ARMY RESERVE

IIF 2025
FHL Microgrid REM Talk
2025/10/28

BLOOD & FIRE! ★★★ WE ARE THE ARMY'S HOME ★★★ COYOTE STRONG!

MG Windsor S. Buzza
Installation/Sr. Commander
COL Jason R. McKenzie
Garrison Commander
U.S. Army Garrison Fort Hunter Liggett

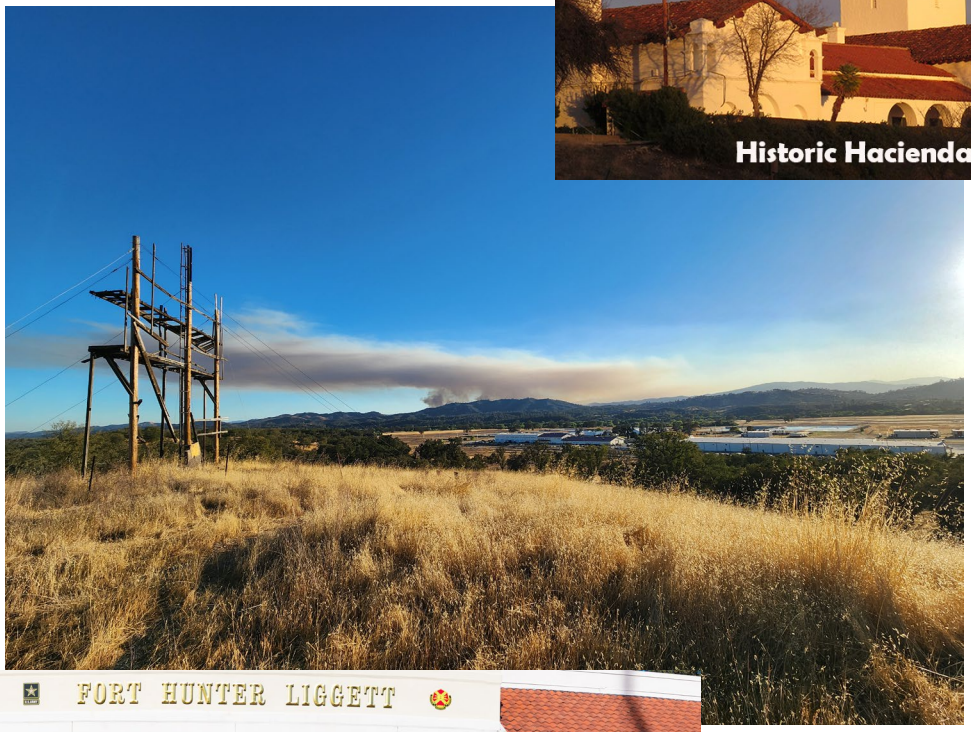
As of: 280845OCT2025

POC: Jarrod Ross (609) 575-0689

FHL – At a glance

- Total Force Training Center for U.S. military components and allied nations
- Over 165 thousand acres of diverse training land
- Suited for year-round training and large-scale joint exercises
- Over 300 sunny days per year, with little to no rain between March and December
- Mediterranean climate. Conducive for heat pumps and other energy efficient systems
- FHL Cantonment area = 1,078.60 acres
- 1,278,333 SQFT of Facilities


Historic Hacienda



Why Build a Microgrid?

The Army's core purpose remains unchanged: *to deploy, fight, and win the nation's wars by providing ready, prompt, and sustained land dominance as part of the Joint Force*.

Continuity of Operations

FHL Challenges: FHL has longstanding challenges with electricity supplied by the utility

- FHL exists at the END of 3 distribution lines: 2 of them cannot support the cantonment load
- Wildfires continue to impact the state and are getting more prevalent: Dolan Fire in Fall of 2020 burnt areas of FHL and could be seen from the Hacienda within the cantonment
- Public Safety Power Shutoffs: utility companies in California can institute pre-emptive blackouts in response to wildfire conditions
- Remote Location: Distance to propane/diesel resupply of generators, no natural gas lines
- Extreme Conditions: Atmospheric river, mudslide, seismic activity, wildfire

Solution: To mitigate these challenges, FHL began developing a long-term strategic plan for an installation-wide Solar & Battery powered microgrid to achieve mission resilience.

Over A Decade of FHL Resilience

2011 - 2015

- Pilot site for:
  - Net zero energy and waste
  - Army Reserve Integrated Strategic and Sustainability Planning process
- Completed net zero energy assessment and adopted net zero energy plan to reduce reliance on fossil fuels
- Installed solar photovoltaic panels (multiple phases) and battery storage (legacy)

2016 - 2020

- Awarded projects:
  - Heating, ventilation, and air conditioning (HVAC) controls optimization, I2C2 Integration, & HVAC features (Unitary heatpumps)
  - Secondary wastewater treatment facility
  - Ground source heat pumps for housing buildings
  - Cantonment microgrid
- Installation Energy and Water Plan completed
- Waste-to-energy demonstration
- Solid waste characterization study completed

2021 - 2030

Efficiency:
- Complete ongoing building controls and metering projects; install advanced meters, and integrate all critical buildings into the main control center
- Implement energy and water efficiency measures for critical buildings
- Initiate solid waste characterization recommendations

Resilient Infrastructure:
- Complete construction of the cantonment microgrid (will be fully operational in FY25)
- Study and size additional battery storage for the cantonment microgrid
- Award Utility Energy Service Contract for potable well and ammo supply point microgrid (ongoing)
- Install emergency generator quick connects for Multipurpose Range Complex

Reduce Vulnerabilities:
- Complete design for water modernization project
- Repair water utility infrastructure
- Implement additional electrical overhead to underground projects
- Review third-party contracts for cybersecurity requirements “Hack-the-Grid”

FHL’s success would not be possible without the support of our partnerships across the industry.

- California Energy Commission
- Pacific Gas and Electric
- Ameresco
- U.S. Army Office of Energy Initiatives
- Lawrence Berkeley National Laboratory
- Pacific Northwest National Laboratory

Installation Energy and Water Plan

Army Goals (IEWP Assessment Guide)		
Critical Mission Sustainment	**Critical Mission Risk Reduction**	**Installation Risk Reduction**
USAG FHL IEWP Goals		
1. Identify critical facilities and infrastructure to ensure that training support and base operations can be sustained 2. Identify energy and water efficiency measures to reduce overall demand 3. Leverage advance meters and building controls to better understand operating conditions 4. Adopt renewable energy and storage technologies to diversify supplies 5. Improve energy and water infrastructure to mitigate risk 6. Incorporate best practices into day-to-day operations 7. Align with Integrated Strategic and Sustainability Plan (ISSP) LOE 3: Infrastructure		

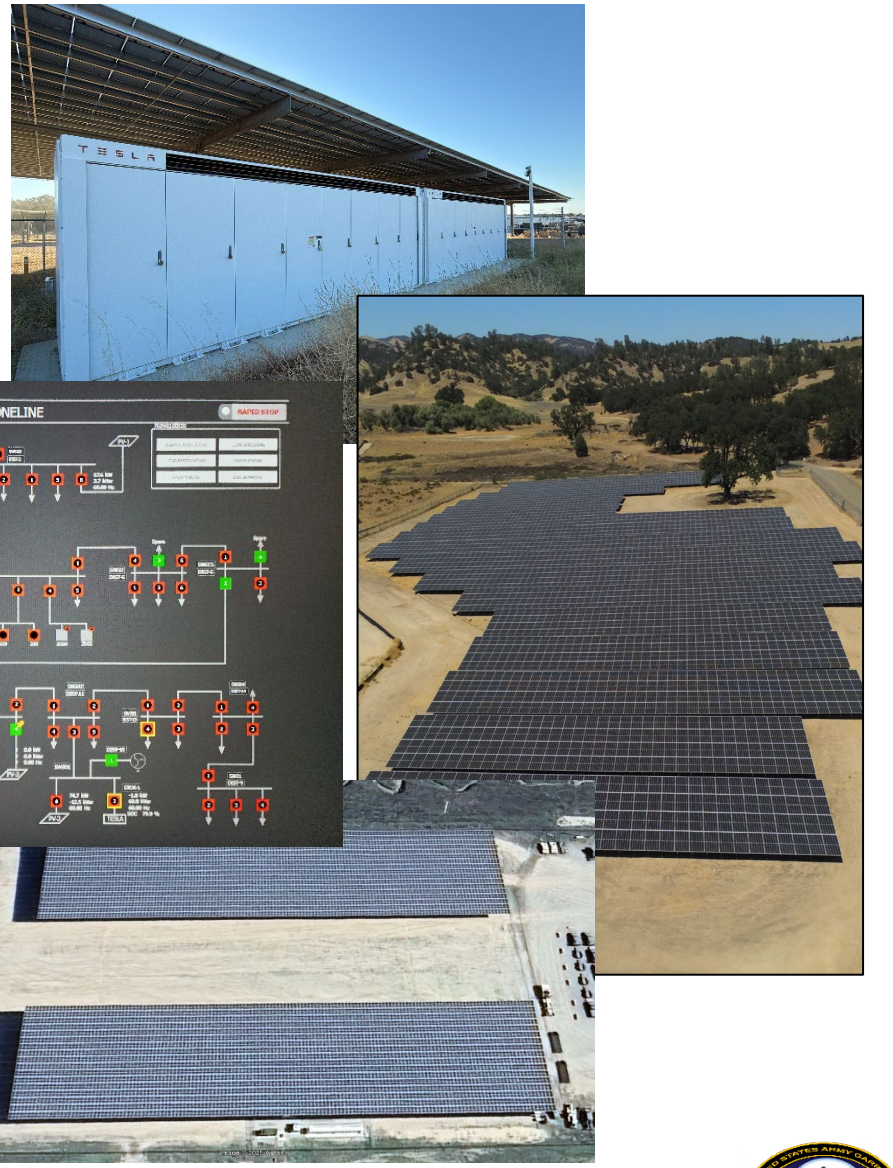
Critical Mission Sustainment: The ability of an organization to maintain critical mission continuity of operations for a duration set by the senior commander or higher headquarters based on timeframes to accomplish, curtail, or relocate the critical mission(s). When the duration of the critical mission(s) has not been stipulated, the Army will plan to sustain energy and water for a minimum of 14 days. (Army Installation Energy and Water Strategic Plan, DEC 2020)

FHL – Microgrid At a glance

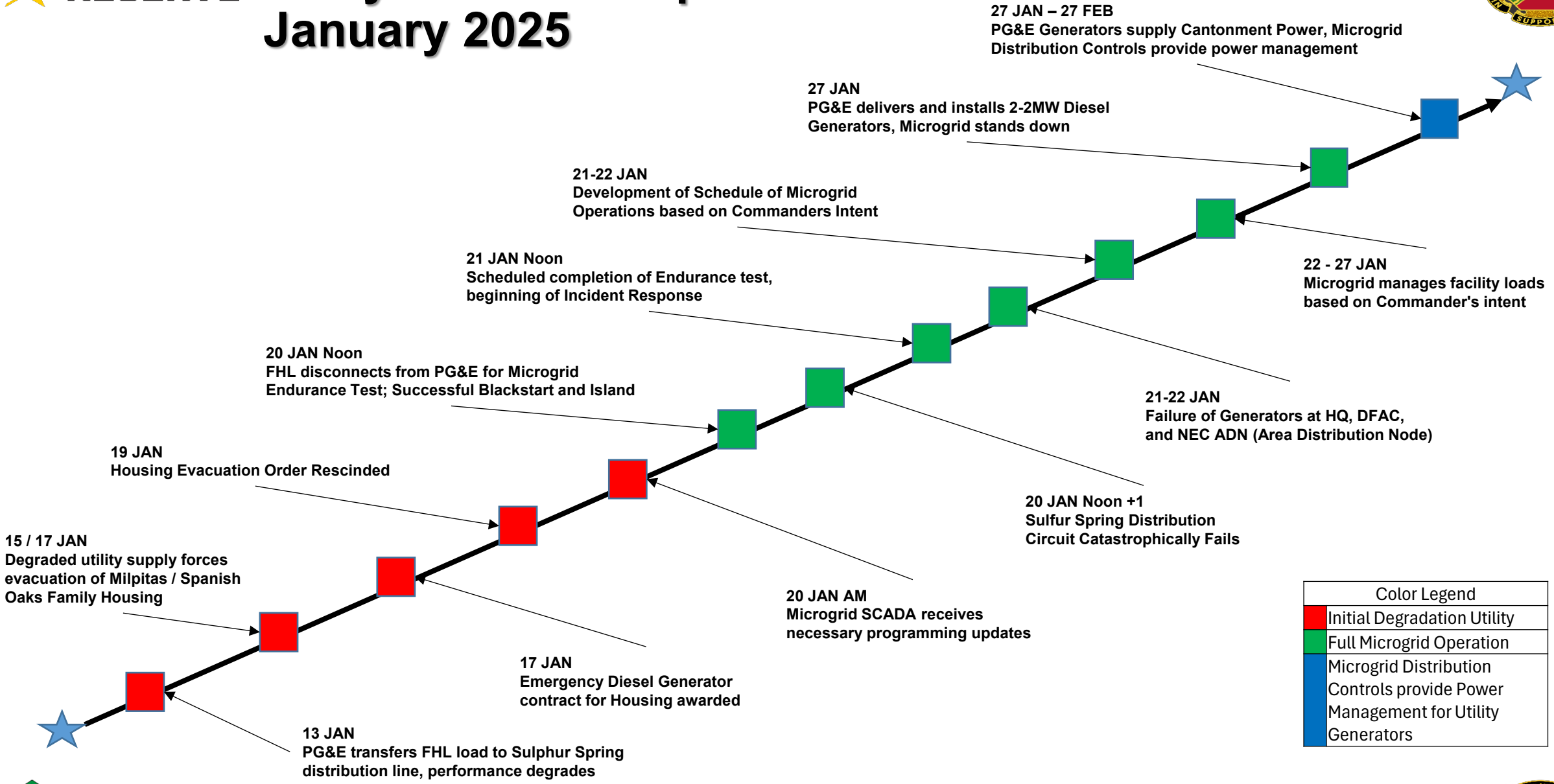
- In April 2019, a $21M ERCIP project was awarded to Ameresco for construction of a campus wide microgrid

Including:

- 3.75MW of PV Generation
  - 2.15MW Truckport
  - 1.6MW Ground Mount
- 2.5MW/5MWh BESS
- 1 SCADA System to Rule Them All
  - 13 Managed Distribution Switches
  - 5 Barracks Buildings with low voltage switchgear controls



7-day Incident response January 2025



7-Day Incident Response

Schedule of Microgrid Operations						
Load Priority	Load Name	Building name	Switch	Schedule	Comments	Load Average
1A	Headquarters	B238	sw104 - way 5	Always on		36
1B	NEC Node and Access control point	3002 - ACP	swPE1 - way 1	Always on		18
2A	DFAC	B206	sw104 - way 4	0500 - 1900		40-100
2B	Child Development Center/CDC	B178	sw102 - way 2	0600 - 1800		14.6
3	Barracks	B229	sw104 - way 3 LVSG	1700 - 0800		55
4	IHG - Hacienda	B128 - B101	SW1 - way 2	0500 - 0800 1700 - 2300	Shedable if resources low	60
5	Barracks	B207	sw104 - way 3 LVSG	0500 - 0800 1900 - 2300	Shedable if resources low	
5	Barracks	B208	sw104 - way 3 LVSG	0500 - 0800 1900 - 2300	Shedable if resources low	
6	Gas Station/Valero	B116	sw103 - way 1	1100 - 1700		7.6
7	PX - Post Office	B80 - B79	sw102 - way 5	0900 - 1700	Shedable if resources low	16
8	Rec Center	B287	sw104 - way 2	1700 - 2100		36
9	Fuel Point	B311	sw202 - way 5	as requested		
99	Gymnasium	B219 et all	who knows	can't turn it off if we wanted to	New Utility Manager is researching circuit	?

- Expanding the definition of critical mission infrastructure
  - Child Development Center
  - Gas Station
  - Dining Facility
  - PX/Post Office
  - Hotels
  - REC Center
- Maintenance and sustainment

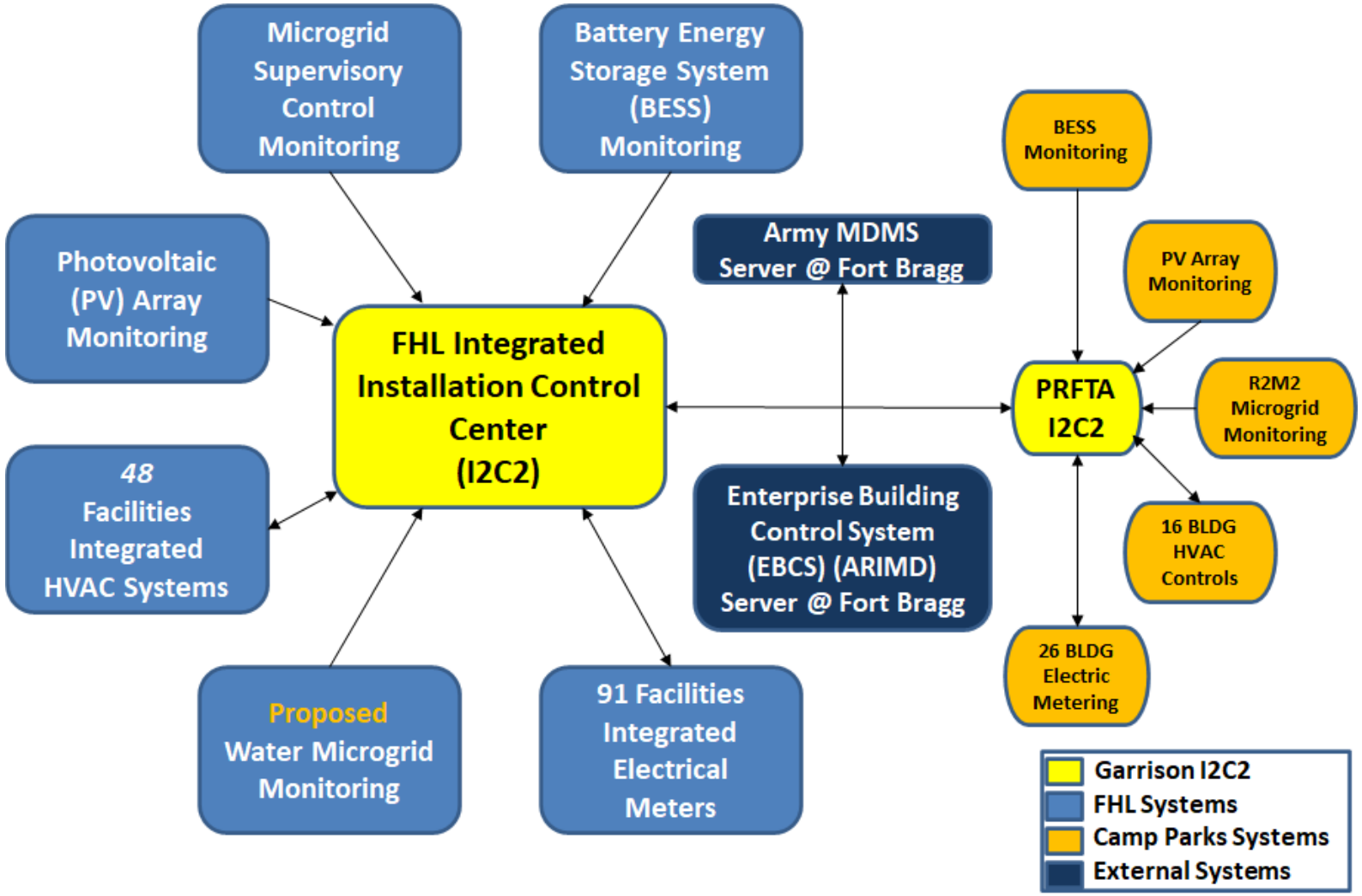
Conclusion

We must be able to accomplish our mission in a world defined by uncertain, adverse, and dynamic conditions. The fence line is now the front line. Army installations and enduring locations overseas must provide world-class training facilities, project power, surge the industrial base, sustain the force, and maintain command and control; this is only achievable with secure and resilient energy and water.

(Army Installation Energy and Water Strategic Plan, DEC 2020)

Questions?

Integrated Installation Control Center



Microgrid Monitoring