

Federal Utility Partnership Working Group



DoD Senior Leader Panel

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Office of the Secretary of Defense

Department of the Army

Department of the Navy

Department of the Air Force

Office of the Secretary of Defense

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Federal Utility Partnership Working Group Department of Defense Climate and Energy OSD Senior Leadership Perspective

May 6, 2021

Mr. Richard G. Kidd IV
Deputy Assistant Secretary of Defense for
Environment and Energy Resilience

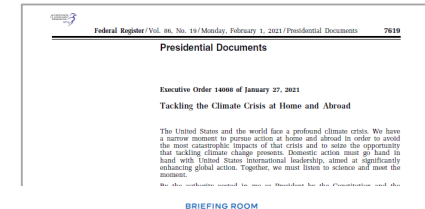




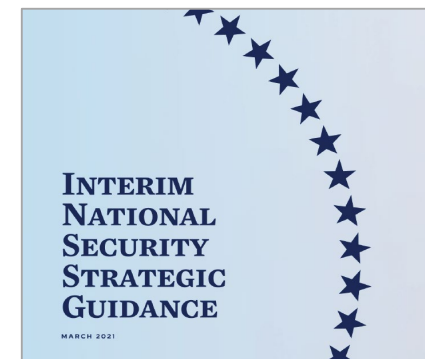
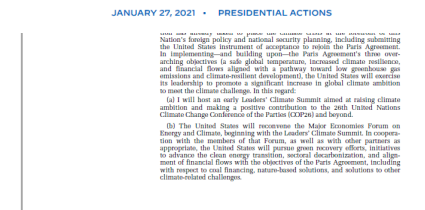
Policy Environment Has Changed

Acquisition & Sustainment

- **Main themes (relevant to DoD):**
 - Put the climate crisis at the center of national security decisions, strategies, and policies
 - Develop a climate action plan to ensure data driven resilience and adaptation measures create climate-ready installations and operations
 - Integrate environmental justice across DoD's mission
 - Support the transition to a clean energy economy
- **Sustaining future forces and facilities in contested operating environments**
 - Enabling near- to mid-term concepts of operation designed to counter Kinetic, Cyber, and Political-Economic threats at home and abroad
 - Changing threat environment shapes modernization and technology investment decisions



Executive Order on Tackling the Climate Crisis at Home and Abroad



"We will prioritize defense investments in climate resiliency and clean energy."

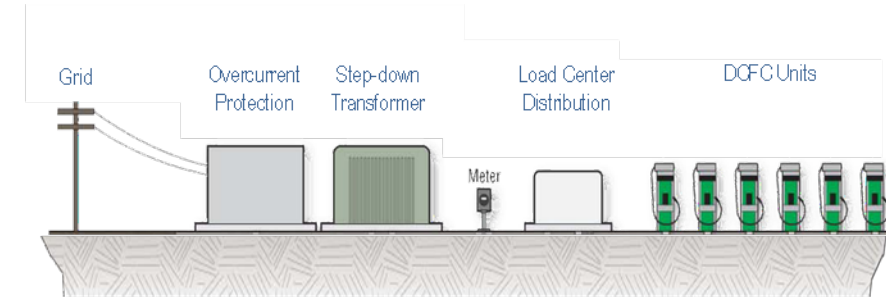




Fleet Electrification / Zero Emission Vehicles (ZEVs)

- DoD is supporting White House “Sprint Team” on fleet electrification and ZEVs.
- Department is taking an integrated planning approach to this issue
- Established a cross-service / cross-functional working group in April 2021
 - Working group is holistically addressing fleet and supporting infrastructure requirements
- Early and active engagement with utility stakeholders is needed to ensure positive planning and implementation outcomes

Acquisition & Sustainment





EO 14008 / Path to Net Zero GHG

Acquisition & Sustainment

- **Summary:**
 - Complete transition of all federal electricity to net zero GHG sources
 - Expectation that this transition will drive construction of NEW generation capacity
 - General recognition of positive role that nuclear power can play
- **Implications:**
 - Modifications of all (most) Federal utility contracts
 - Consolidation of these contracts
 - Increased sophistication of contracts (e.g. Virtual Power Purchase Agreement (VPPA))





Climate Impacts DoD in Multiple Ways

Acquisition & Sustainment



New and modernized Russian bases ring the Arctic



Construction on a new munitions storage facility on Eielson Air Force Base. In order to build on the spot, construction workers had to melt the permafrost underneath. (Sara Karlovitch)



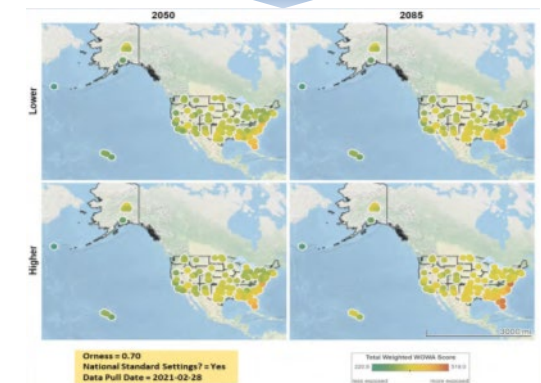
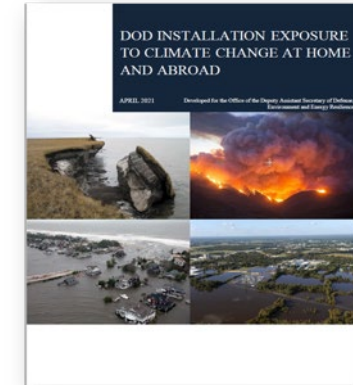
- **Increased operational demand for forces**
 - Migration-driven geopolitical instability increasing in many parts of the world simultaneously as agriculture, fisheries, habitats, and water resources shift
 - Navigable Arctic, vast resource availability, and Russian aggression
- **Installation infrastructure is degraded** (e.g., recurrent flooding, drought, desertification, wildfires, thawing permafrost, etc.)
- **Equipment modified for climate conditions**
 - Current systems and training may not be suited to a changed climate



Planning for Climate Change At DoD Installations

Acquisition & Sustainment

- Climate Action Plan
- Climate Scenario Planning
 - DoD Climate Assessment Tool (DCAT)
 - DoD Regional Sea Level Database (DRSL)
- Installation Master Planning (UFC 2-100-01 / 10 USC 2864)
- Installation Energy Planning (IEP)

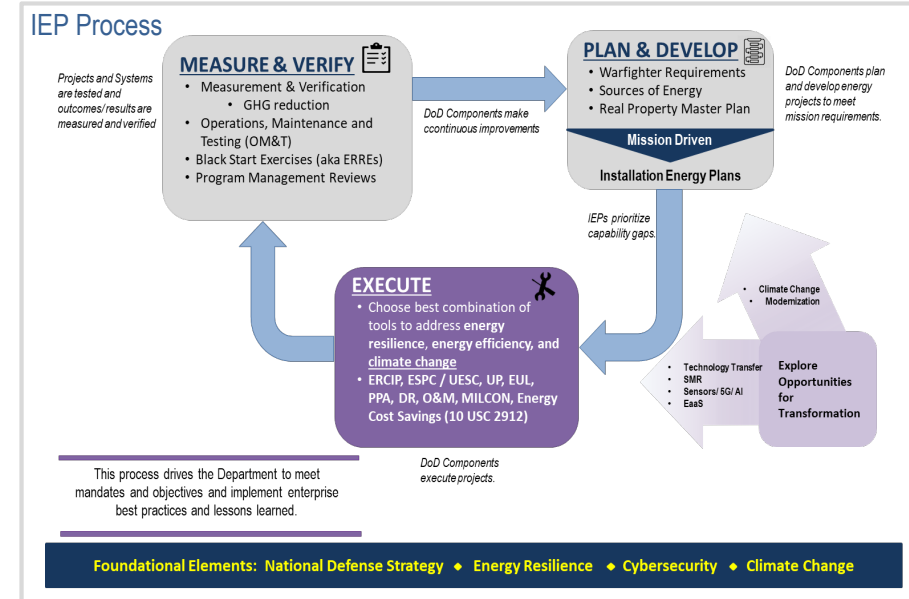




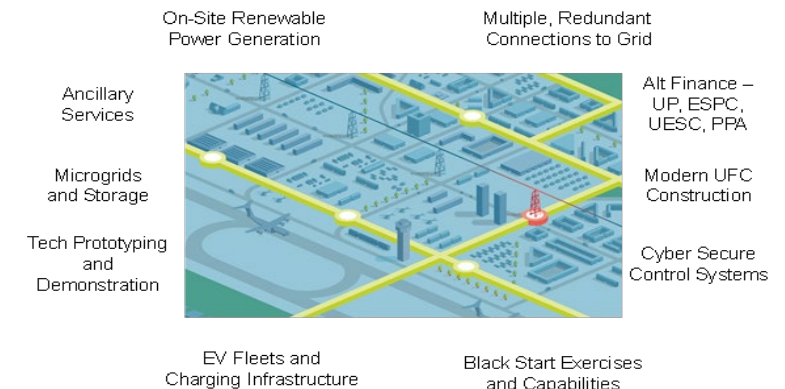
Energy Resilient and Climate Ready Installations

- Use IEP process to enable energy resilient (ER) and climate-ready installations
 - Strengthen ER through clean energy technologies (i.e. Renewables + Storage + Microgrids)
 - Increase energy efficiency
 - Reduce carbon footprint and enable climate-friendly technologies (e.g., fleet electrification/ technology transfer)
- Continue to leverage utility partnerships
 - Relationship, financial, and intellectual capital
 - Communication is key given scale/scope of pacing threats (operational and climate)

Acquisition & Sustainment



Example: Energy resilient and climate ready installations





- **Planning to meet EO 14008 objectives**
- **Building internal capacity**
- **Seeking new authorities if needed**
- **Beginning re-competition of almost entire DoD utility portfolio**
- **Seeking expanded means of partnering with utilities**
- **Pressing hard on small modular reactors**





Federal Utility Partnership Working Group 6 May 2021

Ms. Christine Ploschke, CEM
*Acting Deputy Assistant Secretary of the Army
for Energy and Sustainability*





PHYSICAL



Sniper Attack on California Power Grid, 2013
Physical or kinetic attack on Army or utility grid infrastructure remains a persistent reality.

NATURAL



California Wildfires, August 2020, Susanville, CA
The frequency and duration of severe weather events and a changing climate are national security issues with potential impacts to Army missions, operational plans, and installations.

CYBER



Hacker attempts to Poison Water Supply, Feb 2021, in Oldsmar, FL

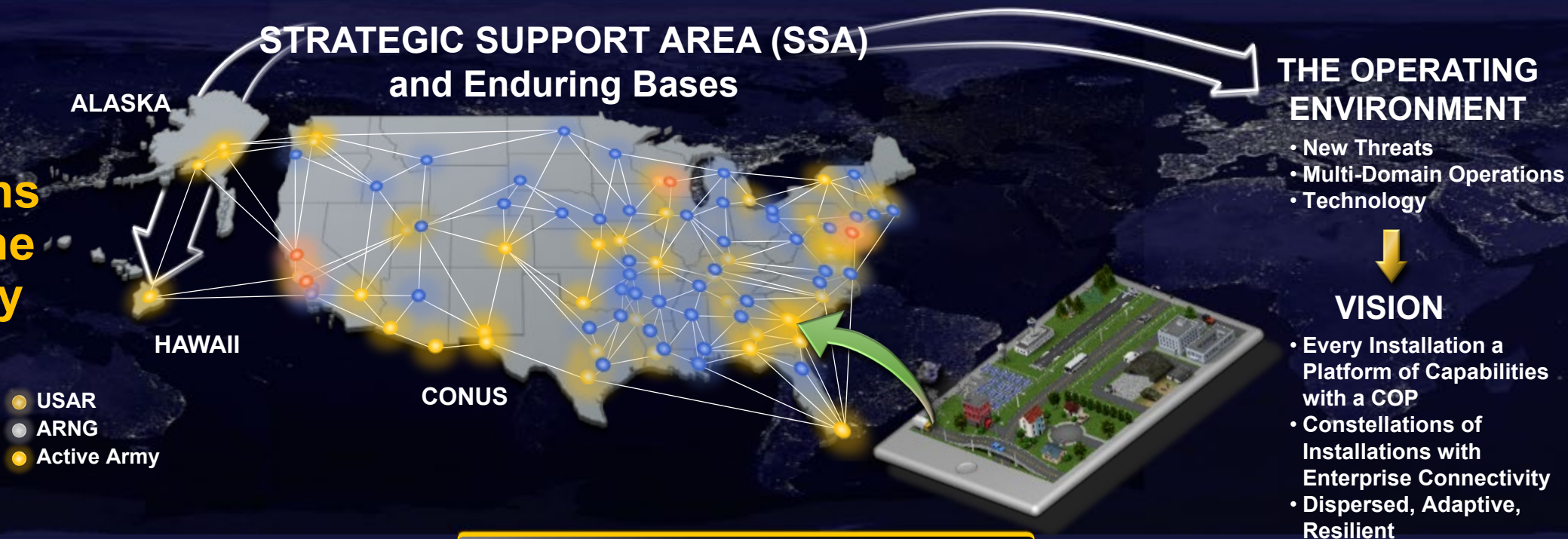
We face cyber-enabled attacks on our facility-related control systems and surrounding utility grids

Failure to modernize and enhance installation capabilities to project power, defend capabilities, create efficiencies, and preserve and protect resources risks the Army's ability to deploy forces in support of MDO to meet the requirements of the National Military Strategy.

Army Installations Strategy



Modern Installations Support the Total Army



INFORMATION AGE INSTALLATIONS

Installations Strategy LOEs drive POM 23-27 funding requirements to support and enable the MDO Ready Force of 2035

Take Care of People

Strengthen Readiness & Resilience

Modernize and Innovate

Promote Stewardship

Quality / Functional Facilities

Data Analytics

- Operationalize Installations
 - Expand Protection
 - Adapt Resilient Systems
 - Facility Investment Plans
- Modernize and Secure the Information Backbone
 - Support Army Modernization in the AMS
 - Transform Installation Operations
 - Reward Innovation
 - Preserve Natural Resources
 - Remediate Contaminants
- Implement Metrics / Modern Technologies

Modern Services Safe Operations

Partnerships

ENDSTATE

Modern, resilient, sustainable installations, enhancing strategic readiness in a contested MDO battlespace, while providing quality facilities, services & support to our Soldiers, Families & Civilians



VISION

Army installation energy and water infrastructure supporting critical missions in the Strategic Support Area will be:

RESILIENT

Ensure energy and water for critical missions under all conditions



Ft. Knox, KY
Energy Resilience Readiness Exercise

EFFICIENT

Manage energy and water use to meet requirements effectively and sustainably



Ft. Irwin, CA
Water Treatment Plant

AFFORDABLE

Manage energy and water costs to enable the Army to refocus investment



Ft. Carson, CO
Battery Energy Storage System

Our installations must make energy and water choices that allow installations to maintain critical operations during an unexpected grid outage.



The Army is proactively taking steps to address the cause and impacts of climate change and extreme weather. Lines of effort include:

Army Climate Change Working Group, Mar 2021: Supports development of the DoD Climate Action Plan and drafting the Army Climate Action Plan.

Army Directive (AD) 2020-08, Sep 2020: Requires installation commanders to address climate and extreme weather threats in all infrastructure-related plans, policies, and procedures.

Army Climate Assessment Tool (ACAT), Jul 2020: This web-based tool serves as a screening-level decision aid for installation planners to develop climate resilience measures tailored to local climate threats.

Army Climate Resilience Handbook, Aug 2020: A companion to the ACAT and a resource for garrisons to develop climate resilience measures.

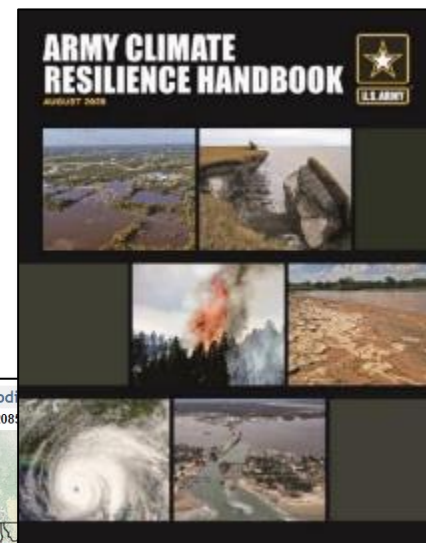
These efforts align Army climate activities with:

FY20 NDAA Revisions to 10 USC 2864: Requires installation master plans to address “military installation resilience” and to include “consideration of... energy and climate resiliency efforts.”

DoD Directive (DoDD) 4715.21, Climate Change Adaptation and Resilience, Jan 2016: Directs DoD Components to consider the effects of climate change on the DoD mission and plan accordingly, and assigns responsibilities to DoD for incorporating climate considerations into planning for infrastructure and operations.

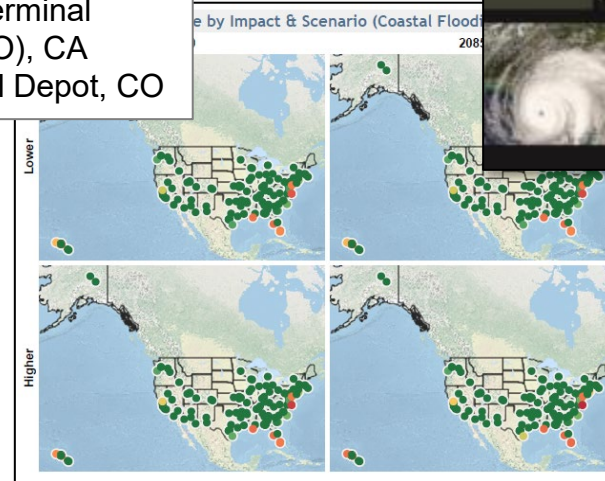
1. Yuma Proving Ground, UT
2. Fort Irwin, CA
3. Fort Huachuca, AZ
4. Fort Bliss, TX
5. White Sands Missile Range, NM
6. Camp Roberts, CA
7. Hawthorne Army Depot, NV
8. Tooele Army Depot, UT
9. Military Ocean Terminal Concord (MOTCO), CA
10. Pueblo Chemical Depot, CO

Top 10 Climate-Exposed Installations According to the Army Climate Assessment Tool (ACAT)



Army Climate Resilience Handbook

Army Climate Assessment Tool



***“...this order directs all executive departments and agencies...
to immediately commence work to confront the climate crisis...”***

Excerpt from Executive Order 13990: Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis

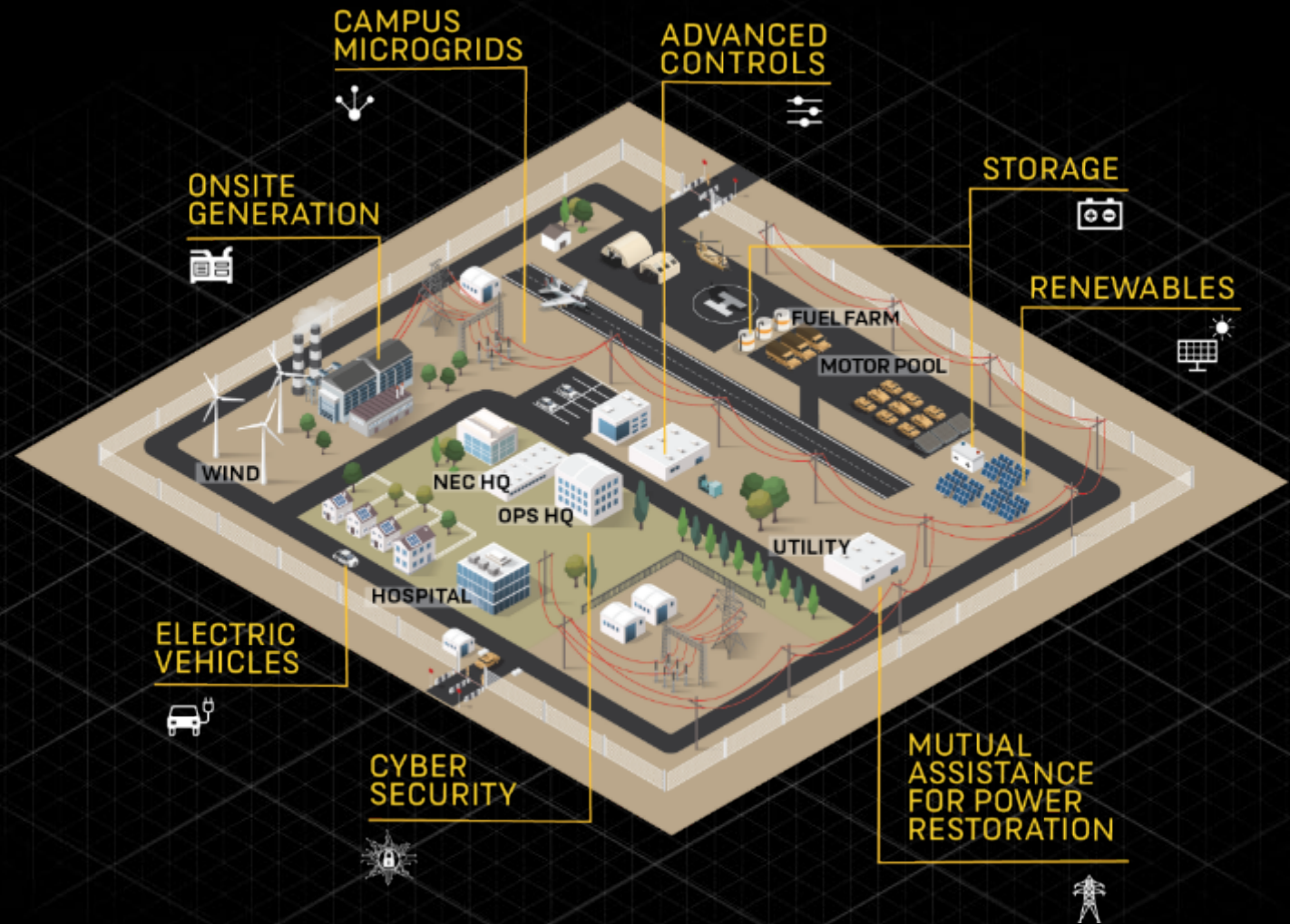


AMERICA'S ARMY:

PEOPLE FIRST – WINNING MATTERS

Components of an Energy Resilient Installation

The term “**energy resilience**” means the ability to avoid, prepare for, minimize, adapt to, and recover from anticipated and unanticipated energy disruptions in order to ensure energy availability and reliability sufficient to provide for mission assurance and readiness, including mission essential operations related to readiness, and to execute or rapidly reestablish mission essential requirements. 10 USC § 101(e)(6)



“The Secretary of Defense shall ensure the readiness of the armed forces for their military missions by pursuing energy security and energy resilience.” 10 USC § 2911



Private Equity

- Power Purchase Agreements, *10 U.S.C. § 2922a*
- Real Estate Outgrants (e.g. lease easement), *10 U.S.C. § 2667, 10 U.S.C. § 2668*
- Utilities Privatization (UP), *10 U.S.C. § 2688*

Third Party Financing

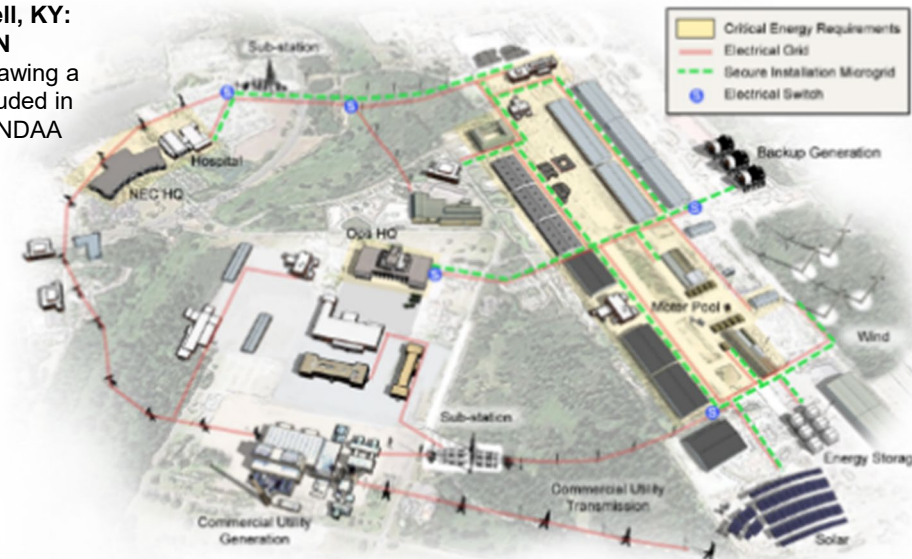
- Energy Savings Performance Contracts (ESPCs), *42 U.S.C. § 8287 et seq.*
- Utility Energy Service Contracts (UESCs), *42 U.S.C. § 8256 (c), 10 U.S.C. § 2866, 10 U.S.C. § 2911, 10 U.S.C. § 2913*

Appropriated Funding

- Military Construction (MILCON)
- Energy Resilience and Conservation Investment Program (ERCIP), *10 U.S.C. § 2914, 10 U.S.C. § 2802*
- Operations and Maintenance (O&M)
- Availability and Use of Energy Cost Savings, *10 U.S.C. § 2912*

Fort Campbell, KY: MILCON

Conceptual drawing a microgrid included in the FY2018 NDAA



Anniston Army Depot, AL: UESC

Replacement and Modernization of Depot-wide central heating and process high pressure steam plants, HVAC equipment and controls, interior and exterior lighting, compressed air equipment and distributions, and potable water fixtures.



- UESC where utility is partnering with ESCO for execution
- Project measures include:
 - HVAC;
 - Lighting;
 - Water Conservation; and
 - Grid Resilience and Security Improvements.
- Grid resilience supported through an innovative floating PV array.
- The HVAC modifications have qualified for a FEMP AFFECT (Assisting Federal Facilities with Energy Conservation Technologies) grant allowing the Army to make an upfront payment reducing the financed amount.
- The HVAC measures include High Efficiency Dehumidification System (HEDS) Technology leveraged through Environmental Security Technology certification Program (ESTCP) funding.



- Integration of new technologies into UESCs
- Targets Technologies that would not otherwise be included in a UESC due to a lack of technology cost and performance data or related concerns
- ESTCP project leads must be a utility that serves a military installation at which a UESC demonstration project is proposed to be performed
- Demonstrations with the following characteristics are preferable:
 - High likelihood of adoption in future UESC projects within one year after conclusion of demonstration
 - Potential for high savings-to-investment ratio (SIR) and short simple payback
 - Minimal additional technology development required



AMERICA'S ARMY:
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Thank you!

Questions?



AMERICA'S ARMY: People First – Winning Matters



Mr. James Balocki, SES
Deputy Assistant Secretary of the Navy
(Installations, Energy and Facilities)

Department of the Air Force

Department of the Air Force Installation Energy



**Mr. Mark Correll, SES
Deputy Assistant Secretary
(Environment, Safety, and Infrastructure)
6 May 21**



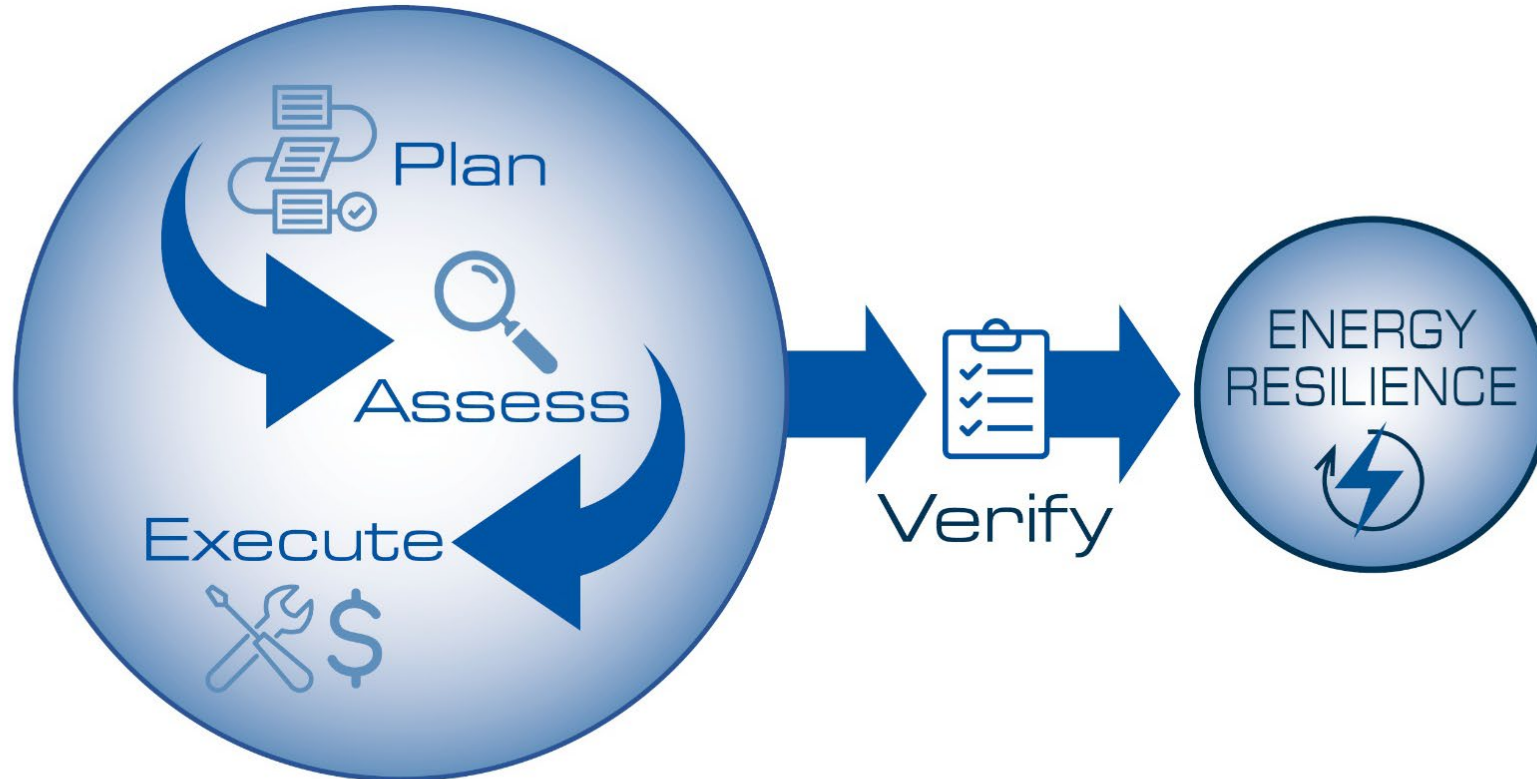
Mission Assurance Through Energy Assurance



Air Force Installation Energy Strategic Plan
<https://www.safie.hq.af.mil/InstallationEnergy/>



Approaching Energy Assurance



5 Rs of Resilience

Preventative *Robustness* *Redundancy* *Resourcefulness*
Performance *Recovery* *Response*

Integrity - Service - Excellence



Utility System Modeling



PROBLEM STATEMENT

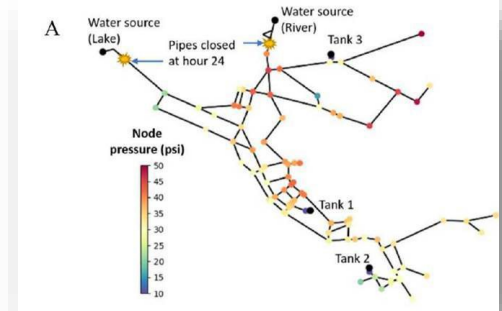
- With a growing reliance on energy and water, a comprehensive analysis must connect the operations of these systems to mission operations and success
- Resilience requires a proactive approach built on modeling and analysis

STRATEGIC APPROACH

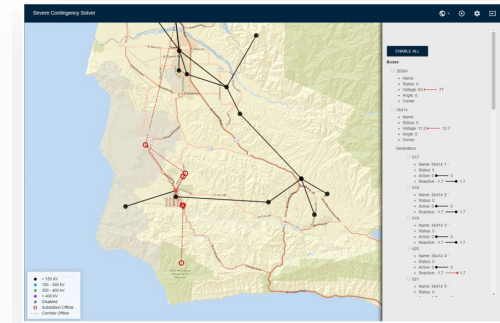
- Increase understanding of how energy and water disruptions might lead to the degradation or failure of key mission assets and how those could impact mission execution
- Determine appropriate modeling level of effort (LOE) for installations based on mission requirements

NEXT STEPS

- Further demonstration of tools such as the Severe Contingency Solver (energy) and the Water Network Tool for Resilience (water)
- Guidance and transition plans to ensure Air Force reusability of the tools



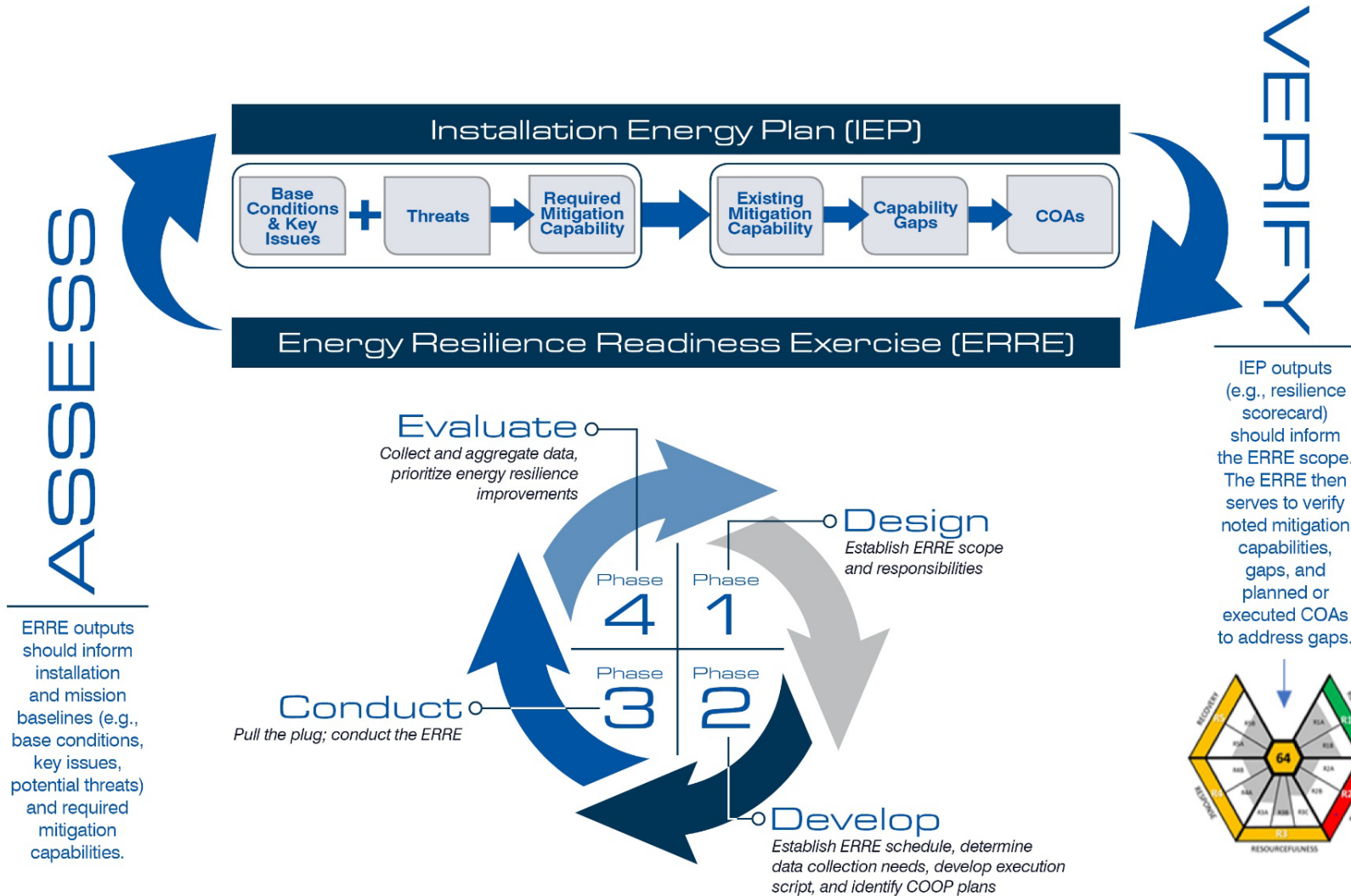
Water Network Tool for Resilience (WNTR)



Severe Contingency Solver (SCS)

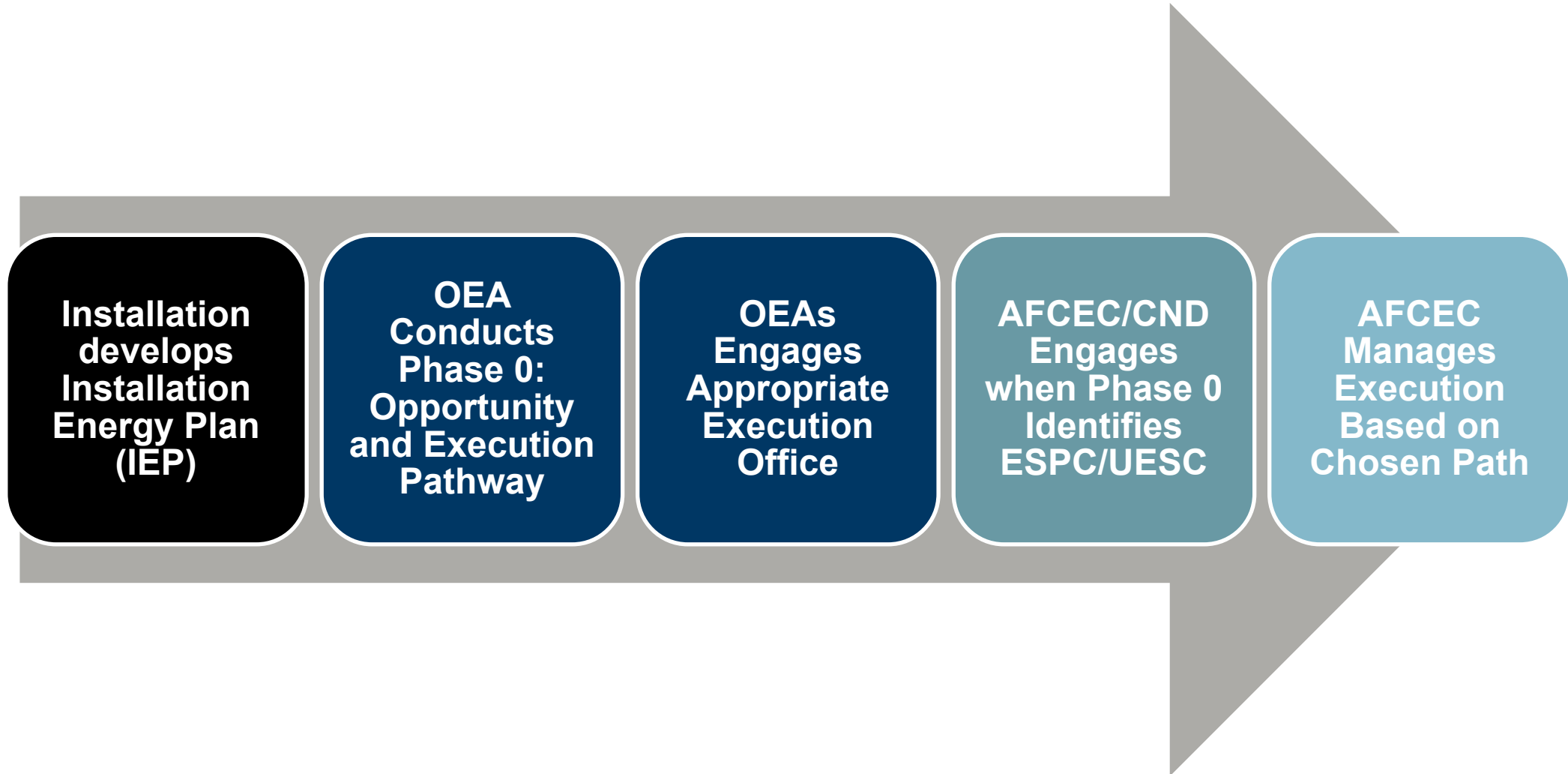


Installation Energy Plans (IEPs) & ERREs





Air Force Process





Path to Energy Assurance



Air and Space Force energy solutions will ensure mission assurance through energy assurance by executing projects that are:





