



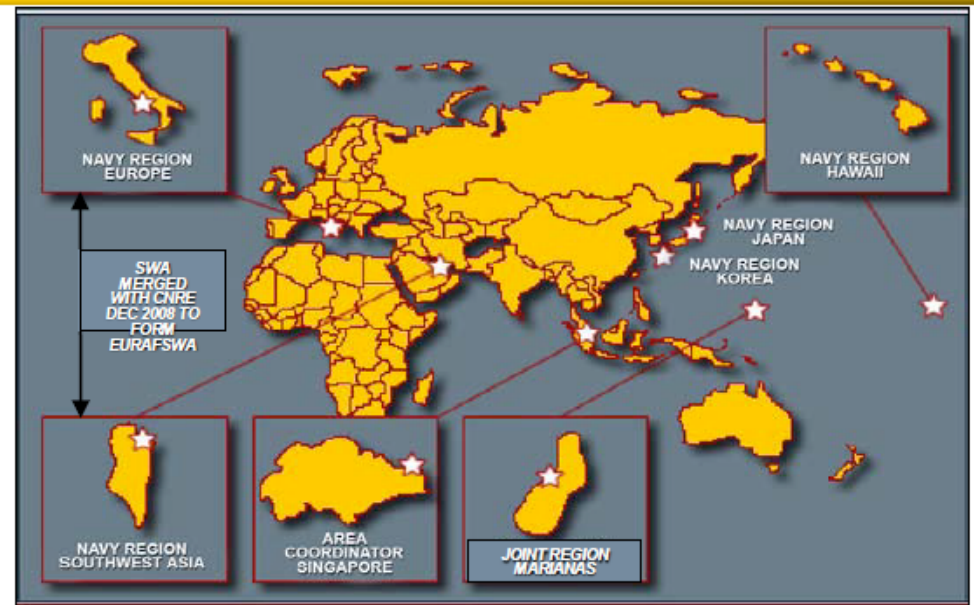
NAVFAC Engineering & Expeditionary Warfare Center (EXWC) Waste-to-Energy Summary

Created for APCESE WTE Panel and
JDW2E Industry Day

Presented by: Bryan Long
NAVFAC EXWC Public Works

9/11/2013

Navy Shore Domain Today



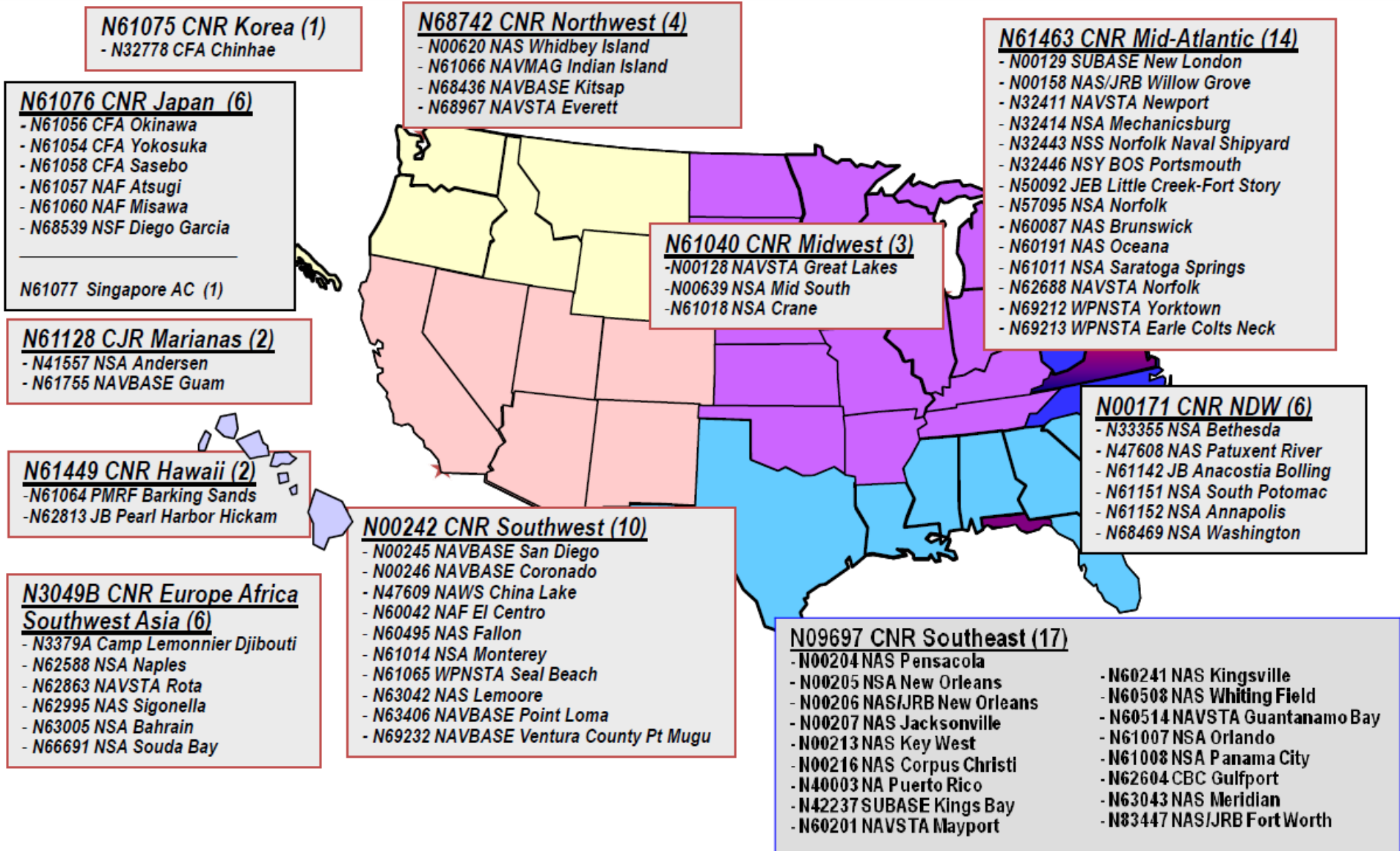
POPULATION SERVED

328K Active Duty
 65K Active Reserves (SELRES)
 427K Family Members
 575K Navy Retirees

13 Flags / 7 SES Direct Reports
 \$134B PRV (Structures, Utilities)
 31.1K Bldgs, 24.3K Structures, 12.5K Utilities
 59K pers.: military 22K, civilians 33K, KTRs 4K
 resources (appropriations, NAF) - FY10 @ 9/30/10

11 Regions...72 Bases...1.9 Million Acres
125 Runways... 355 Piers/Wharves...\$134B Plant Replacement Value
\$12B Resources: Fortune 200 in Size

CNIC Shore Bases by Region

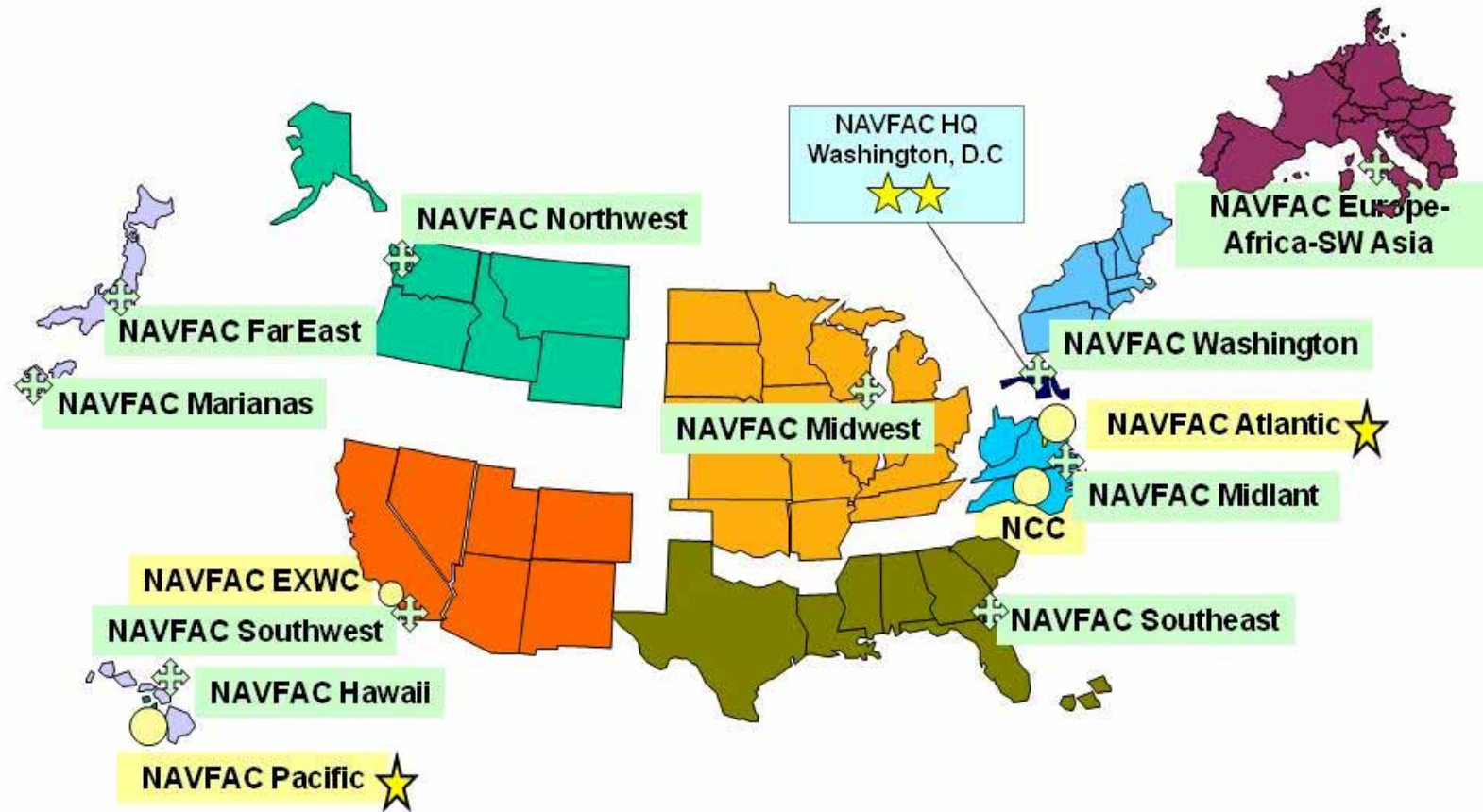


NAVFAC's role in the Navy



- **Mission: NAVFAC is the Systems Command, builds and maintains sustainable facilities, delivers utilities and services, and provides Navy expeditionary combat force capabilities**
- **Comprised of ~18,000 Civil Engineer Corps officers, civilians, and contractors serving as engineers, architects, contract specialists and professionals**
- **NAVFAC delivers best value facilities engineering and acquisition through six business lines:**
 - Capital Improvements
 - Expeditionary
 - Asset Management
 - Environmental
 - Public Works
 - Contingency Engineering
- **Annual volume of business in excess of \$12 billion**

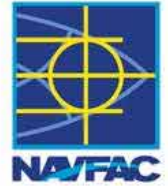
NAVFAC Areas of Responsibility: A Global, Interdependent Team




ECH III Commands


ECH IV Commands

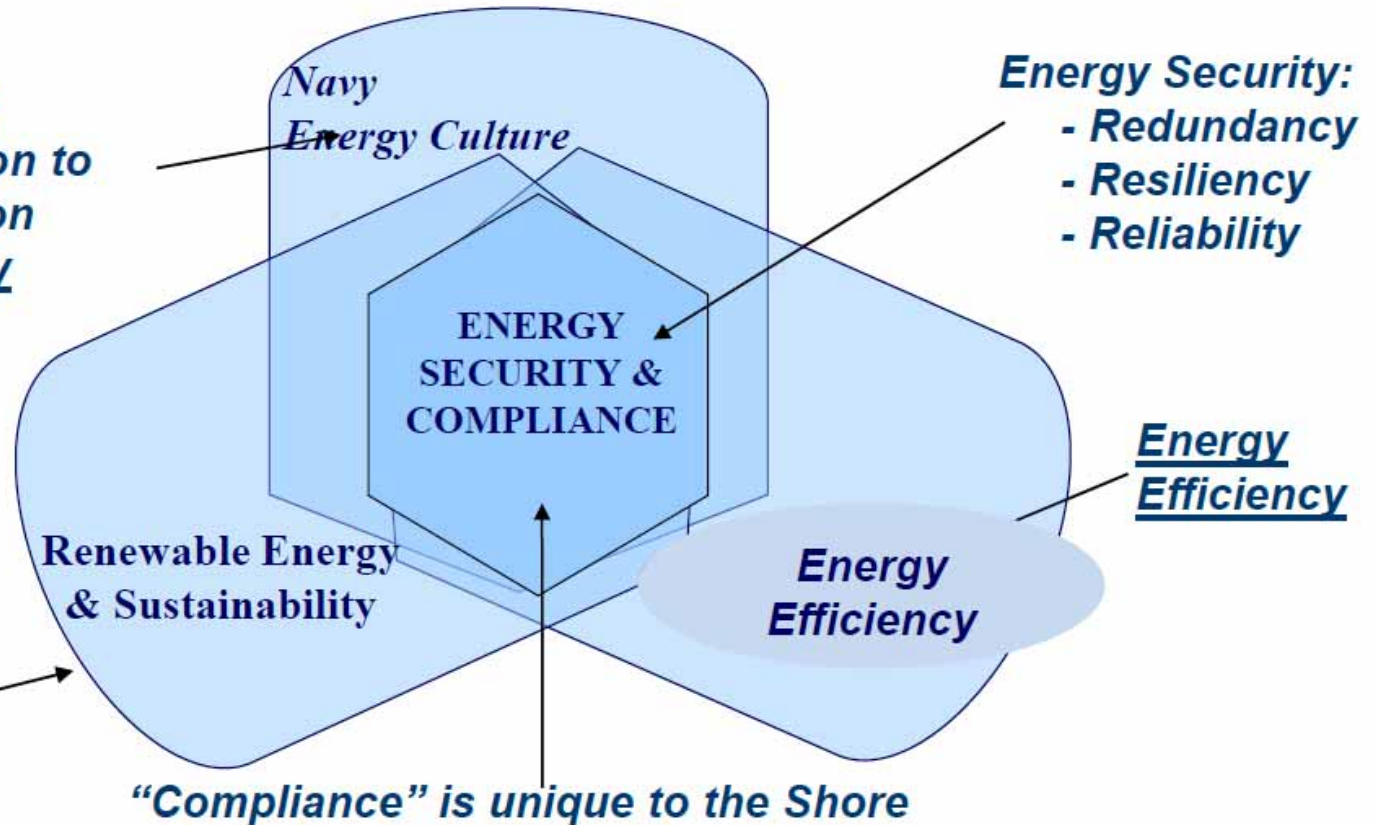
NAVY'S SHORE ENERGY PROGRAM



Transform Navy From Culture of Consumption to Culture of Conservation Through Transparency and Accountability

The Right Technology at the Right Time

- Watch
- Partner
- Lead



NAVFAC EXWC Proposed WTE Strategy



- **For Large or non-remote Installations (> 50 Tons Per Day (TPD) Municipal Solid Waste (MSW) waste stream), Partner with community / industry to ensure MSW is handled in most effective manner**
- **For medium and remote installations (1 to 50 TPD,) , continue to search for commercial or near commercial systems that can be deployed,**
 - cost effective
 - reliable
 - Typically will be run by base services contract
- **For small Forward-deployed force solutions (250 – 500 person tent camp), continue to partner with Army / AirForce to push for technical, low-tech, rugged, deployable systems**
 - This falls under NAVFAC Expeditionary Combat Command (NECC)



- **WtE is difficult to implement at N/MC sites alone, need to partner with local communities**
- **Cost effective WtE highly dependent on tipping fees, Amount of MSW generation, cost of electricity, & recycling revenues**
- **NAVFAC not generally interested in owning / operating / maintaining WtE, better acquisition strategy through Private Sector financing/operation and NAVFAC buy the power.**



• Typical Navy FOB / Expeditionary Requirements:

- 1. As small as 250- to 500 forward deployed person camp (JDW2E Partnership)**
- 2. More established FOB or remote installations that include TPD throughputs in the range of 1 – 50 TPD**
 - Typical waste stream similar to that of a small city (1000 – 5000 persons)
 - Food waste, Cardboard, PET (Plastic #1), Mixed Paper, Misc. Plastic (#3,4,5,7), Other Metals, Polystyrene (Plastic #6), HDPE (Plastic #2), Textile/Misc., Aluminum, Glass, Wood

NAVFAC FOB Waste stream General Observations



- **Waste streams typically include significant portion of food waste (wet, low btu content)**
- **Method of serving meals (dishwashing vs paper) a big impact**
- **Amount of green waste related to climate**
 - Wet equals lots of green waste
- **Does the activity provide bottled water(which is a function of the water treatment system) if so add lots of plastic**
- **What does packaging systems look like?**
 - Lots of cardboard and pallets for shipping items
- **Remote locations will not have good recycling programs**

Waste to Energy – 250 to 500 man Deployed Camp



- Joint JDW2E effort led by PACOM
- Perform Waste Characterization Study for smaller Bases
 - Leverage Army Analysis
 - Candidate waste characterization for 250 – 500 man NECC deployed camp
- Identify and down select candidate equipment
 - Life Cycle Cost (Return on investment)
 - Intended function of system
 - Must be transportable in TRICON container (external dimensions: 6-ft 5-in long * 8-ft high* 8-ft wide)
- Military Utility Assessments
- Develop CPD
- Determine Training required
- Eliminate Leach Fields, Burn Pits etc



*burn pit @ USMC FOB
Zeebrudge, Afghanistan*

NAVFAC actively pursuing WtE solutions through DOD Research Programs



- **DOD Strategic Environmental Research & Development Program (SERDP) & Environmental Security Technology Certification Program (ESTCP)**
- **DOD Broad Agency Announcements (BAA):**
 - **Department of the Navy (DON) Space & Naval Warfare Systems Command (SPAWAR) Pacific-- Energy System Technology Evaluation Program (ESTEP) BAA N66001-13-X-3008 is open and accepting White Papers in response to Call Opportunities.**
 - 3 BAA Call Opportunities (R001, R002 & R003) accepting White Papers due Monday, Sept. 16, 2013 by 4:00pm (PST)
 - Search N66001-13-X-3008 on www.fbo.gov & <https://e-commerce.sscno.nmci.navy.mil/>
 - Agency Contact, Doris Richardson, doris.richardson1@navy.mil
(Note: email address contains the number “1”)
 - **Recently closed, HR 933 Congressional Add, RDTE BAA**
- **Advice to Industry: Keep on the look out for these type of RDTE opportunities!**

Business Opportunities with NAVFAC



NAVFAC Website

<https://portal.navfac.navy.mil/portal/page/portal/navfac/>

Federal Business Opportunities

www.fbo.gov

Navy Electronic Commerce Online

<https://www.neco.navy.mil/>

Small Business Site

<https://smallbusiness.navfac.navy.mil>

NAVFAC EXWC WTE CONTACT



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