides a Variety of Options for DOD Involvement
Virginia: Model County Ordinance Suggests Notification to DOD Clearinghouse
Maryland: Wind Turbines within 46 Miles of Patuxent River Naval Air Station Requires PSC Approval

Proposed State Action

North Carolina: House Bill Requiring DOD Involvement
South Carolina: Senate Bill Requiring DOD Clearinghouse Review
Thank You

Photo Courtesy AWEA and Abigail Vander Hamm