

## Session: Approaching Net Zero Water, Energy and Waste



# Navy Shore Energy Program

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# Navy Energy Policy

## SECNAV Targets

Increased Alternatives  
Afloat  
2020

50% of total DON energy  
consumption from  
alternative sources

Increased Alternatives  
Ashore  
2020

At least **50%** of shore-  
based energy from  
alternative sources; 50%  
of installations net-zero

Sail the "Great Green  
Fleet"  
2012/2016

Green Strike Group:  
local operations/sail

Reduce Non-Tactical  
Vehicle Petroleum  
Use  
2015

Reduce petroleum use in  
commercial vehicle fleet  
by 50%

Energy Efficiency  
Acquisition

Evaluation of energy  
factors mandatory when  
awarding  
systems/buildings  
contracts

## CNO Targets

Reduce  
Consumption  
Afloat  
2020

Navy will increase  
efficiency and  
reduce  
consumption afloat  
by 15%

Reduce  
Consumption  
Ashore  
2020

Navy will **reduce**  
**consumption &**  
**intensity ashore by**  
**50%**

Protect Critical  
Infrastructure  
2020

Navy's critical  
infrastructure will  
have reliable,  
redundant, reliable  
energy systems

# Program

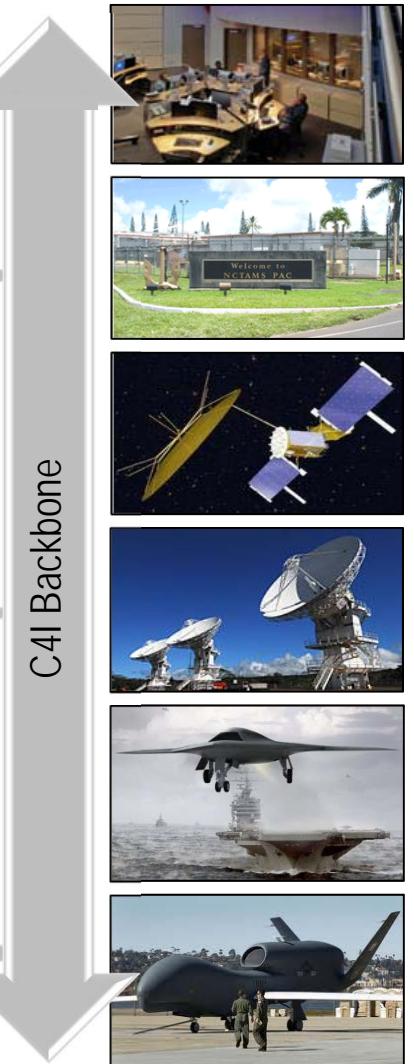
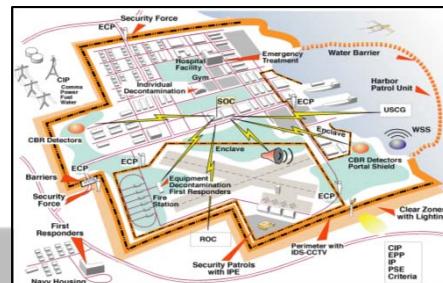
Judicious use of resources



Diversity of power sources incorporating renewable energy



Intelligent, secure architecture



# Strategy

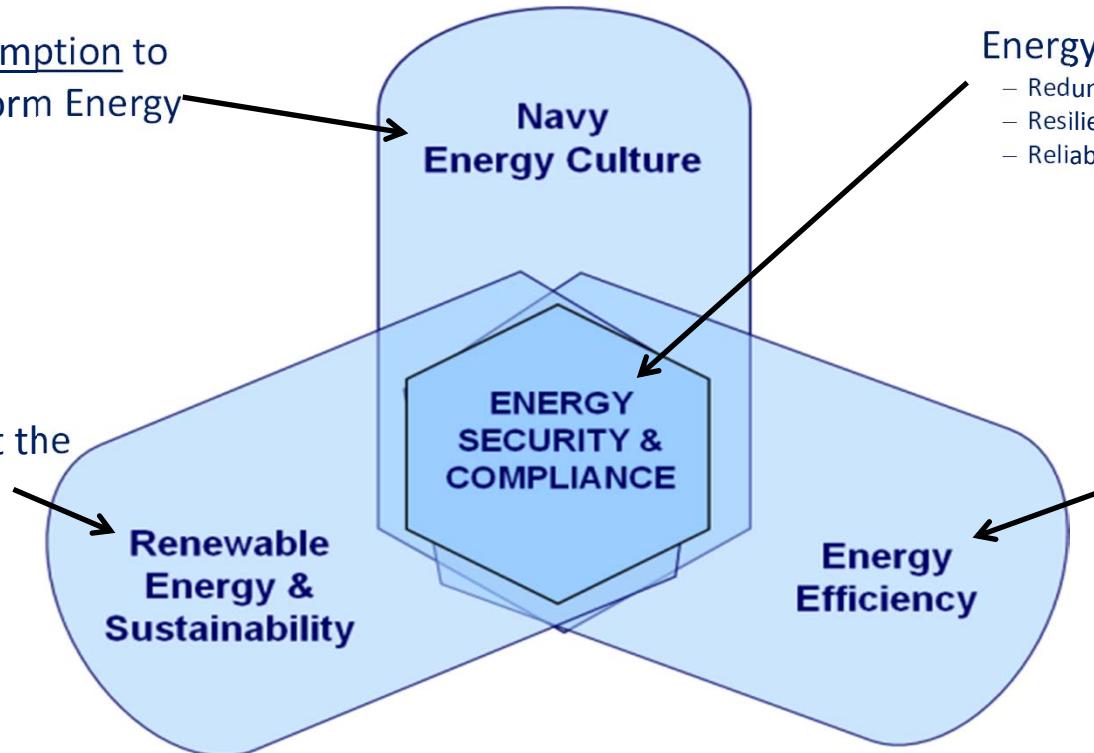
Link Energy Consumption to Behavior to Transform Energy Culture

Energy Security:

- Redundancy
- Resiliency
- Reliability

Right Technology at the Right Time:

- Watch
- Partner
- Lead

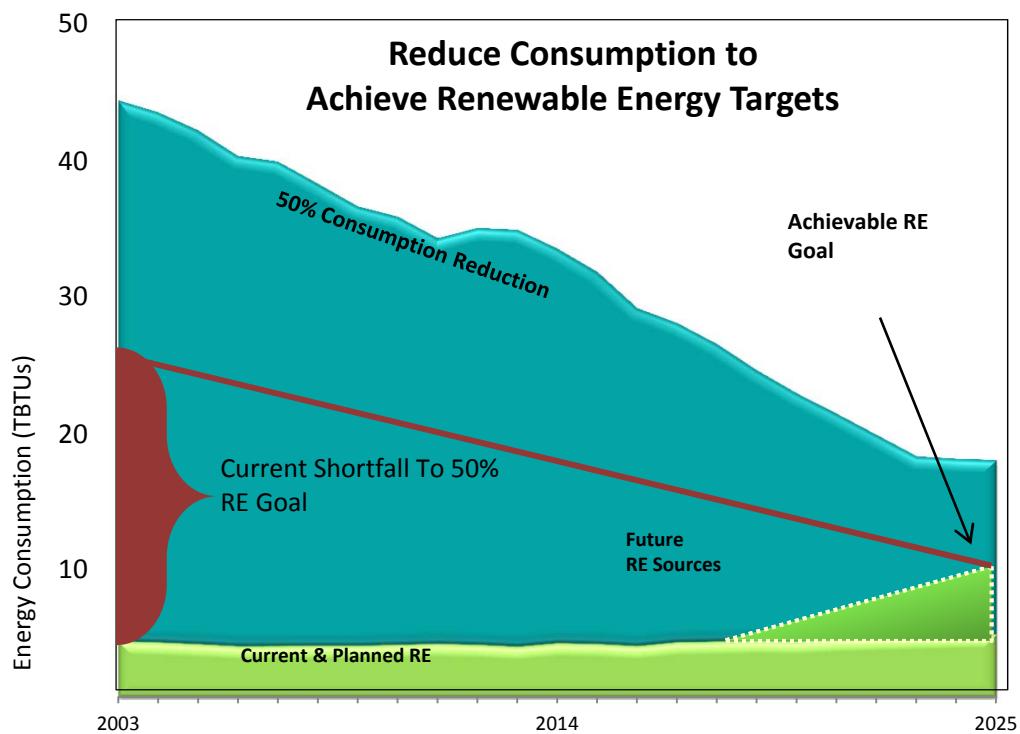


Energy Efficiency is Critical



# Energy Efficiency

*Focus on Energy Intensity and Consumption Reduction supports Navy's progress towards all SECNAV and CNO goals*



## Energy Efficiency First

### Recapitalize Existing Infrastructure with energy efficient systems

- Energy Return on Investment (eROI) Decision Model for Utility and Facility Upgrades

### Implement Smart Grid Technology

- Automated Energy Consumption Data Collection, Delivery & Analytics
- Interoperable C2 of ICS
- Cyber-secure platform enclave
- Demand reduction and response

### Energy Security

- Energy & Utility Security Assessments
  - Focus initial efforts on Tier I/II assets

# Renewable Energy & Sustainability

## Renewables & Sustainability



### Renewable Energy Success

- Renewable Energy Program Office stood up in Spring 2014 to focus on large-scale renewable energy development
- Leverage third party financing to support both onsite and offsite generation
- Over 1GW under procurement (DoN)

### Sustainability Efforts

- Executive Order 13693 under review
- Energy/Water efficiency projects
- Recyclable Materials
- CO<sub>2</sub> Emissions Reduction



# Approaching Net Zero



January 12, 2016

Congressional Committees

## Defense Infrastructure: DOD Efforts Regarding Net Zero Goals

In 2008, the Department of Defense (DOD) and the Department of Energy (DOE) began a joint initiative to address military energy use by identifying specific actions to reduce energy demand and increase use of renewable energy on DOD installations. Early attention was given to the possibility of net zero energy military installations. Achieving net zero within DOD generally means producing as much energy from renewable energy sources as is consumed by an installation, limiting the consumption of water in order to not deplete the local watershed, and reducing, reusing, and recovering waste streams to add zero waste to landfills.

House Report 114-102, accompanying a bill for the National Defense Authorization Act for Fiscal Year 2016, included a provision for us to review DOD's progress and savings from net zero installation initiatives. This report describes the extent to which DOD: (1) developed policies and goals for an integrated net zero strategy for energy, water, and waste management at its military installations; and (2) identified the potential costs and benefits of implementing net zero initiatives. We briefed the congressional defense committees in October 2015. This report formally transmits updated briefing slides regarding the final results of our work in response to the provision in House Report 114-102 (see enc. I).

To conduct our work, we obtained and reviewed relevant federal mandates, statutes, and DOD and service-specific policies and reports to determine DOD's net zero strategy and goals for energy, water, and waste management. We also interviewed or requested information from relevant officials within DOD and the services about funding, monitoring, potential costs and benefits, and lessons learned. We visited the DOE's National Renewable Energy Laboratory and Fort Carson, CO and contacted 10 Army installations to obtain information regarding policies, goals, potential costs, and benefits of implementing net zero initiatives.<sup>1</sup>

We conducted this performance audit from June 2015 to January 2016 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

In summary, we found that DOD has not established an integrated net zero strategy or policy. DOD officials stated that this is because until recently there had been no statutory goals

<sup>1</sup>We visited Fort Carson, CO because it is one of two installations the Army identified as a pilot for energy, water, and waste management. We also obtained information from 10 additional installations, selected based on their progress toward meeting energy, water, and solid waste diversion goals in fiscal year 2014. Though this information was not generalizable to all installations, these installations were: Carlisle Barracks, PA; Fort Detrick, MD; Fort Hood, TX; Fort Hunter Liggett, CA; Fort Irwin, CA; Fort Jackson, SC; Fort Leavenworth, KS; Fort Riley, KS; Joint Base Lewis-McChord, WA, and Picatinny Arsenal, NJ.

## Report Summary, Defense Infrastructure: DoD Efforts Regarding Net Zero

“ The Department of Defense (DOD) has not established an integrated net zero strategy or policy for achieving net zero....According to DOD officials, none of the military departments have established net zero as a funded program...In addition, DOD has not fully identified the potential costs of implementing net zero initiatives. The only funding GAO identified that DOD has spent on net zero initiatives involved studies to establish baselines and assess the feasibility and costs of net zero at various DOD installations. Service officials told GAO they believe that fully achieving net zero is unrealistic and ultimately cost prohibitive...”

# Contact Information

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