

Powering the Forces

By Captain Esther S. Pinchasin and Captain James S. Boyette

The 249th Engineer Battalion (Prime Power) trains for worldwide deployment to provide prime power electrical solutions and electrical-systems expertise in support of military operations and the National Response Plan. Operation Iraqi Freedom continues to present daily challenges of environmental and logistical obstacles, which the “Black Lions” successfully overcome. Gone are the days of the quick-and-easy Force Provider module forward operating base (FOB) in a box! Our restructured footprint requires comprehensive and flexible power planning, and the prime power production specialists provide the knowledge necessary to meet the theater’s increasing power requirements.

The Soldiers of the 249th Engineer Battalion possess a variety of capabilities to support military operations, such as installing and operating prime power plants, providing technical power-related guidance, and serving as technical assistants to the contracting officer’s representative (COR) for power projects. The Army’s prime power production specialists assist in the connection of base camps to local commercial grids (which establishes the secondary backup system and helps eliminate the dependency on contracted power generation equipment). This is not currently being accomplished in Iraq because the national grid is unreliable and incapable of providing consistent power to the Iraqi population. The final objective and a measure of success will be the connection of bases to the commercial grid, utilizing it as the primary power source.

Military-constructed and leased power plants provide electricity for all contingency operating bases (COBs) in Iraq. The smaller FOBs are powered solely by spot generation (which consists of many low-voltage generators referred to as tactical generators [TACGENS]). The Soldiers of the 249th support base commanders and area support groups in their efforts to maximize the use of the government-purchased and leased power generation systems, implement load-sharing programs during peak power demands, and ensure the safe and efficient operation of the utilities infrastructures sustaining allied forces.

In 2003, the existing electrical infrastructure at most of the COBs was cannibalized, destroyed, or severely damaged. The



Soldiers splice a medium-voltage distribution cable.

249th conducted battle damage assessments and repaired enormous portions of the distribution systems to enable operations. They put miles of power distribution lines in the ground and stood up life-support areas all over Iraq. Since then, power production equipment has been leased and purchased, and the role of the 249th has changed to one of assisting the Multinational Corps–Iraq (MNC–I) with the proper utilization of the newly acquired resources.

Prime power specialists have been conducting electrical assessments of facilities, compiling required bills of materials, computing load estimates and projected power requirements, as well as designing and installing low- and medium-voltage power distribution systems for base engineers. They have taken on the critical tasks of overseeing project execution, ensuring the quality control of the contractors’ work, and providing technical assistance to both theater and the United States Army Corps of Engineers® CORs.

At one logistics support area (LSA), the 249th oversaw the construction and installation of overhead power distribution lines covering the entire base, to ensure that the Army received what it paid for with taxpayers’ dollars. The LSA had more distribution capability than power available, which is rarely the case; therefore, the plan was to double the size of the existing plant and provide power to more than 90 percent of



A Soldier works at troubleshooting an electrical fault.

the base, using minimal spot generation. This directly reduced fuel and maintenance costs and maximized power production capability on the LSA.

A prime power team at one COB in Iraq worked diligently to stand up utilities operations. The base is mostly powered by costly spot generation—which is operated, maintained, and fueled by contractors. The objective was to reduce our dependency on the inefficient spot generation and utilize more of the leased-plant capacity. The prime power team also assisted in upgrading the electrical infrastructure, provided quality control for the contracted work, and completed several technical troop-labor missions. The 249th worked aggressively to connect to the existing grid the major power users, the critical facilities, and the facilities that do not require an extensive bill of materials. Working alongside the MNC-I C-7 (engineer staff section) Power Cell, they produced a theater power plan to meet future power demands and assist in the programming of funds for upcoming power production requirements. The current plan, to add megawatts to the COB power plant, will guarantee power support to the base. The 249th engaged in assessing and prioritizing facilities to carry out this course of action and guarantee the COB's ability to handle the summer power surge demand.


Over the last twelve years, the 249th has deployed and worked with engineers from all over the world. However, in Iraq, they had the rare opportunity to work directly with United States Marines at a base that was abandoned by the Iraqi army and subsequently looted, rendering the main power bunker inoperable.

Most of the distribution system was in a horrible state of disrepair, and all the substations were nonmission capable.

They were directed to restore the power distribution system, which was accomplished successfully with limited resources and materials. These prime power production specialists repaired the existing internal electrical systems and enabled occupancy of the buildings on the COB.

They also located and disabled high-voltage feeder cables to the base, arresting the barrier system without any electrical diagrams, required tools, or diagnostic equipment. They resourcefully consolidated all unused transformers, switchgear, and high-voltage rated cable to quickly determine the serviceability of each item and set up a cannibalization, testing, and repair shop to repair complete substations with zero cost to the U.S. government. The prime power Soldiers conducted reconnaissance and assessment of more than 200 facilities and collected repair parts and materials to restore the electrical capability to each facility.

Today, the 249th continues to build on past successes. It works closely with the area support group's electrical team to repair and maintain the power distribution system and supervise the operation of the base-leased power plant. The team also repairs cable strikes, conducts substation maintenance and repair, and corrects faults in the underground distribution infrastructure—which was built in the early 1980s. The unit is also looking ahead and working on the expansion of the power plant and has already developed the power projections.

The 249th Engineer Battalion, the only prime power unit in the Army, is comprised of professional Soldiers who are the theater's technical experts on commercial-grade medium-voltage power. They continue to operate out of the major COBs in Iraq, supporting the entire area of operations, providing the outlying FOBs with technical expertise, and identifying life-threatening electrical safety hazards. The Soldiers of the 249th will continue to rotate in and out of Iraq and Afghanistan, covering both areas of operations, to support thousands of U.S. Soldiers, Sailors, Airmen, and Marines. 

Captain Pinchasin is attending graduate school for construction engineering at Stanford University and will serve with the United States Army Corps of Engineer upon graduation. Her previous positions include platoon leader, executive officer, S-3, battalion S-4, company commander, battalion liaison, and adjutant. She holds a degree from Boston University and has attended the Aviation Captains Career Course and Combined Arms and Services Staff School (CAS3).

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