

Headquarters U.S. Air Force

Integrity - Service - Excellence

Installation Energy Resilience Policies and Strategies



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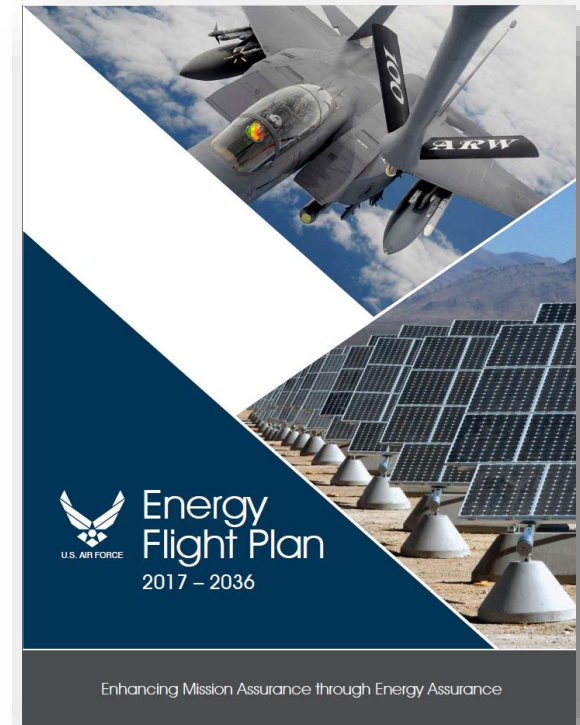




Air Force Energy Flight Plan

Air Force Energy Vision: ***Mission assurance through energy assurance***

Energy assurance involves activities across the operational and installation spectrums designed to ensure the Air Force has energy when and where it is needed to accomplish its mission.



Air Force Energy Strategic Goals

1

Improve
Resiliency



2

Optimize
Demand



3

Assure
Supply



Mission Assurance through Energy Assurance



Energy Flight Plan Goal 1: Improve Resiliency

Intent

Identify vulnerabilities to energy supplies, such as physical and cyberattacks or natural disasters

Mitigate impacts from disruptions in energy supplies to critical assets, installations, and priority missions

Develop ability to *prioritize resources* against risks to the mission

Advance physical and cyber security solutions to *protect critical energy assets* and secure industrial controls systems



Outcome

Improved responsiveness to disruptions to energy supplies

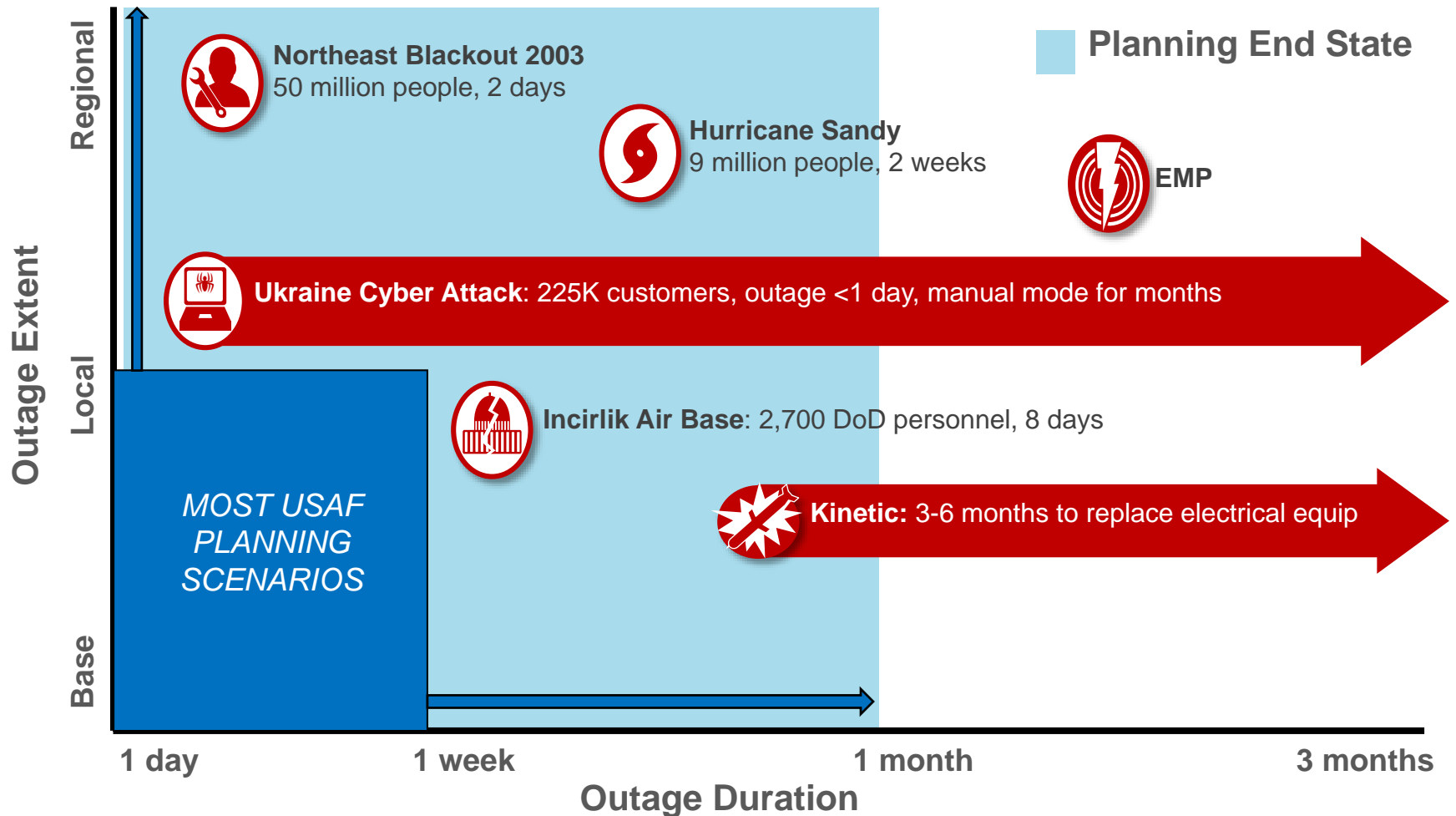
Increased ability to quickly resume normal operations and mitigate impact to the mission

Prioritized response plans and solutions to mitigate risks from tail (logistics supply chain) to tooth (energy demand in operations)

Assured ability to provide energy for mission-critical function

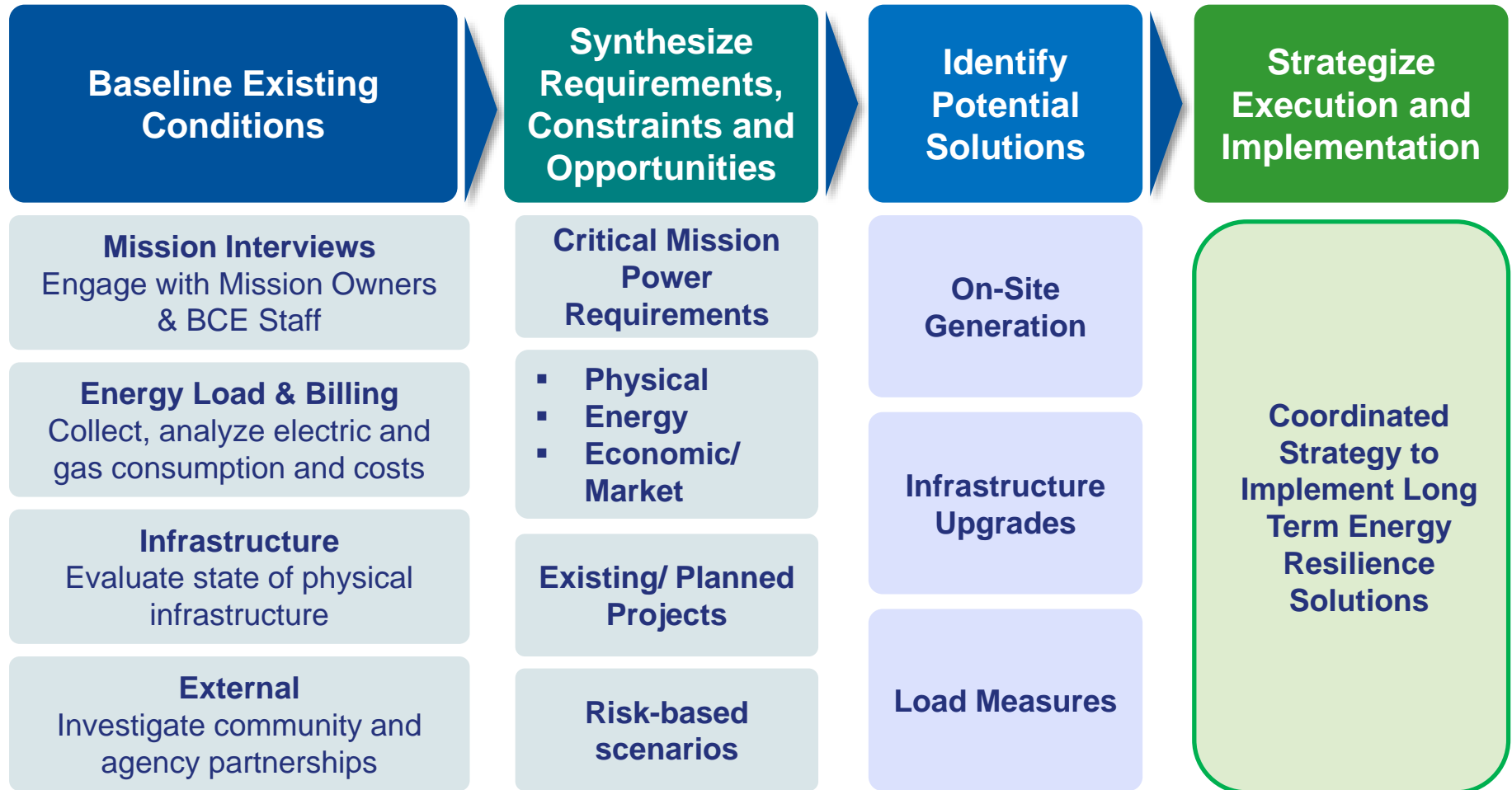


Air Force Planning End State





Energy Resilience Analysis Framework





Data / Metrics on Existing System Conditions

Data and metrics are necessary to identify and develop resilience measures



Energy Use & Cost Information

- Electric, Thermal (Steam, Natural Gas, Cooling), Water; most granular data intervals available
- Planned Load Growth / Reduction
- Utility Bills (tariff structure, unit and capacity costs)



Systems & Infrastructure

- Distribution Infrastructure (electric, gas, thermal)
- EnMS/BMS
- Backup generation / UPS / mobile power
- Existing on-site power generation / central plant
- Available land / resources



Loads

- Facilities' loads
- Prioritization of critical loads

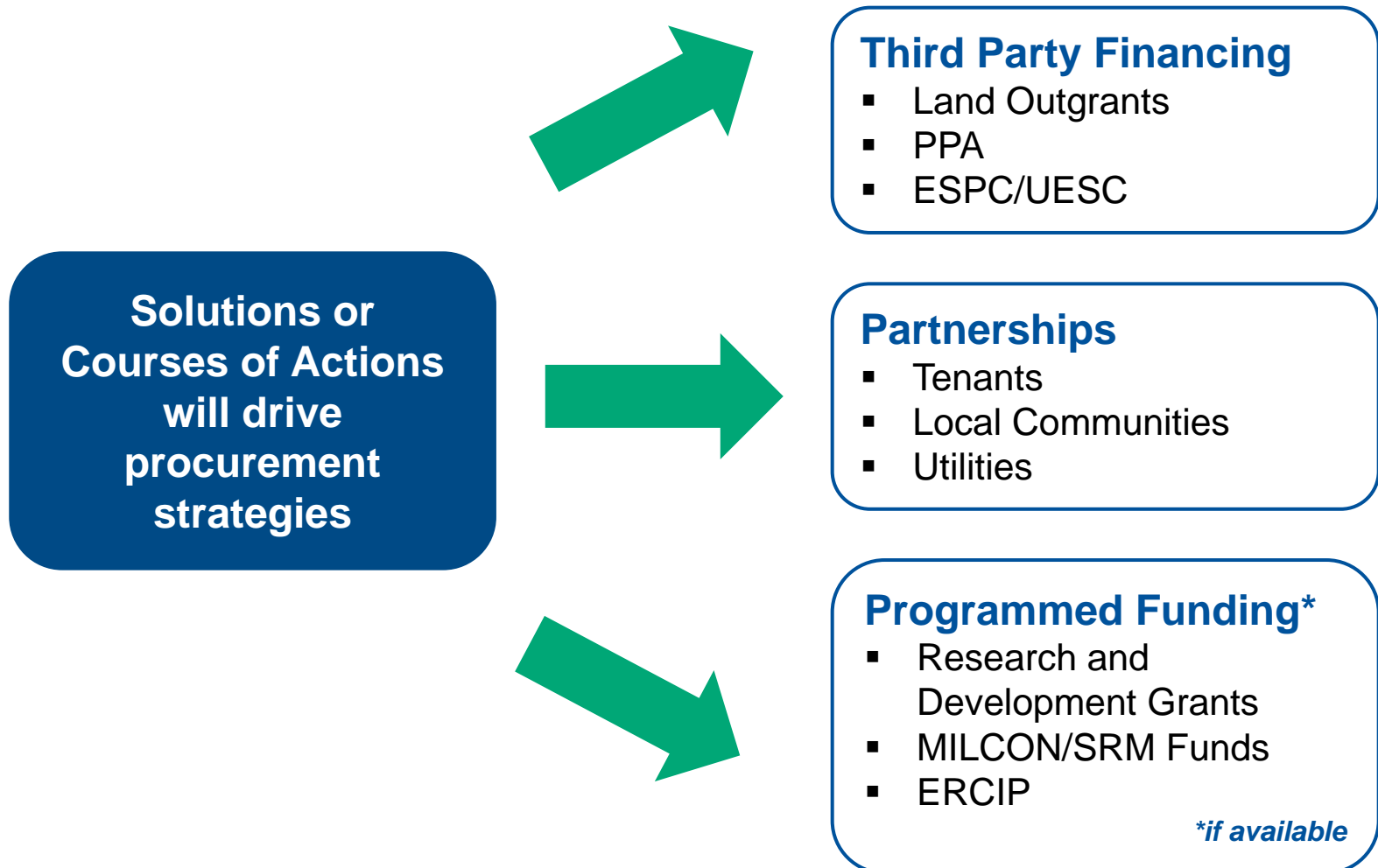


Performance Metrics

- Outage frequency, duration and cause
- Power Quality

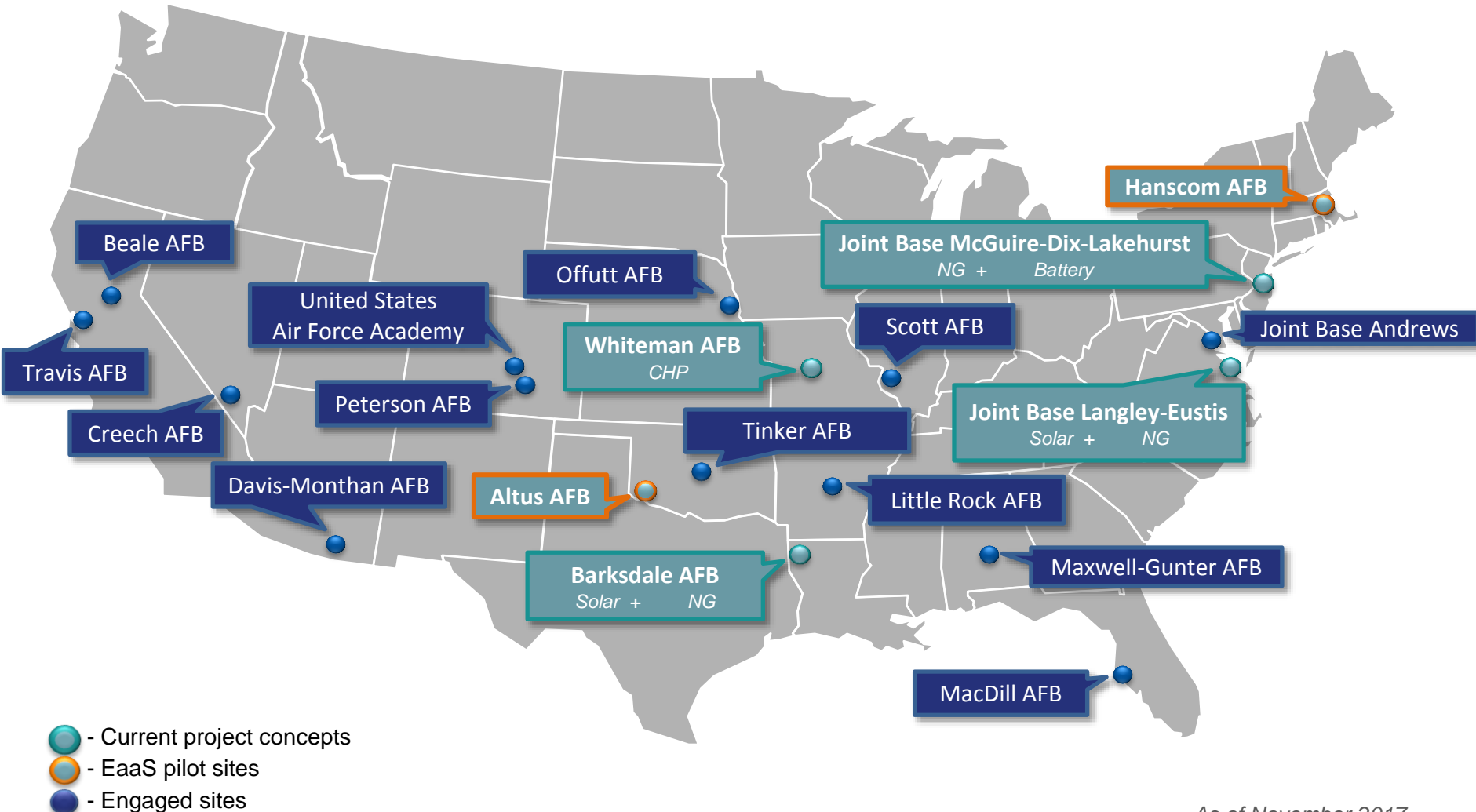


Procurement and Funding Strategies





OEA Project Concepts and Opportunities



As of November 2017



Shared Resilience Benefits: Barksdale AFB, LA



Project Concept

AEP/Southwestern Electric Power Company (SWEPCO) will construct, own, and operate two new rate-based generation assets at Barksdale AFB; a 27MW natural gas fueled facility and a 40MW solar array.

Air Force Benefit

During grid outage the generation assets could be turned inward to support critical missions. The project will enable Barksdale to electrically "island" from the grid.

Utility Benefit

AEP/SWEPCO will be building these assets as part of their IRP to support generation for their entire customer base. Building within Barksdale's perimeter affords additional physical security of the assets.

Community Benefit

In addition to providing generation flexibility to support the local community the assets will likely be able to black-start other AEP/SWEPCO assets in the event of grid outage.



Contact OEA

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