

Transformative Reductions in Operational Energy Consumption



TROPEC Test Bed



**Field Experimentation Team
10 April 2015**

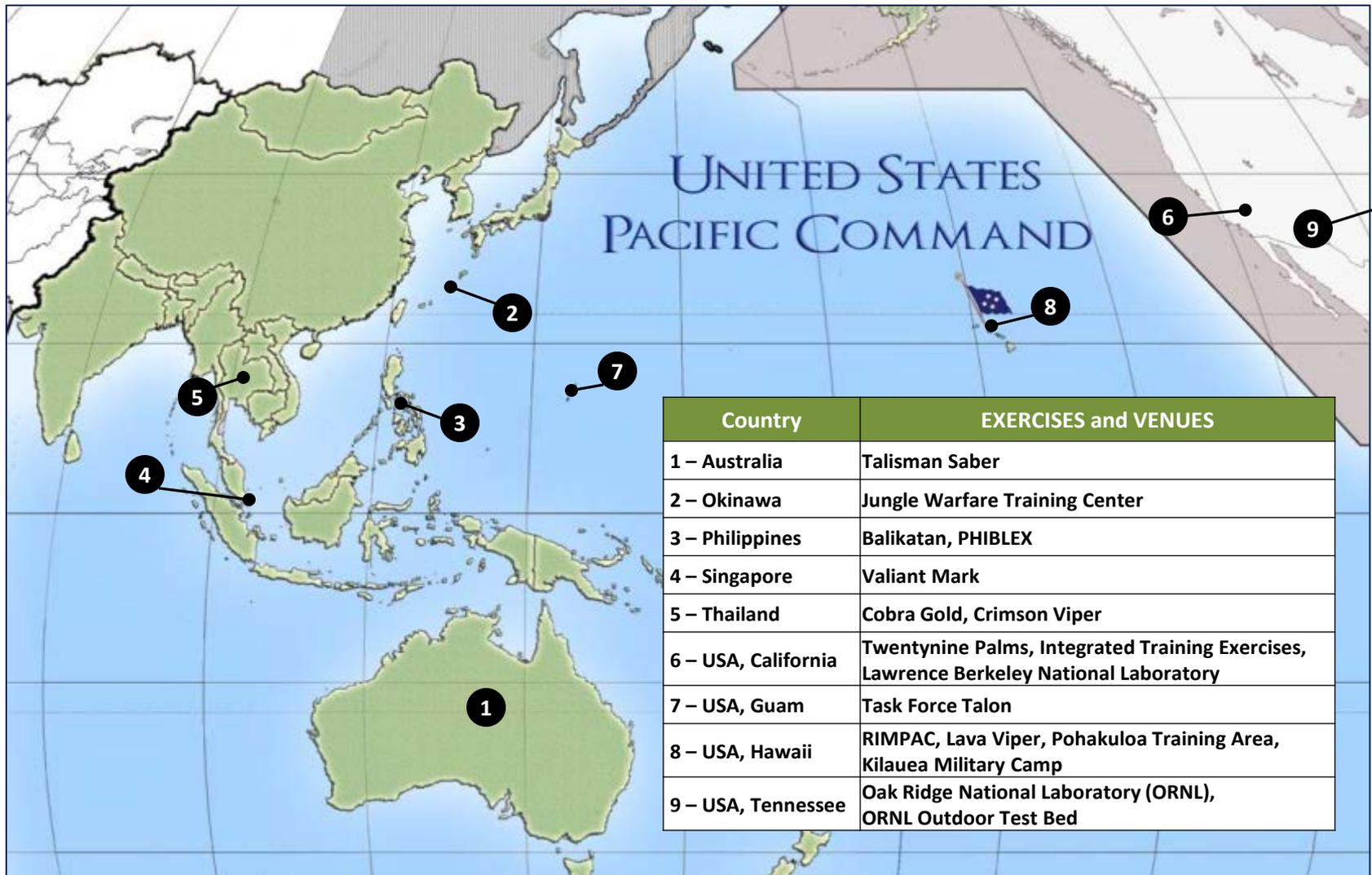
TROPEC Test Bed



- **What:** A number of locations used for testing, evaluation and assessment of equipment designed to reduce energy consumption during expeditionary operations.
- **Where:** Tropical locations throughout PACOM AOR.
- **Who:** PACOM's TROPEC Field Experimentation Team consisting of technical and military experts.



TROPEC Test Bed



TROPEC

Field Experimentation Team



Provides expeditionary energy field assessments by:

- Providing access to multiple venues throughout CONUS and PACOM AOR.
- Coordinating all aspects of energy assessment to include warfighter engagement.
- Coordinating logistics to include providing data collection devices.
- Reporting on technology effectiveness, suitability and mission impact in an operationally relevant environment.

Thailand



- Collaboration with training exercise units at various locations in Thailand
 - Advantages
 - Tropical climate
 - Short term evaluations
 - Technologies
 - Energy consumption survey of military units
 - Occupancy sensing thermostats
 - Single/multi-stage environmental control units with fixed and variable speeds
 - Tent insulation
 - Lighting
 - Lighting controls



Philippines



- Collaboration with training exercise units at various locations in the Philippines
 - Advantages
 - Tropical climate
 - Short and long term evaluations
 - Technologies
 - Inflatable shelter
 - Modulating capacity ECU
 - Thermostat controls
 - Tent insulation
 - Tandem tent configurations
 - Hybrid power



Guam



- Collaboration with a forward deployed unit located at Andersen Air Force Base, Guam
 - Advantages
 - Tropical climate
 - Units available year round
 - Short and long term evaluations
 - Technologies
 - Inflatable maintenance shelter
 - Dehumidifying kit
 - Solar light cart
 - Solar task lighting
 - Energy efficient containerized living unit
 - Various shelter configurations



California



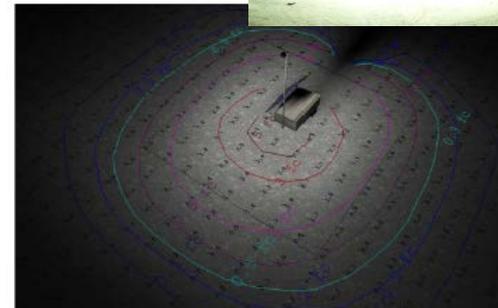
- Marine Corps Air Ground Combat Center in Twentynine Palms, California
 - Advantages
 - Units available year round
 - Short and long term evaluations
 - Technologies
 - Energy efficient containerized living unit



California



- Lawrence Berkeley National Laboratory
 - Advantages
 - Subject matter experts in lighting, data centers and electronics
 - Environmental test chamber
 - Supplemental laboratory testing capability
 - Technologies
 - Renewable lighting cart
 - LED and plasma lighting
 - Server memory modules
 - High voltage regulators
 - Data acquisition platform
 - IT cooling systems



Tennessee



- Oak Ridge National Laboratory (ORNL)
 - Advantages
 - Subject matter experts in structures, HVAC and miscellaneous loads
 - Fully instrumented climate chambers
 - Supplemental laboratory testing capability
 - Technologies
 - Waste water reuse system
 - Energy efficient containerized living units
 - Microgrids
 - Reflective paints and coatings



Tennessee



- ORNL Outdoor Test Bed

- Advantages

- Tropical-like location between June-September
 - Space available for testing structures and base support systems
 - Focus on short term testing for quick turns and affordability
 - Energy performance modeling

- Technologies

- Tent structures
 - Single/multi-stage environmental control units with fixed and variable speeds
 - Material property testing



Equipment



- Data Acquisition Kit
 - Weather Station
 - Temperature, relative humidity, rain, wind, barometric pressure, and solar radiation
 - Outdoor Energy
 - Power
 - Indoor Air
 - Temperature and humidity, CO2
 - Spot measurements
 - Temperature, relative humidity, light levels, CO2

Point of Contacts



- If interested in utilizing the TROPEC Testbed, please contact:
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