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REF Powers Mission Critical Support Systems at Bagram Airfield

FORT BELVOIR, Va. – May 7, 2015 – Working directly with key stakeholders, the Army's Rapid Equipping Force provided a unit with tailored hybrid energy solutions to power two key pieces of airfield equipment at Bagram Air Field, Afghanistan. This equipping action allowed BAF to install the systems six months earlier than planned due to grid power limitations.

Following installation, both the airfield's weather stations and its Tactical Automatic Landing System have been running on renewable energy sources for nearly all their power needs.

To perform correctly, both systems must be positioned close to the runway they service. Their unique positioning make them challenging to access for routine sustainment. At Bagram, using grid power was not a viable option for another six months, as an underground power line had not been installed yet. A standard-issue generator would have powered the systems, but requires a significant number of sustainment missions, interfering with runway operations.

To bring stable power to both systems, the REF Operational Energy Advisors assessed both the weather stations and the TALS and made the determination to install unique hybrid power systems on each. Both systems include solar panels that charge a bank of batteries that feed into the system. The solar element of those power systems is complemented by a fuel-powered generator that charges the battery when there is no sun.

For the TALS, REF OE Advisors found that a 3kW hybrid generator would provide sufficient power. Since installation, the system has been operating on 90 percent solar-harvested power and has not had a reduction in performance or experienced any damage to its components. Overall, the hybrid power system has increased operational readiness of the TALS, significantly reduced fuel consumption and generator maintenance requirements.

For the weather stations, which are critical for real-time weather reporting and safe air operations, the advisors tested three variations of hybrid power systems – 3kW, 5kW, and 10kW. After each was evaluated on transportability, modularity and energy production, the REF determined that both the 3kW and the 5kW systems, with minor improvements, were a low-risk solution that would increase the power surety of the weather stations.

This REF solution has improved the stations' operational readiness rate, allowing the airfield to operate without fueling and servicing interruptions.

The REF Energy to the Edge initiative aims to equip, insert and assess emerging technologies and techniques to improve power reliability, water production and recycling capabilities and waste reduction. The team has worked with units deployed worldwide, including Central America, Africa, the Pacific and the Middle East. The E2E initiative supports the Army's Net Zero campaign and the Operational Energy policies set forth by the secretary of the Army.

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About the Army's Rapid Equipping Force

The Rapid Equipping Force, headquartered at Fort Belvoir, Va., harnesses current and emerging technologies to provide immediate solutions to the urgent challenges of U.S. Army forces deployed globally. The Department of the Army formed the REF in 2002 to support critical warfighter requirements in Afghanistan, and during the past 11 years, the REF has met challenges as diverse as defeating improvised explosive devices, increasing tactical-level operational energy efficiency, gathering blast effect data to better understand traumatic brain injury and improving intelligence, surveillance, reconnaissance capabilities in austere locations. The REF responds to global Army units of all types, combat, combat support and combat service support, to rapidly adapt to changing battlefield conditions and enemy tactics. Please visit us at www.army.ref.mil or visit our social media pages, Twitter: @USArmyREF, Facebook: Rapid Equipping Force, for more information.