

TROPEC – COBRA GOLD 2013 SUMMARY STATEMENT



Mission: Reduce Operational Energy Consumption in Tropical Environments while maintaining or improving warfighter capability.

Goal: Reduce operational energy consumption at PACOM expeditionary basing by 25% in 32 months.

Method: By combining Department of Energy's expertise in energy efficiency & demand reduction with PACOM and MEC's expertise in operations in tropical environments and through a process of technology identification, review and assessment, provide strategy and acquisition professionals with insight and information on material and non-material solutions.

Cobra Gold, Thailand, 2013:

Background: Cobra Gold is an annual Thai-U.S. co-sponsored multinational exercise to advance common goals and security commitments in the Asia-Pacific region. The US Marine Corps Forces, Pacific Experimentation Center (MEC) gathered energy consumption data on an expeditionary outpost at Ban Chan Krem (BCK) and Samaesan from 07 to 22 February 2013. The resulting TROPEC energy consumption survey serves to enhance understanding of energy consumption at expeditionary outposts in tropical environments, common in the PACOM AOR, to establish an energy consumption baseline for future TROPEC assessment events, and to identify both technology opportunities and capability gaps most affecting current operational energy consumption.

Key Findings:

- The overall electrical energy usage at BCK was 1300 kWh per day to support COC, Utility, Medical and Refrigeration functions.
- Load profiles: 78% environmental control units (ECUs), 12% reverse osmosis water purification, 8% plug load, and 2% refrigeration.
- Low shelter insulation and undersized ECUs led to undercooling during the day and overcooling at night.
- Fossil fuel served as the primary source for energy production. On average, generators ran at 34% of rated capacity. Average fuel consumption was 820 gallons/day.
- Average water production was 8620 gallons/day

Recommendations:

- Evaluate cooling requirements and ECU control strategies to reduce loads.
- Investigate strategies and technologies to establish shelter cooling guidelines on expeditionary bases.
- Provide additional training on the use and installation of remote thermostats.
- Investigate ways of improving insulation of shelters. For instance, radiant barriers.
- Assess free cooling approaches at night or periods of minimal solar loading, such as opening shelter doors, windows, vents and running ECUs in fan mode rather than cooling mode.

Please visit www.tropec.net for more information on the TROPEC program

TROPEC's Cobra Gold 2013 detailed analysis can be accessed via the OEPP office; it is designated for Government Use Only

