

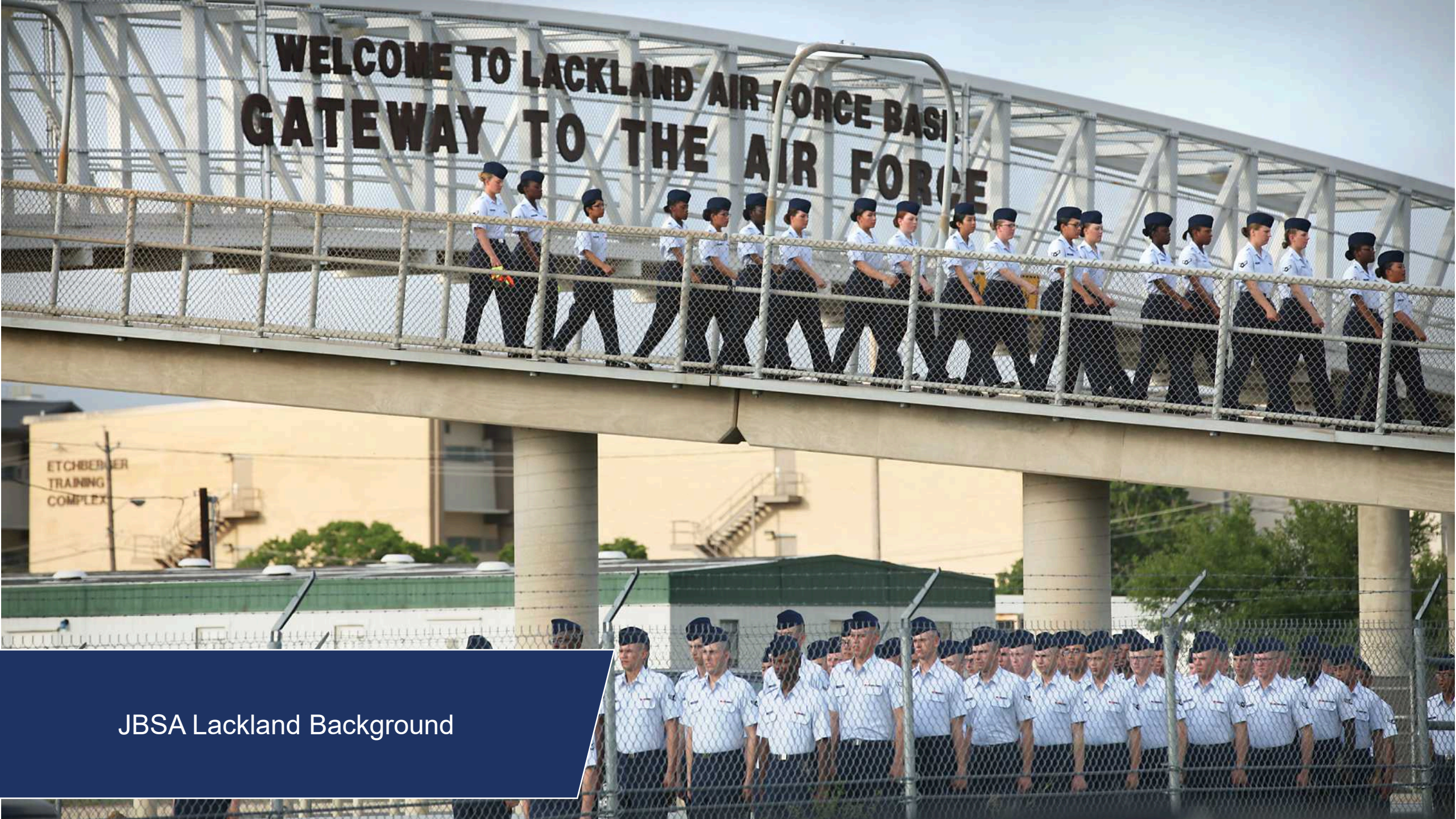
Campus-Utility Partnerships for Success JBSA Lackland Microgrid

Ernie Leaf, P.E., Stanley Consultants, Inc.
February 11, 2020

Agenda

- Background
- Project Overview
- Challenges
- Solution





JBSA Lackland Background

Background | JBSA Lackland Microgrid

What Sparked Microgrid Discussions?

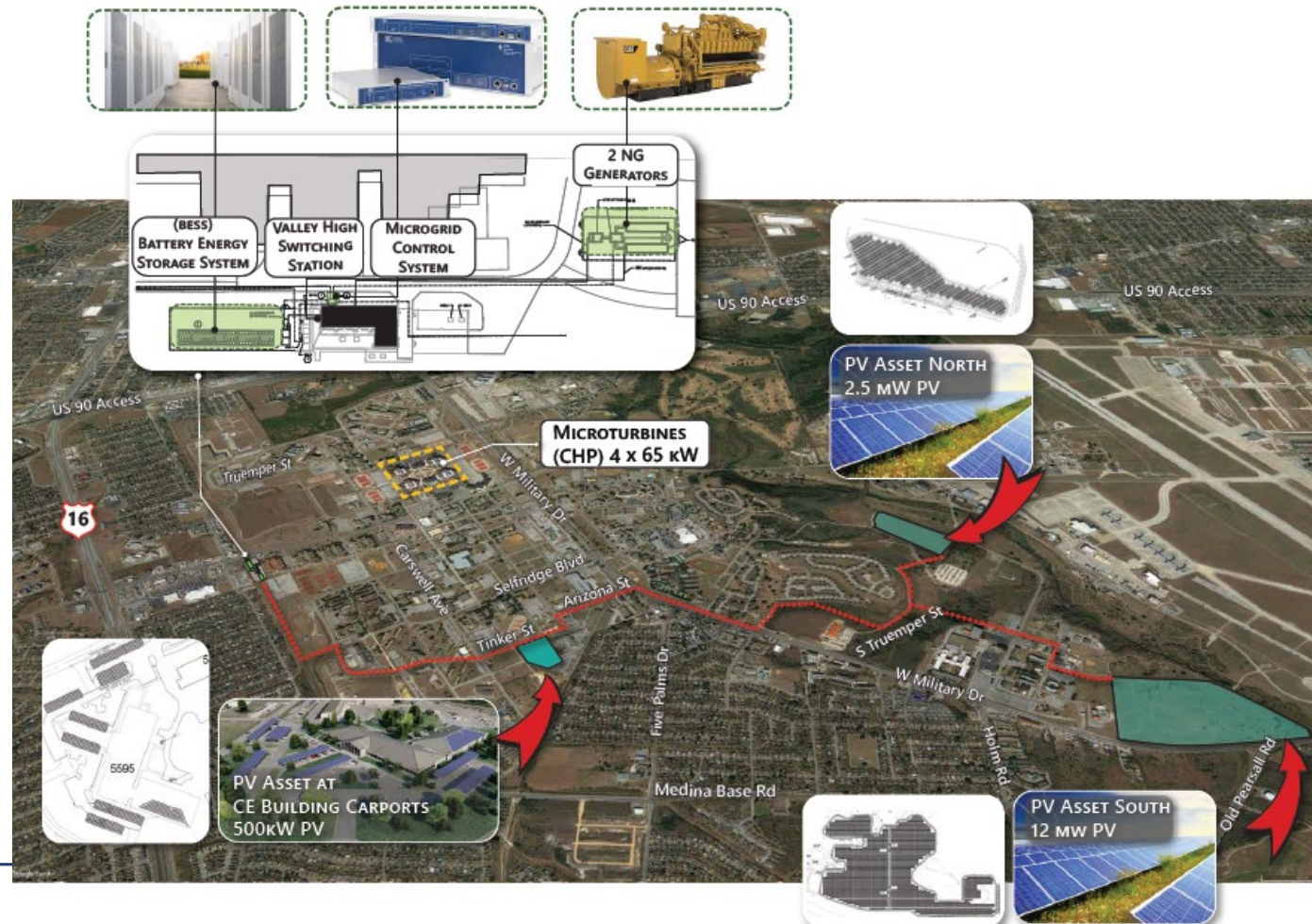
- Government Goals for Energy Efficiency (ESPC Contract)
- Resiliency



JBSA Lackland Microgrid Overview

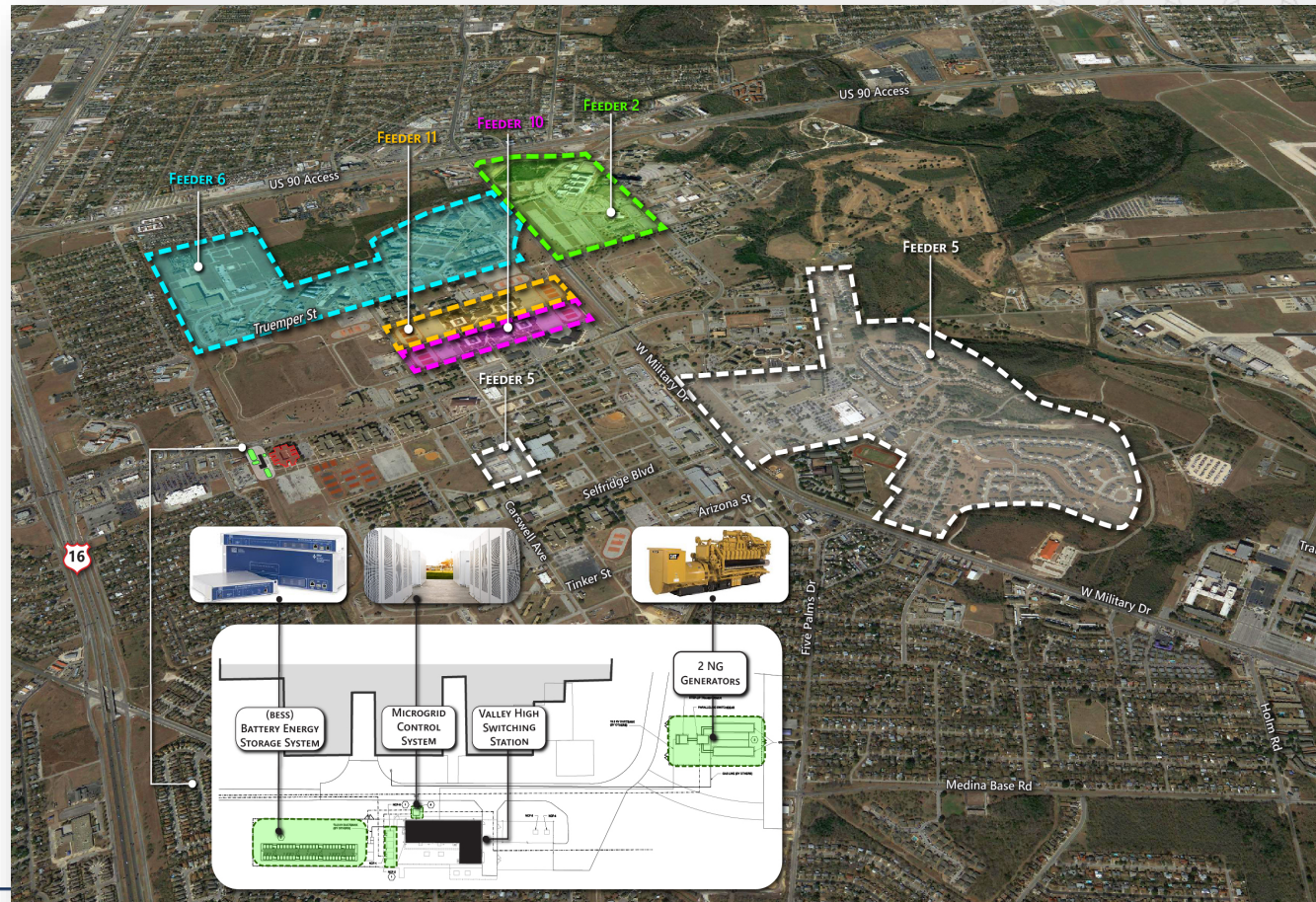
Overview | JBSA Lackland Microgrid

Distributed Generation Architecture



Overview | JBSA Lackland Microgrid

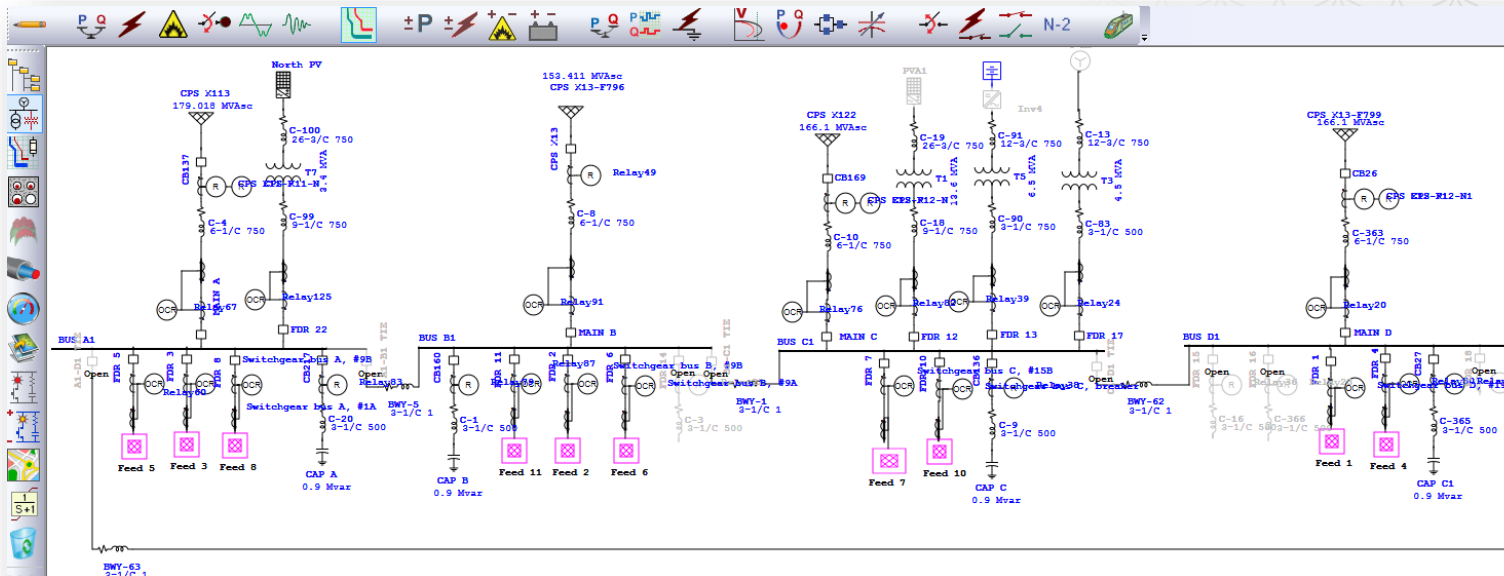
Microgrid Coverage



Overview | JBSA Lackland Microgrid

Power Modeling

- Electrical Model Setup



Overview | JBSA Lackland Microgrid

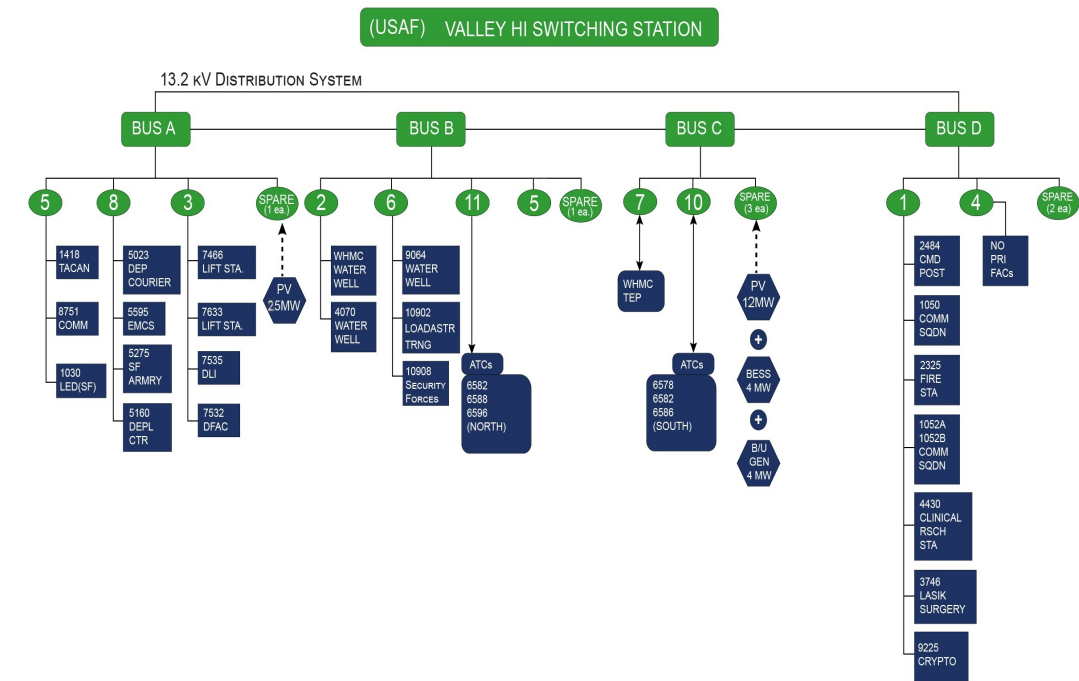
Power Analysis

- Load Flow Study
- Short Circuit Analysis
- Coordination Study
- Reliability Analysis
- Transient Analysis

Overview | JBSA Lackland Microgrid

Microgrid Concept Design Considerations

- Critical Load Locations
- Optimization (Generation-to-Load)
- Ties – Smart Grid Components
- Switching – Smart Grid Capable
- Re-wiring Requirements
- Load Shed Priorities
- Expansion / Scalability Considerations
- Security Concerns





JBSA Lackland Microgrid Challenges

Challenges | JB SA Lackland Microgrid

Interconnect Agreement with Utility (CPS Energy)

- Interconnection Application Process
- Engagement with the Utility

Challenges | JB SA Lackland Microgrid

Utility Coordination

- Determine Potential Sources of Conflict
 - Point of Common Coupling
 - Tie Breaker Operation
 - Loss of Utility Revenue
 - Negative Effects on Utility System

JBSA Lackland Microgrid Solution



Solution | JBSA Lackland Microgrid

Interconnect Agreement with Utility (CPS Energy)

- Research Utility, PUC, ISO
- Interconnection Application Process
- Bi-weekly/Weekly Meetings
- On-site Power Flow Demonstration

Solution | JBSA Lackland Microgrid

Mutual Advantages for Utility and Campus

- Additional Generation Capacity to the Grid
- Reduction of Load
- Additional Power During Peak Periods

Solution | JBSA Lackland Microgrid

Mutual Advantages for Utility and Campus

- Non Wire Alternative
- Voltage support (VARs) to the Grid
- Opportunity to Reduce Carbon Emissions Footprint
- Meet Company Carbon Emission Reduction Goals
- Meet Statewide Renewable Portfolio Standards
- Opportunity for Positive Publicity

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Utility Coordination

- Engagement with Utility
 - Risk Analysis/Mitigation
- Determine Potential Sources of Conflict
 - Point of Common Coupling
 - Tie Breaker Operation
 - Loss of Utility Revenue
 - Negative Effects on Utility System

Solution | JBSA Lackland Microgrid

Utility Coordination

- They're Not the Enemy
- Communication – Early and Regular
- Focus on Mutual Benefits
- Negotiate the Points of Conflict
- Coordination
- Technical Submittals/Meetings



Questions?



Thank You for Your Time



Ernie Leaf

Principal Electrical Engineer

Microgrid Practice Lead

512-427-3600

LeafErnie@stanleygroup.com