

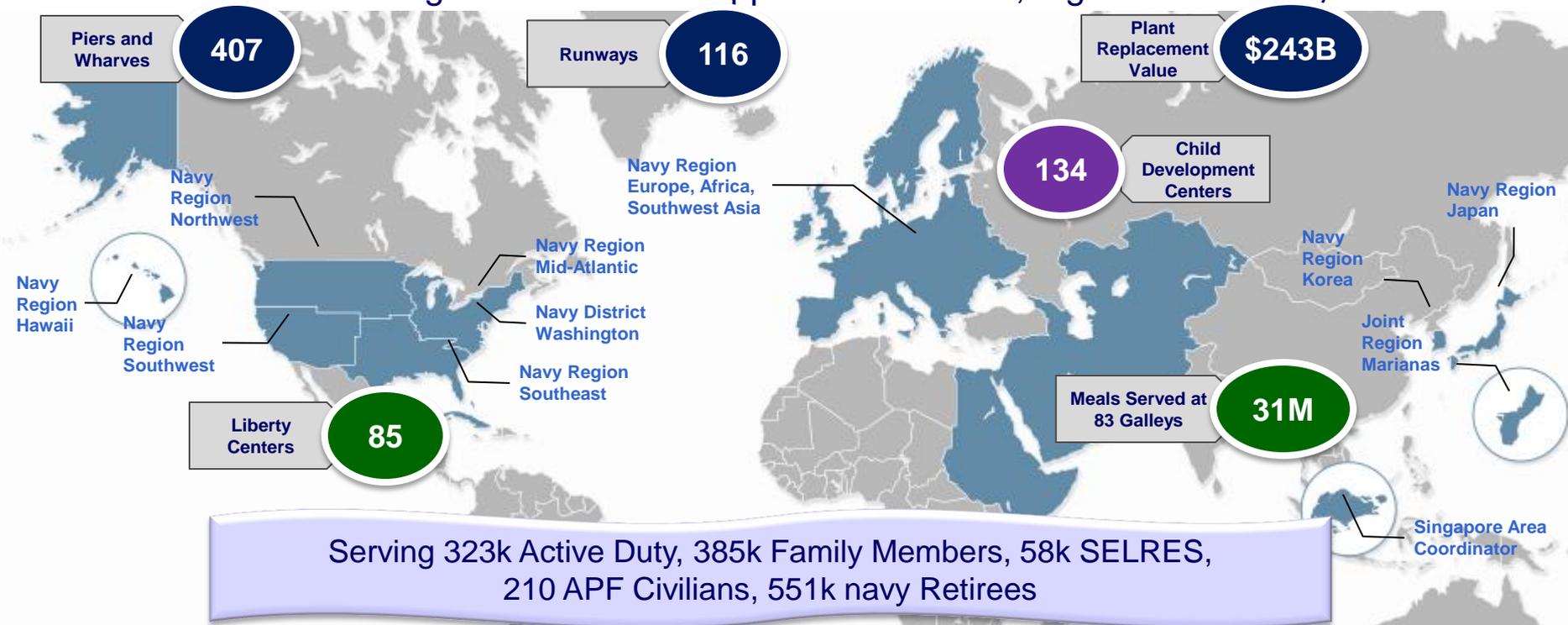
DOD / Navy Energy Planning for Resilient Military Installations



Keith Benson
Director, Energy
Tues, 5 Dec 2017

The Shore Domain & Energy

- **Baseline consumption – 47.6 million MBTU**
 - Requires ~ \$1-B annually, \$2+B project portfolio, 100+ energy managers
- **Focus on Energy Security by reducing consumption, increasing resiliency and reliability**
 - Our savings enable better support for the Fleet, Fighter and Family



11 Regions / 71 Installations / 52,785 Civilians and Military supporting



Energy Core Attributes

- **Lead, Manage & Support the Navy Shore Energy Team**
 - In collaboration with Shore Triad Partners
 - Conduct Energy Management Assist Visits (MAVs)
 - Evaluate Resourcing, Staffing, Training and Tools for Regions / Installations
- **Improve Energy Security via Reliability, Resiliency & Efficiency**
 - Develop EMIG: AMI, TPF, ERCIP, RMe, Audits, RCx, RDT&E
 - Advance the Integration of the 3-Pillars: Resiliency, Reliability and Efficiency
- **Achieve Navy Shore Energy Goals**
 - SECNAV/CNO + E.O. 13693, *Planning for Federal Sustainability in the Next Decade*
- **Heighten Energy Awareness & Stewardship**
 - Partner with ALL Energy Stakeholders
 - Sustainability and Innovative focus
- **Reduce Energy & Operating Costs**
 - Reduce usage and purchase costs

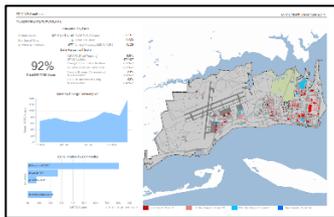


Energy Enablers

Navy Shore Energy Management Tool Suite (FOUO) gathers data from multiple authoritative sources and presents information to stakeholders in a manner that facilitates the identification, planning, development, and tracking of energy and water investments



Map and visualize Navy-wide energy data



Identify energy efficiency opportunities

NR0204 - NAS PENSACOLA FL
CIRCUITS and Modeled Energy Use Data FY14 (MBTU)

Consumption Data Breakdown

Category	Value	Cost
Electricity	1,234,567	\$123,456
Gas	987,654	\$98,765
Water	543,210	\$54,321
Other	123,456	\$12,345

Data Assessment

Item	Value
Electricity	45%
Gas	35%
Water	15%
Other	5%

Commodity Use

Commodity	Usage	Cost
Electricity	1,234,567 MBTU	\$123,456
Gas	987,654 MBTU	\$98,765
Water	543,210 MBTU	\$54,321
Other	123,456 MBTU	\$12,345

Modeled Costs and Savings by ECM

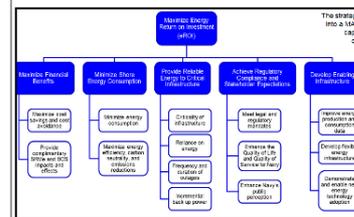
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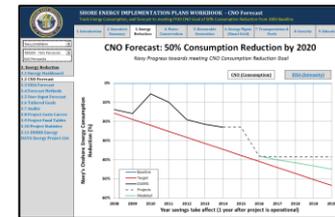
Generates ESF installation score card and highlights gaps and resourcing opportunities



Develop opportunities into projects and evaluate viability



Verify current energy goal attainment and forecast investment



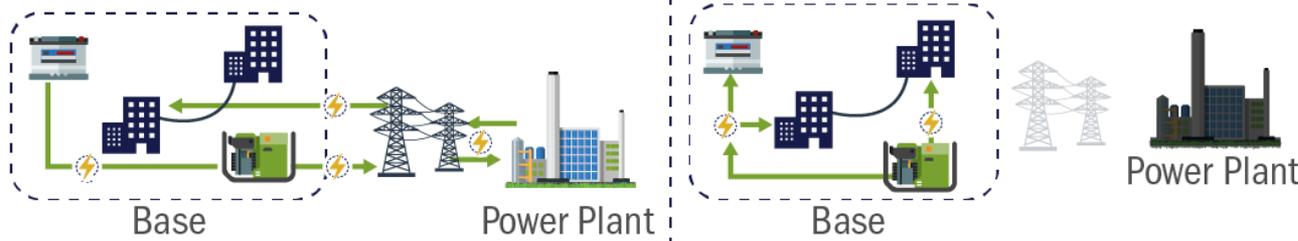
Naval Submarine Base New London

- Installation Mission: DON East Coast submarine base, provide infrastructure/support for Navy operating forces; homeport to numerous attack submarines

Enhanced Use Lease

Normal Operations

Grid Outage



- Project Summary:

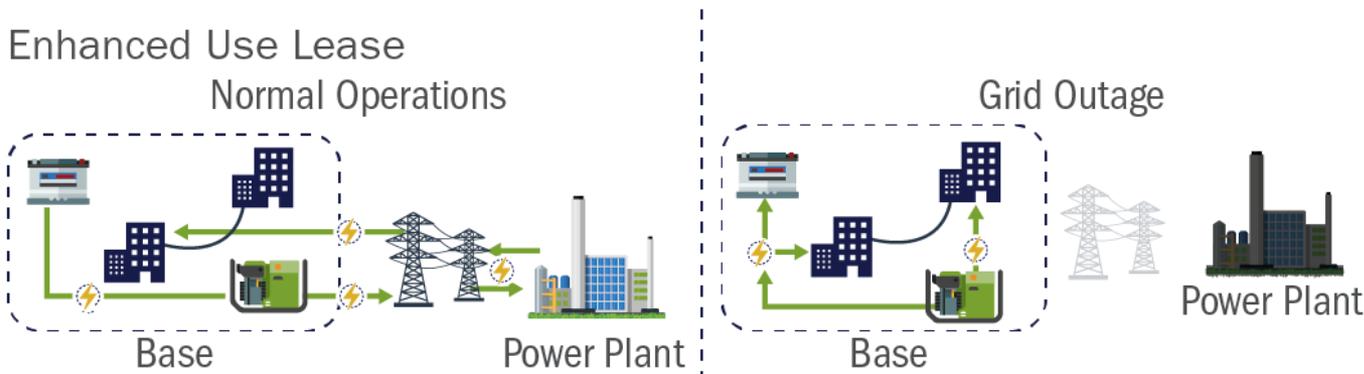
- Fuel Cell and Microgrid
- 7.4 MW
- Partners Connecticut Municipal Electric Energy Cooperative (CMEEC), Groton Utilities and the state of Connecticut



Pacific Missile Range Facility, ^{UNCLAS} Barking Sands



- Installation Mission: The world's largest instrumented, multi-dimensional testing and training missile range.



- Project Summary:
 - Solar Generation with Integrated Storage
 - 19 MW generation and 60 MWh energy storage
 - Kauai Island Utility Cooperative



ESPC at Guantanamo Bay

Whole Base Solution

PP3 Diesel Gensets

Guantanamo Bay

Cross-bay power and fiber optic cables are existing

CCPP

Peak Demand
~20.3MW pre
~17.5MW post

2 MW PV with ESS

Leeward Side

Windward Side

PV with ESS

Plant Control System

PP4 Diesel Gensets

6 x 3.5 MW

PV 0.965 MW
(Facility)

Wind

4 x 0.95 MW

New Generation

Existing Generation
(to remain)

--- = Control System Upgrades Base Wide



JBAB PV Project Brief

Develop Ground Mount Site 34 & Carport Sites 26, 37, and 57.

- 25 Year Production Term
- Price = \$0.04585/kWh @ 2% escalation
- Total system size = 7.53 MW
- Average production = 10.06 GWh/yr
- Projected Utility Bill Savings = \$9.3M

CARPORT PROPOSAL	Date
Lift Stop-Work Order	1 Jul 17
Start DSN Carports	14 Aug 17
Mod Contract/Lease	13 Sep 17
Interconnection	Apr 18
Request PTO	May 18
Performance Validation	Jun 18
Commercial Operation Date	Jul 18



Site 26
1.69 MW
Bus Parking Lot

Site 37
0.69 MW
PWD Parking Lot

Site 34
2.35 MW
Ground Mount

Site 57
2.8 MW
NEX Parking Lot



Key Take-Aways...

- **Go Forward and Be Energy Champions**
- **Navy is advancing a large energy portfolio across multiple funding streams....focused on Energy Security...Reliability, Resiliency and Efficiency**
- **Beat major constraints (resourcing shortfalls, organizational structures, skillsets), by collaborating, planning, hiring the best and working together to integrate IEPs and ESF (new requirements) into IDPs (master plans)**
- **Army, Air Force, USMC, Navy, DOD/USG are strong partners that will benefit 5-10 years from today...**

Questions / Comments



	New Technology Initiatives Investigated / Executed	Buildings Constructed by LEED Standards	Project Designs Reviewed by Energy Manager	Command Policy Signed	Energy Conservation Board Participation	Energy Manager Assigned; % Participation	Attend (SECNAV) CECOS Energy Training	Energy Management Team Trained	Design and O&M Personnel Trained	Recent Energy Performance Trends	Attainment to Goal - Energy	Attainment to Goal - Water	Projects Awarded	Projects Planned	Renewable Energy Projects in Operation	Activity Funded Initiatives	Energy and Water Surveys	Building Energy Monitor Program	Energy Awareness Program	Basic Energy Management Practices	Water Management Plan Signed; Best Practices	Ordering Energy Efficient Products & Services	Alternative Fuel Vehicles	Goals / FAST Act Compliant	SECNAV ENERGY GRADE
	Objective Section									Graded Section															
Installation	Blue	Blue	Yellow	Blue	Blue	Yellow	Green	Blue	Blue	Red	Blue	Red	Green	Yellow	Red	Yellow	Green	Green	Yellow	Blue	Blue	Blue	Blue	Yellow	Blue
Installation	Blue	Blue	Yellow	Red	Red	Blue	Green	Blue	Blue	Green	Green	Green	Blue	Yellow	Red	Red	Green	Blue	Blue	Blue	Yellow	Blue	Blue	Yellow	Red
Installation	Blue	Blue	Yellow	Blue	Blue	Yellow	Green	Blue	Blue	Red	Blue	Red	Blue	Blue	Blue	Red	Green	Blue	Blue	Blue	Blue	Blue	Blue	Yellow	Blue
Installation	Yellow	Blue	Yellow	Blue	Blue	Yellow	Green	Blue	Blue	Yellow	Blue	Green	Blue	Blue	Yellow	Yellow	Green	Yellow	Yellow	Blue	Blue	Blue	Yellow	Yellow	Blue
Installation	Blue	Blue	Yellow	Blue	Blue	Yellow	Green	Blue	Blue	Blue	Red	Red	Red	Blue	Red	Red	Green	Yellow	Blue	Blue	Blue	Blue	Yellow	Blue	Blue
Installation	Yellow	Green	Yellow	Green	Green	Yellow	Green	Green	Green	Green	Green	Green	Green	Green	Yellow	Green	Green	Yellow	Green	Green	Green	Green	Green	Green	Green
Region	Blue	Blue	Yellow	Blue	Blue	Yellow	Green	Blue	Blue	Blue	Blue	Blue	Blue	Yellow	Blue	Blue	Green	Yellow	Blue	Blue	Blue	Blue	Blue	Yellow	Blue

Objective Section: (SECNAV Award Level)

- Green = Platinum Level
- Gold = Gold Level
- Blue = Blue Level
- Red = Not attained

Graded Section:

- Green = Outstanding Effort
- Gold = Significant Effort
- Blue = Minimal Effort
- Red = Little/No Effort

Installation Energy Master Planning



Navy Installation Energy Plan (IEP) Implementation

Keith Benson, Energy Program Director
Navy Installations Command
Aug 15, 2017



Navy IEP Overview

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- IEP required by OSD memo of 31 Mar 2016
 - Develop and brief on plan for top 75%
 - Integration & Alignment
 - Complete plans by 31 Mar 2019
- Navy intends to address energy resilience, reliability and efficiency in all Navy Shore Enterprise IEPs



OFFICE OF THE ASSISTANT SECRETARY OF DEFENSE
3400 DEFENSE PENTAGON
WASHINGTON, DC 20301-3400

MAR 31 2016

MEMORANDUM FOR ASSISTANT SECRETARY OF THE ARMY (INSTALLATIONS, ENERGY AND ENVIRONMENT)
ASSISTANT SECRETARY OF THE NAVY (ENERGY, INSTALLATIONS AND ENVIRONMENT)
ASSISTANT SECRETARY OF THE AIR FORCE (INSTALLATIONS, ENVIRONMENT AND ENERGY)
DIRECTORS OF THE DEFENSE AGENCIES
DIRECTORS OF THE DOD FIELD ACTIVITIES

SUBJECT: Installation Energy Plans

The Department of Defense (DoD) continues to make progress toward reaching our energy goals with installation energy efficiency efforts contributing to DoD avoidance of approximately \$1 billion in new operating costs since 2009. In today's resource constrained environment, the Department must continue to find creative ways to drive additional efficiencies in energy use and reduce costs. A larger coordinated effort is needed to gain synergy between current energy initiatives and future planned energy projects to maximize energy use and cost reductions. By leveraging improved access to meter and energy data, we can drive a more integrated and systematic approach to energy management through informed energy planning. Effective immediately, it is the Department's policy to require installation-level energy plans for all DoD Components to support this concept.

Currently, DoD Components are updating their installation master plans to meet the requirements of the Under Secretary of Defense (Acquisition, Technology and Logistics) memorandum, *Installation Master Planning*, of May 28, 2013, by October 1, 2018. The Installation Energy Plan (IEP) should be an integral part of this effort. Thus, within one year of the date of this memorandum, each DoD Component will brief my office on their prioritized plan for the implementation of this policy. Within three years of the date of this memorandum, energy plans, signed by the base commander, should be completed for installations that together compose 75 percent of each component's installation energy consumption. Attachments 1 and 2 provide a high-level overview of the suggested IEP development process and a general reference list of DoD energy management and master planning guidance documents.

Additionally, the Deputy Assistant Secretary of Defense (Installation Energy) shall establish metrics to evaluate the implementation of this policy. This policy and developed metrics will be incorporated into Unified Facilities Criteria under Series 2 Master Planning criteria.

I appreciate your support of the installation energy planning process, and your commitment to reducing energy usage and improving our installations for the long term. My point of contact is CDR Walter Ludwig, at 571-372-6859 or walter.s.ludwig.mil@mail.mil. ODASD(IE).

Peter Hockney
Deputy Assistant Secretary of Defense (Basing)
Performing the Duties of the Assistant Secretary of Defense
(Energy, Installations, and Environment)

Attachments:
As stated

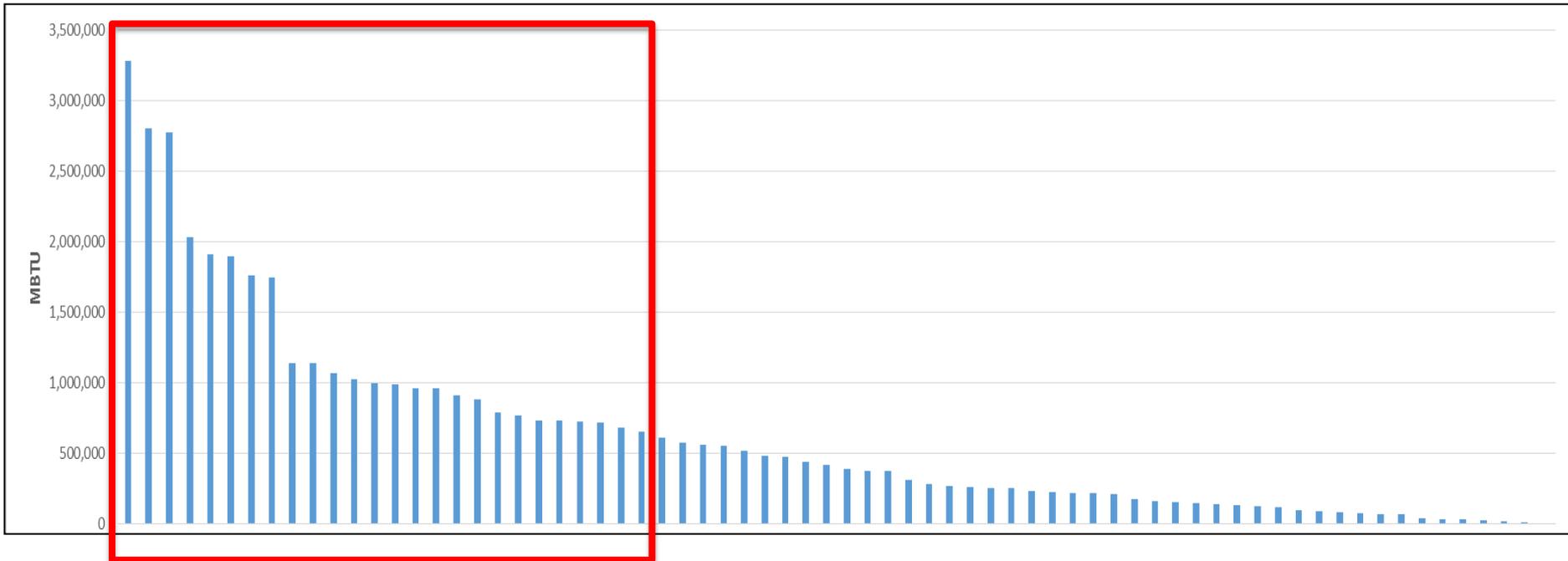
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Navy IEP Analysis...

Goal Subject + Excluded Consumption



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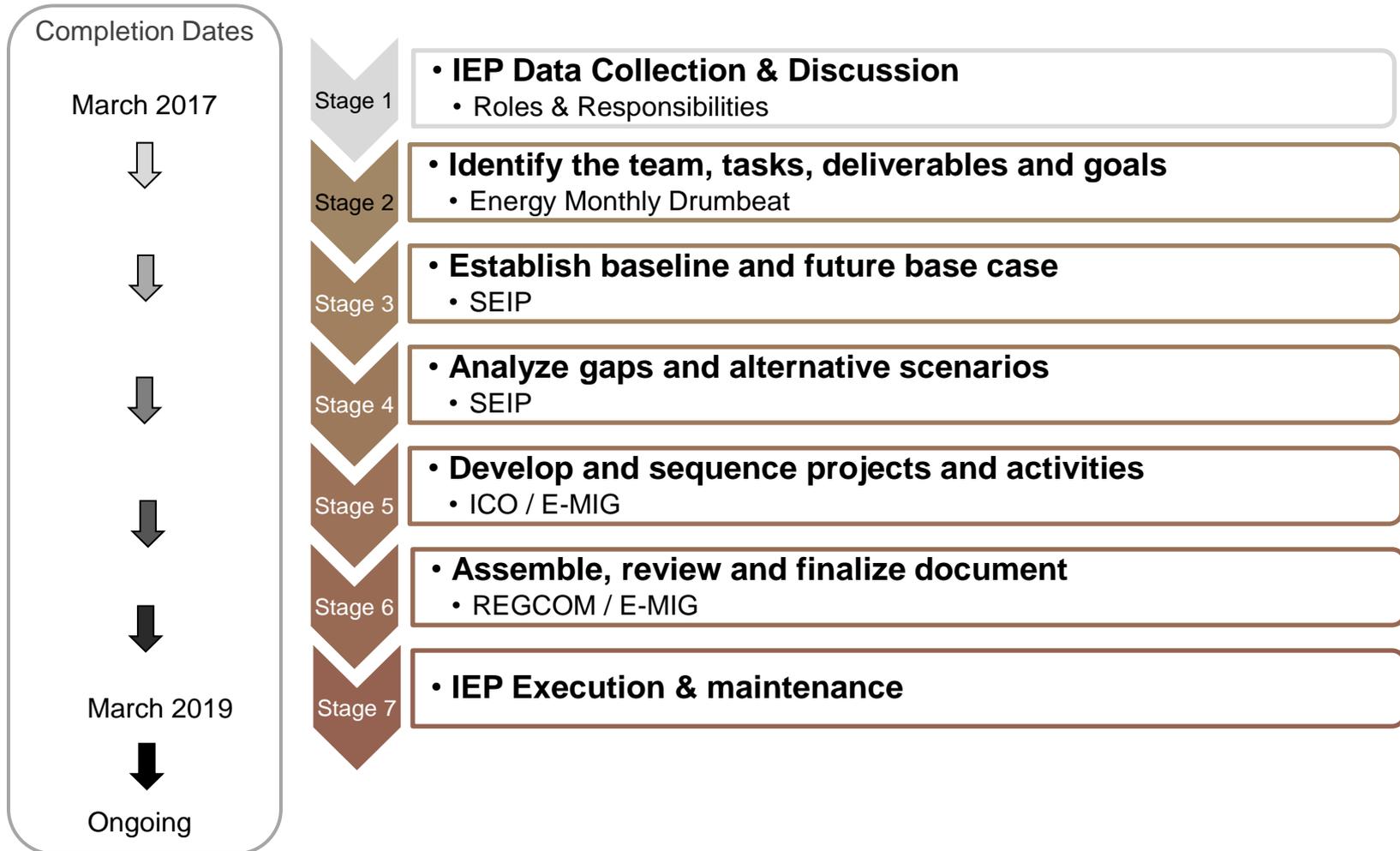
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Implementation Strategy

- **Delineate roles and responsibilities for IEP execution at all echelons (i.e., ensure development is transparent, thoughtful and helpful)**
- **Leverage Navy Shore Energy Tool Suite to provide Installations with Excel based templates that provide complete facility level profiles (consumption data, tenant, MDI, audits planned/complete, projects planned, projects executed, building system condition ratings, etc.)**
- **Develop streamlined templates aligned to IEP requirements and integrated with existing Installation Development Plans (IDP), while ensuring frequent feedback, as well as consistent and actionable final deliverables**

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IEP Rollout....Stages of Development





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Next Steps

- **IEP will be developed with comprehensive focus**
 - Installation Energy checklists
 - High-level triage tools
 - Advance Enterprise Alignment; Seek Efficiency and ROI

- **Overall goal is a dynamic flexible plan that focuses investments on the right opportunities**

- **POC: Keith Benson, Navy Installations Command**
 - keith.benson@navy.mil

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Navy Shore Energy Objectives



SECNAV Goals

- 50% *ashore consumption reduction* from 2003 baseline by 2020
- 50% total ashore energy from *alternative sources* by 2020
- 50% installations *net-zero consumers* by 2020
- 50% reduction in *vehicle petroleum* use by 2015
- * Jun 2017: ASN EI&E Energy Security Framework (ESF) Memo

EO 13693

(Planning for Federal Sustainability in the next decade)

- 25% *ashore energy intensity reduction* from 2015 baseline by 2025
- 25% of total energy consumption from *clean energy sources* by 2025
- 36% *ashore water consumption intensity* reduction from 2007 baseline by 2025
- 30% reduction of vehicle GHG emissions from 2014 baseline by 2025