

The GVEA system supplies electricity to all four critical military installations in Interior Alaska: US Army Garrison Fort Wainwright, Eielson Air Force Base, US Army Garrison Fort Greely, and Clear Space Force Station. These bases are vital to national security, each serving unique roles.

- Fort Wainwright is home to the U.S. Army's 11th Airborne Division, providing rapid deployment capabilities in the Arctic and Asia-Pacific region.
- Eielson Air Force Base hosts the 354th Fighter Wing, operating F-35 aircraft for air superiority missions.
- Fort Greely, under Missile Defense Command, is integral to the nation's missile defense system with its Ground-Based Midcourse Defense system designed to detect and destroy incoming ballistic missiles.
- Clear Space Force Station operates radar systems to detect incoming intercontinental ballistic missiles and submarine-launched ballistic missiles as well as space surveillance, ensuring early detection and warning of potential threats.

Reliable power supply from GVEA is essential for these installations to maintain continuous operations, directly supporting the defense infrastructure and military readiness of the United States.

Furthermore, GVEA powers pump stations along the critical Trans Alaska Pipeline System. The pipeline delivers oil produced in the Alaskan North Slope oil fields to the fuel refineries in Interior and Southcentral Alaska. Those refineries, in turn, distill the fuel oil that is distributed by truck, rail, barge and air and consumed across Alaska to fuel jets, airplanes, heaters, vehicles, and electrical generation, among countless other fuel demands.

GVEA's grid is practically isolated, having a single transmission line interconnection to electrical utilities serving Alaska's largest population center in Southcentral Alaska, including the Joint Base Elmendorf-Richardson combined U.S. Air Force and Army installation. The Southcentral Alaska electrical utilities depend primarily on natural gas produced from the Cook Inlet to power their grids. Production levels of natural gas in the Cook Inlet have been declining for years and the utilities are now grappling with a severe natural gas shortage. Whereas GVEA has historically been able to purchase excess power from the Southcentral Alaska utilities, that supplemental resource became unavailable as of February 2024 due to the increasingly severe natural gas shortage in the Cook Inlet. As a result, GVEA's generating facilities are becoming increasingly critical to meet electrical needs not only in Interior Alaska, but also to support the utilities and essential operations in Southcentral Alaska.