



READY, SET, POWER: ENERGIZING MILITARY HOUSING FOR THE ARMY

Justin Witty, Director of Energy
Development



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Agenda

- **Introductions**
- **Energy Efficiency**
- **Renewable Generation**
- **Alignment with the Army Installation Goals**
- **Future Innovation**
- **Questions & Answers**



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Introductions

- **Pete Sims**
Managing Director, DOD, Corvias
- **Justin Witty**
Director of Energy Development, Corvias
- **Pablo Varela**
SVP, CRC Innovations
- **John Plack**
VP, Engineering, Ameresco
- **Jeffrey W. Rodgers**
Installation Energy Manager, Army Directorate of Public Works, Fort Johnson, LA

ENERGY EFFICIENCY



Asset Optimization & Energy Efficiency

Project Highlights

- Fort Johnson Housing homes, office space, and neighborhood centers will be 100% cooled/heated through Ground Source Heat Pumps (GSHP's) – greatly reducing dependency on fossil fuels
- Smart Thermostats to control GSHPs, space temperature, relative humidity, and allow for predictive maintenance
- 31% electric reduction – 12,793,924 kWh/year
 - Emissions reduction – 9,994 tons of carbon dioxide equivalent (tCO₂e)
 - Equivalent to eliminating 2,018 gasoline-powered vehicles driven for one year or 1,764 homes' annual electricity
- 25-year performance period with operations and maintenance/repair and replacement included in the term
- Project takes advantage of 50% Federal Investment Tax Credits (ITC) for GSHPs



Asset Optimization & Energy Efficiency

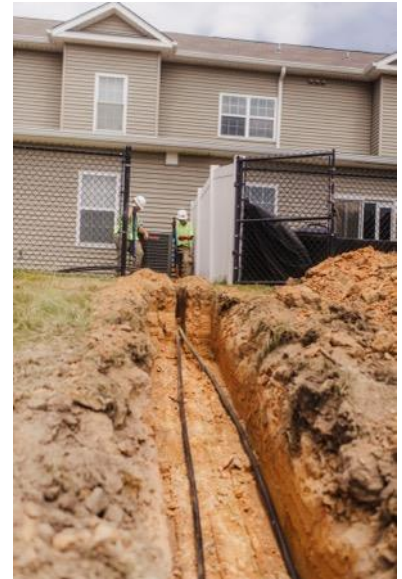
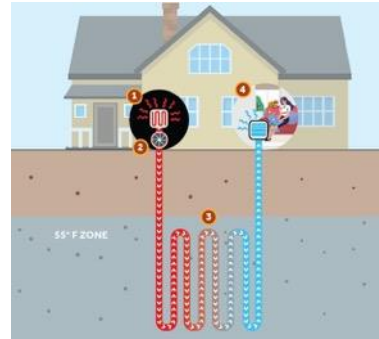
Energy Conservation Measures

- Lighting for all homes and Community Centers will be converted to LED
- Geothermal conversion for existing air-to-air HVAC (389)
- Upgrade of Gen1 Geothermal systems to the current model (592)
- Upgrade of water heaters to allow waste heat from GSHP to heat water (2,920)
- Installation of Hybrid Water Heaters for unique homes (689)
- Replacement of electric meter (720)
- Addition of a water heater mixing valve & programmable thermostat (3,609)



Ground Source Heat Pump Installations

Geothermal Phase 1 (2017)	2,475 homes
Geothermal Phase 4 (2021)	153 homes
Geothermal Phase 3 (2024)	981 homes & 6 Community Centers



Efficiency products

GSHP & Desuperheater



All homes get new LED lighting, smart thermostats and select homes get meters



Hybrid Water Heater replacement where desuperheater is not a good fit



RENEWABLE GENERATION



13 MW Solar Ground Mount

Fort Johnson Family Housing Will Consume Over 40% of Electricity From Renewable Energy after Project Completion

- Project will generate ~ 18,648,498 kWh Year 1, or 42% of housing annual electricity demand
 - *Broke ground - October 2024*
- 15-18 additional MW will be needed to reach 100% electric use from renewable sources
- Exploring additional sites for future solar development with Installation Energy personnel



Solar PV Array Site Clearing and Prep.

- Site preparation began 10/01/2024
- Clearing and grading site, erosion control, and fencing ongoing
- Utility interconnection will be in Summer or Fall 2025



ALIGNMENT WITH THE ARMY INSTALLATION GOALS



Synergies of Partnership



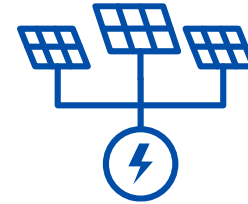
Affordability

Solar production reduces electricity demand and brings potential for investment tax credits to reduce project price tag



Efficiency

ESPC lowers consumption of housing and reduces overall Army consumption/load on grid, solar investments upgrade substations and these projects integrate into the Installation resilience studies



Resilience

Solar generation is on-site and will be integrated into future microgrid efforts

Future alignment in

- **Climate Strategy – Corvias providing solar RECs to Army while lowering scope 2 emissions**
- **Partnered on Installation Environmental Analysis**
- **Utility Rates changing and Peak Demand shaving will make Battery Storage Cost Effective**
- **Non-tactical Vehicle Fleet charging needs**



FUTURE INNOVATIONS



Future Innovations

Emerging Focus Areas

Water	Energy	Utilities	Building	Housing
Wastewater	Energy Efficiency	Metering	Optimizing Construction	Energy Efficiency
Potable Water	Energy Generation	Distribution Systems	Repairs and Replacements	Renewable Power
Stormwater	Energy Storage and Distribution	Energy Quality	Building Management System	Smart Homes
Innovative Emerging Solutions and Technologies				
Ongoing Operations and Maintenance				

Future Innovations

EV Charging – Residential and Apartment

- Level 2 charging in garage or neighborhood, billed for electricity use + Admin fee to pay off installation and equipment costs
- Exploring DC Fast Charging solutions with Army partners

Water Leak Sensors & Shutoff valves

- With Corvias WIFI backbone installed we can add sensors to that network that will provide useful information to our maintenance teams
- Get alerts when it senses a water leak for emergency workorder
- Avoid resident displacement costs/effort, save resident property from damage



Battery Energy Storage

Long-Duration Energy Storage / Next-Gen Lithium Battery and Flow Battery Deployments

- Project at Fort Riley will demonstrate one of the first electric vehicle (EV) inclusive microgrids
- Project will include residential and commercial-scale battery energy storage systems (BESS), solar (installed or in development), Electric Vehicle Supply Equipment (EVSE), and EVs



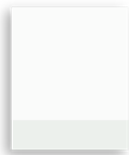
Commercial ESS

Behind The Meter Energy Storage
(~2MWh, 2hr & 4hr duration options)



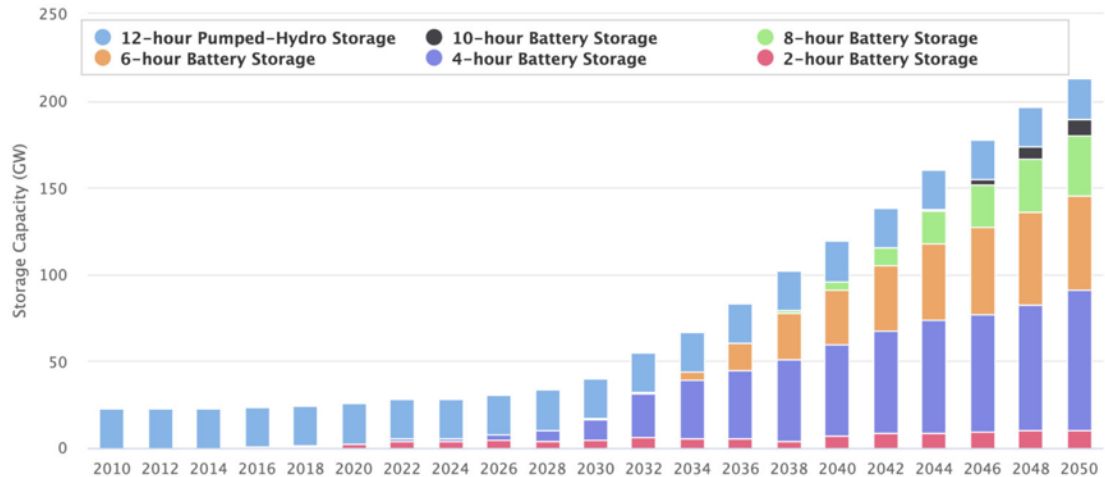
Ultium EV + FlexCharge

PowerBase
V2L / V2H / V2G



Battery Storage

DC Coupled ESS, 10-20 kWh/unit
(stackable)



QUESTIONS & ANSWERS

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