Schofield Generating Station

Implementing Utility Owned Energy Resilience on a Military Installation
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US Army Garrison Hawaii and Hawaiian Electric Company partnered to solve mutual energy resilience and renewable energy needs

Result is a 50MW power plant that is:
- Utility-owned
- Resilient
- Renewable
- Within a military installation
- Operated daily to serve all utility customers, and
- Capable of providing microgrid services to three Army bases when needed.

How did we achieve this?
Step 1: What do we need?

**Army**
- Resilience
- Renewable Energy
- Reliable Power
- Money
- Expertise

**Utility**
- Resilience
- Renewable Energy
- Reliable Power
- Flexible Generation
- Permittable Land
Step 2: What do we have?

Army

Utility
Step 3: Who/What do we know?

**Army**
- US Army Garrison Hawaii
  - 25th Infantry Division
  - National Guard
  - Tenants and neighbors
- ASA Installations Environment and Energy
  - Office of Energy Initiatives
- Authority to Lease Land
  - US Corp of Engineers

**Utility**
- Local Community
  - Businesses
  - National Guard
  - Political entities
  - City, County, State offices
- Congressional Delegation
- Hawaii Regulatory Process
  - Public Utilities Commission
Step 4: The Solution!

The Deal
- Army land for Utility energy security guarantee
- Guaranteed biofuel use for renewable “credit”

The Microgrid
- Utilize existing grid ties to bases
- Install boundary switches to isolate

The Generation Technology
- Multi-shaft, multi-fuel reciprocating engines
- Satisfies resilience, renewable, reliability goals, PLUS high efficiency

The Process
- Army valuation of energy security guarantee
- Waiver from PUC bid framework
Stakeholder Perceived Value
Solution to Multiple Challenges

**Army**
- Multiple non-contiguous Installations
- Long term resilience needed
- Federal renewable goals
- No/limited funding
- Limited land

**Solutions**
- Leverage utility’s existing grid to provide microgrid
- Utility owned and funded
- Quick start bio-fuel/multi-fuel diesel units
- Army land lease

**HECO**
- Cost constraints
- Peaking/cycling generation needed
- State Renewable goals
- Zoning/NIMBY constraints
Generation Technology
Interconnection/Microgrid

Normal Operation: Grid-tied

Contingency Operation: Microgrid

GRID

Kunia
Schofield Barracks
WAAF
Schofield Gen Sta

GRID

Wahiawa Sub

GRID

Kunia
Schofield Barracks
Wheeler
Schofield Gen Sta

32 MW Peak Load

50 MW
Efficiency Relative to Other Technologies

- 50% Combined-Cycle Combustion Turbines
- 40% Schofield
- 30% Reheat Steam Units
- 20% Non Reheat Steam Units
- Simple-Cycle Combustion Turbines
Age and Flexibility of Existing Oʻahu Generation

![Bar chart showing the age and flexibility of existing Oʻahu generation. The chart uses different colors to represent Quick Start (<10 minutes), Fast Start (10-30 minutes), and Slow Start (4-6 hours) for different age groups.]
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