

U.S. Coast Guard Strategic Climate Actions



Climate Change Framework and Recent Progress



Office of Energy Management
COMDT (CG-46)

Sea Air Space 2022 | Dr. Victoria Herrmann & Sam Alvord





Nine Natural Hazards Studied



Earthquakes



Coastal Vulnerability



Flooding



Tornados



Wildfire



Drought



Tsunami



Hurricanes



Volcano





Study Feeds the DHS Framework Here



- ✓ Ranking
- ✓ Hazards
- ✓ Risks
- ✓ History / Trend
- ✓ Forecast
- ✓ Neighborhood
- ✓ Constraints
- ✓ Commitment
To the site



Public-Private Partnerships

Contract Award (Sept 2015)

Switchgear Modernization



Microgrid Feasibility Study



Gas Line Installation



Peak-Shaving Generator



Load Classification



Microgrid/Carports



Tank Removal (45K gals)



Tank Relocation



Heating Upgrades



Lighting Upgrades



Water Fixture Upgrades



Retro Commissioning



Adopting the DHS Framework for Resilience



Near Term Priorities



- Hurricane supplementals: ~\$1.2B Across Districts 8, 7, 5 & 14
 - Funds diversification, utility infrastructure, and onsite generation
 - Taking opportunity to concurrently evaluate Tactical Fuel “resilience” & mission forecast
 - Expand centrally controlled generation (Contingency manpower will be very limited.)
 - Minimize extended outage logistics
- Educate on business process outcomes (legacy vs P3 approaches)
- Site prioritization / Risk(s) acceptance discussions (UNCLASS)
- Continued Cyber hardening
- Defense Department / DLA partnership strengthening





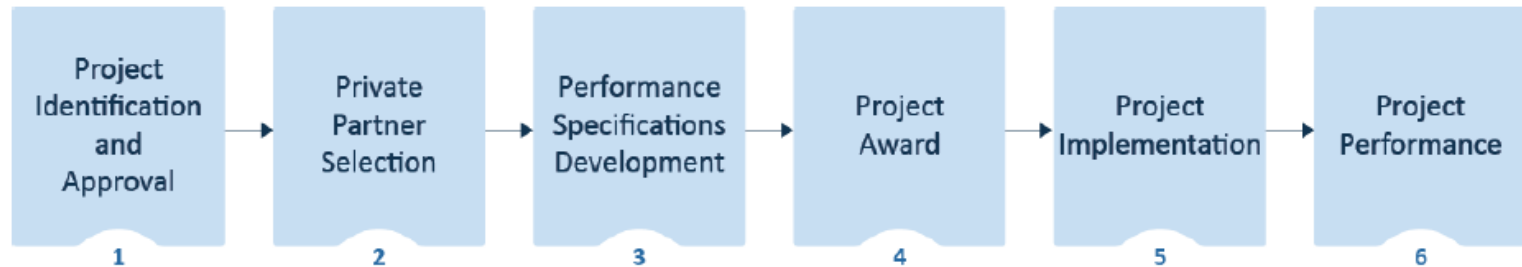
Sandy Hook (Super Storm Sandy)



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CGA UESC – Largest in DHS portfolio



- Academy is 3rd largest energy consumer in Coast Guard portfolio
- 26-month selection and specification development phase
 - COMDT (CG-46), COMDT (CG-43), SILC, CEU, LSC, utility (20+ member team)
- Academy UESC has a two-year construction post award
 - Largest modernization of academy infrastructure since 1938
- ~\$2M annual energy cost avoidance during performance





Natural gas line installation through main gate, down Tampa Drive and Harriet Lane.





Impacts to CGA



- Fence to Fence, Street to River – looked at entire property, not just a subsection
- Microturbine and solar power reduce utility power by 82%
 - Solar was evaluated to be both visible (carport) and hidden (roof)
- Net energy demand ↓ 16%, water ↓ 7%
- **Smith Hall chemistry lab hood replacements double student capacity, enhance safety, and broaden curriculum**
- Operations and maintenance burden for major systems dramatically reduced
- 2,933 water, 17,882 lighting fixtures, insulation
- Original coal smoke stack is now demolished
 - Enabling MAJOR alumni project to advance years ahead of schedule
- Roof membrane on gymnasium two years faster, \$600K cheaper





Energy Resilience Petaluma, CA



- **Primary Objective:**
 - *Enhance the shelter-in-place energy resilience of USCG TRACEN Petaluma by installing on-site electric generation and storage assets, ensuring reliability of the site's electrical distribution system, and implementing a microgrid with control system that will allow the USCG to sustain its mission in the event of a sustained electric utility outage.*
- **Aka: “All loads, all the time”;** 10-days endurance
- **5.0 MW-dc** ground-mount, **solar PV** array, w/ Battery Energy Storage and microgrid controls
- DOE AFFECT Grant recipient ~ \$33M Capital Investment – 10 months from requirement to contract award.





Questions?

