

Bridging the Logistics and Sustainment Gap

International Stability Operations Association (ISOA)

May 16 & 17

Honolulu, Hawaii

Hazen Burford
Vice President
AECOM

Discussion

Indo-PACOM Objectives

Base Resilience-challenges and Opportunities

Fed/local Government and Industry Collaboration / P3

Energy Technologies

Infrastructure



1 Identify Enabling System

Vulnerabilities

Taking a holistic approach both to determine where mission vulnerabilities exist and the scope of their impact on a mission.



2 Improve Resilience Planning

Develop a plan that accounts for enabling system vulnerabilities and connects the identified vulnerabilities directly to potential mission impacts



3 Ensure Resilience

Results

Make the important link between resilience planning, project implementation, and monitoring and verification

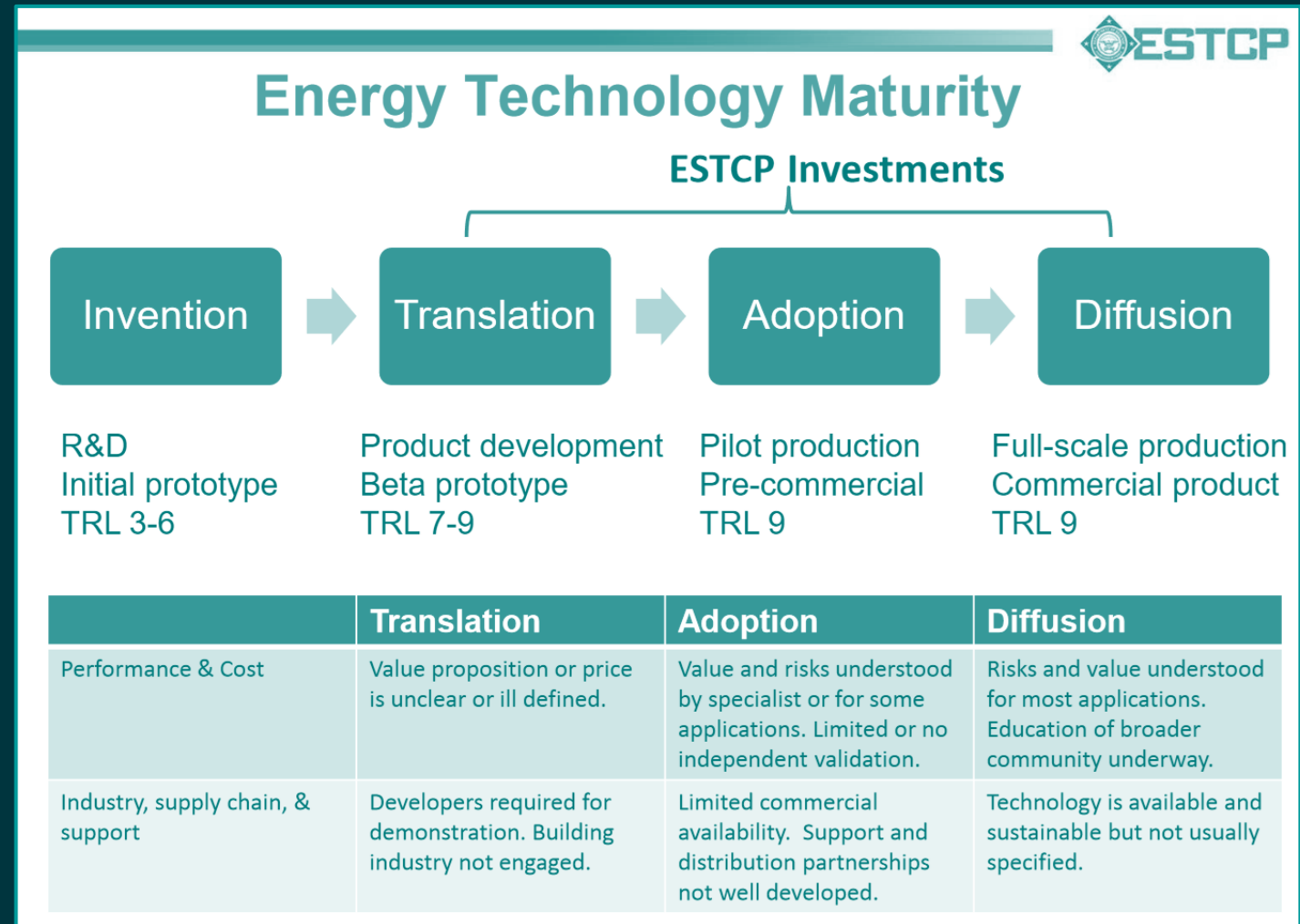
[FACT SHEET: Enhancing the U.S.-Pacific Islands Partnership | The White House](#)

Technology Pathways: research programs

Incentivizing technology and commercial development from start to finish

Collaboration with commercial partners and local ecosystem

Align objectives for future security, resilience and investments



Source(s): <https://www.energy.gov/eere/buildings/articles/environmental-security-technology-certification-program-estcp-overview>

Distributed Resource, Demand and Control

Distributed Generation

- Solar Photovoltaics (PV)
- Wind
- Geothermal
- Biomass/Biofuels
- Hydrogen (H₂)
- Nuclear Microreactor (SMR)
- Direct Air Carbon Capture (DAC)

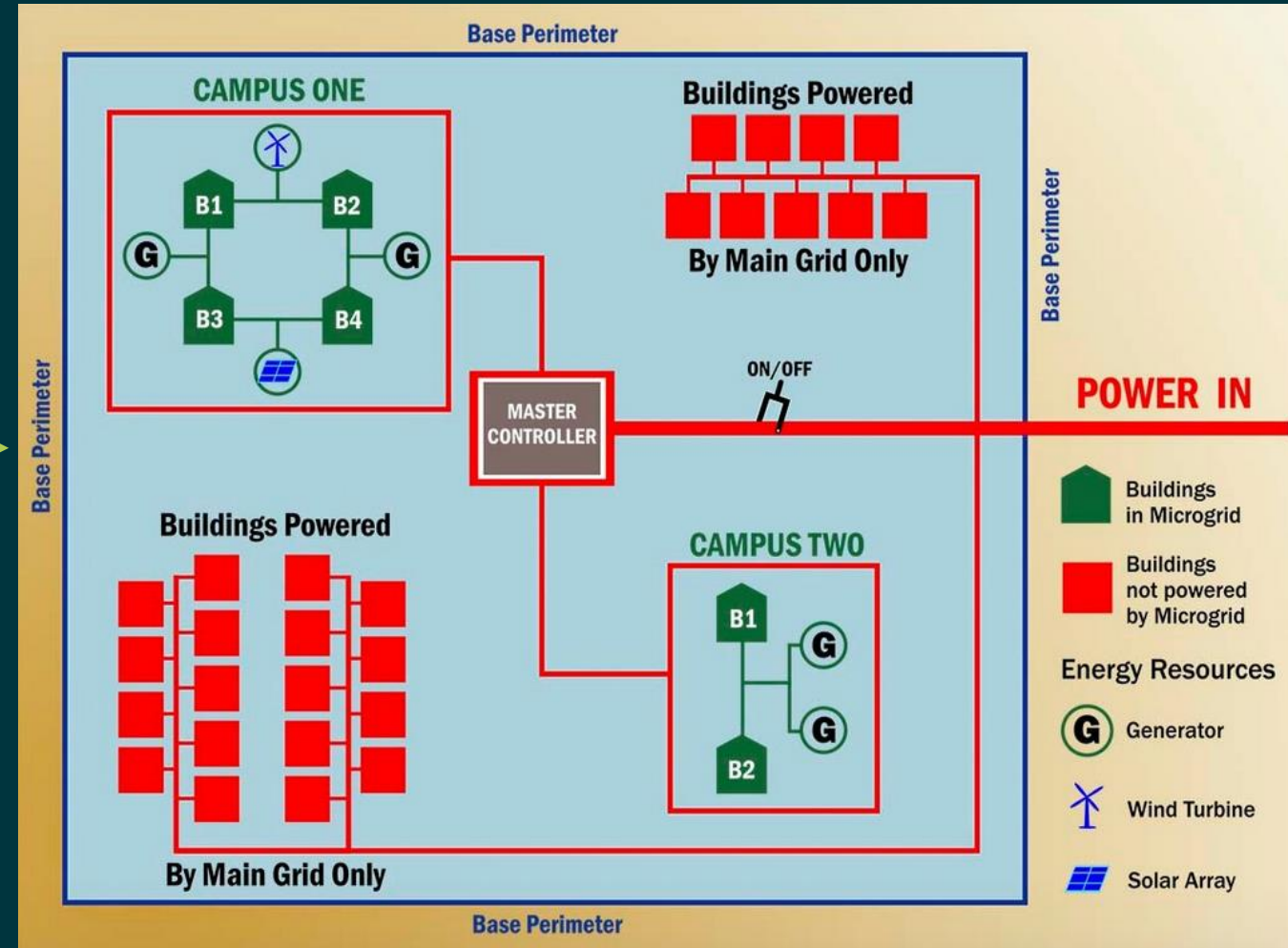
Energy Storage

- Battery Energy Storage (BES)
- Thermal Energy Storage (TES)
- BioFuels/Hydrogen

Energy conversion to Work

- Conventional combustion
- Electrochemical: Fuel Cell

Microgrid



Source(s): <https://www.afcec.af.mil/News/Article-Display/Article/1338586/microgrids-breaking-down-the-buzzword/>

Fuel Savings Ideas

Assuming a 10MWe at 100% load factor load.

Diesel Consumption =
700 to 750 gal per hour
@ 8760 hrs. per year
6-6.5 million gallons

Alternate Tech :

Solar, Wind, Geothermal

BioFuels; waste to Fuels, H2

SMR

Example:

A 10 MWe microreactor would reduce diesel consumption by 6.5 million gallons of generator fuel + the truck fuel required for 650 fuel shipments (assuming 10,000 gallons per shipments)

CO2 emissions would also be reduced by approximately 66,000 metric tons per year (excluding transportation)

Are SMRs New?

Small reactors have been around for a long time

The DoD deployed small PWRs (10 to 20 MWe) in the 50s/60s

The U.S. Navy has operated reactors on ships and submarines for decades

Several early commercial nuclear reactors in the US operated in the 20 MWe to 60 MWe range

What are Microreactors?

Reactors generating approximately 50 MWe or less are considered microreactors

Designs under development in the U.S. are less than 20 MWe

Some designs are expected to be fully transportable (e.g., Sea-Land Containers) and could be remotely operable

Baseload power for remote communities or facilities (e.g., mines)

Secure off-grid baseload power Department of Defense facilities

Mobile/transportable power for disaster relief

Microreactor private public partnerships

Eielson AFB: Stationary Reactor

The Department of the Air Force, in partnership with the Defense Logistics Agency Energy, reached a critical milestone Aug. 31, in piloting advanced nuclear energy technology with the issuance of the Notice of Intent to Award a contract to Oklo Inc. (presently under protest)

<https://alaskapublic.org/2024/03/26/work-on-eielson-microreactor-project-may-resume-this-summer/>

Project Pele: Mobile Reactor

As part of the Strategic Capabilities Office (SCO) initiative Project Pele, the DoD has awarded contracts to X-energy, LLC of Rockville, Maryland and BWX Technologies of Lynchburg, VA in order to develop an enhanced engineering design for a **transportable microreactor**.

<https://www.defense.gov/News/Releases/Release/Article/3524458/dod-exercises-option-on-second-micro-nuclear-reactor-design/>

Energy and Water Development Opportunity Camp Pendleton

San Diego (DON), Camp Pendleton

An **infrastructure**-oriented development incorporating solutions to support energy and water resilience aboard MCB CamPen. The overall goals for a project reflect the DON's vision to meet **energy and water requirements in support** of the training mission at MCB CamPen while simultaneously providing a sufficient private sector revenue source to enable industry's participation.

Hazen Burford

VP Energy, AECOM

M: +1 818 395 6292

hazen.burford@aecom.com

Kevin E. Taylor, CHP

Manager, Nuclear and Radiological Services
Environmental Planning and Permitting

M +1 864.517.5639

kevin.taylor@aecom.com

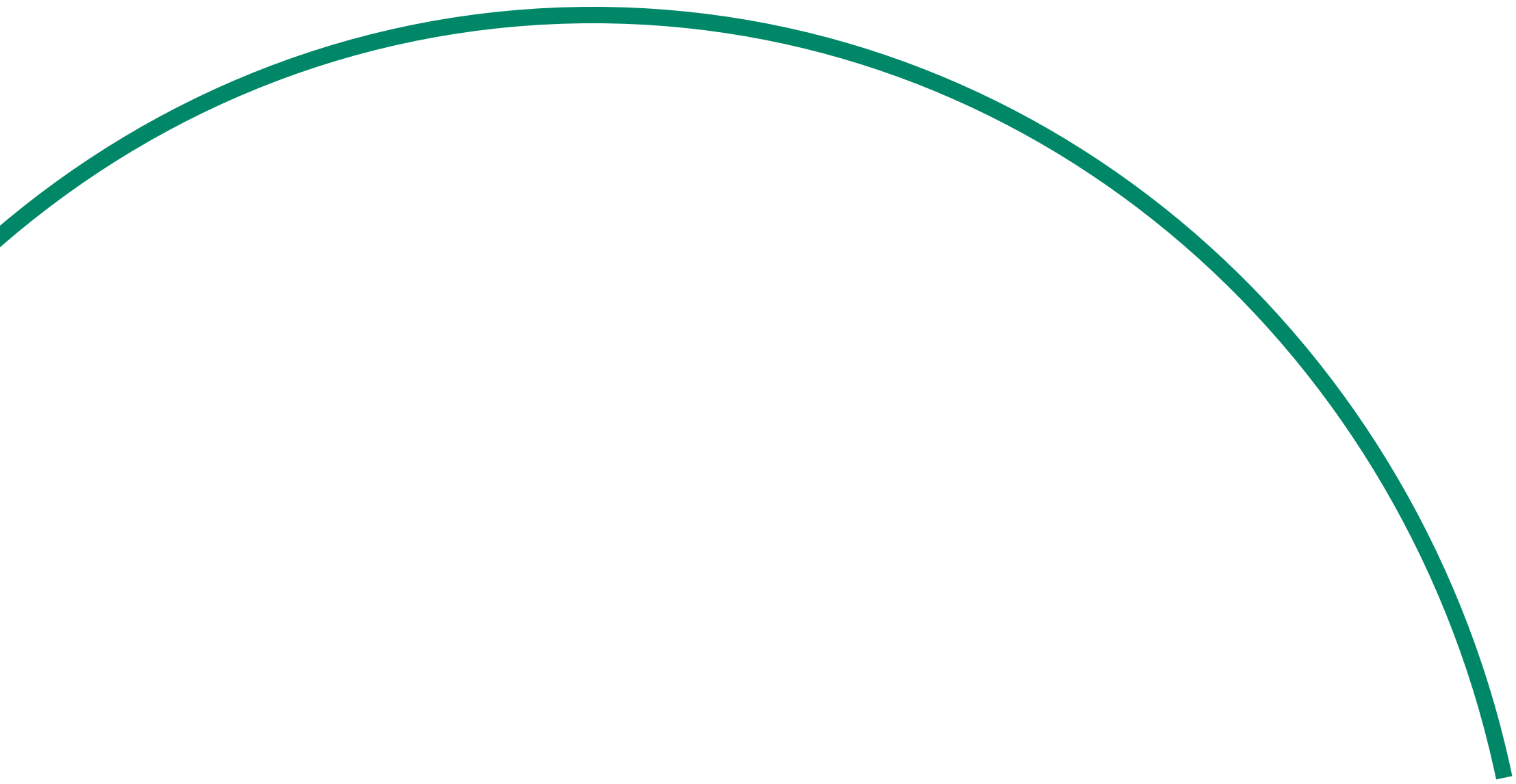


Thank You

DoD Energy Technology Readiness

TECHNOLOGY READINESS LEVEL (TRL)		
RESEARCH	9	ACTUAL SYSTEM PROVEN IN OPERATIONAL ENVIRONMENT
	8	SYSTEM COMPLETE AND QUALIFIED
	7	SYSTEM PROTOTYPE DEMONSTRATION IN OPERATIONAL ENVIRONMENT
	6	TECHNOLOGY DEMONSTRATED IN RELEVANT ENVIRONMENT
	5	TECHNOLOGY VALIDATED IN RELEVANT ENVIRONMENT
	4	TECHNOLOGY VALIDATED IN LAB
DEVELOPMENT	3	EXPERIMENTAL PROOF OF CONCEPT
	2	TECHNOLOGY CONCEPT FORMULATED
	1	BASIC PRINCIPLES OBSERVED
DEPLOYMENT		

Source(s):
<https://www.acq.osd.mil/eie/Downloads/OE/2023%20Operational%20Energy%20Strategy.pdf>







1 x 1 column layout

Introductory paragraph to describe the slide content and as the User types, text will wrap without indenting.

To start and continue to achieve the correct indentation of bullets select Increase or Decrease Indent -

- Level 1 bullet 23pt Arial, round bullet
 - Level 2 bullet 19pt Arial, dash bullet
 - Level 3 bullet 17pt Arial, square bullet

2x1 Column layout

3x1 column layout

4x1 row layout

4x2 row layout

Um imincite quas
doluptatus, ento essitem
essime prerem et es vel
il et ut atat dollor seque
volo invent earionse.

Replace with image

Project Title
Project description

Replace with image

Project Title
Project description

**Um imincite quas
doluptatus, ento
essitem essime prerem
et es vel il et ut atat
dollar seque volo
invent earionse.**

Um imincite quas
doluptatus, ento essitem
essime prerem et es vel
il et ut atat dollor seque
volo invent earionse.

Replace with image

Project Title
Project description

Replace with image

Project Title
Project description

Um imincite quas
doluptatus, ento essitem
essime prerem et es vel
il et ut atat dollor seque
volo invent earionse.

Thank you.

AECOM Delivering a
better world