



2023 SECNAV Environmental Award

Sustainability—Team

Naval Weapons Station Seal Beach

And

Detachments Fallbrook & Norco

INTRODUCTION

Naval Weapons Station Seal Beach (NAVWPNSTA-SB) and Detachments Fallbrook and Norco continue to make exceptional progress to achieve Executive Order and command sustainability goals, having exceeded FY22 targets for energy reduction, water conservation, recycling, and reducing the amount of solid waste adversely effecting Anaheim Bay and our wildlife refuge. Goals are integrated within the command’s Environmental Management System (EMS), providing a framework to engage all organizations in the pursuit of sustainability, resiliency, pollution prevention and improved environmental quality. Central to the program’s success is the installation’s command leadership, which continually raises the bar for meeting our environmental objectives by expecting each tenant organization to contribute fully.

NAVWPNSTA-SB is critical to the Navy’s mission through the storing and loading of ordnance, missile maintenance, and weapons systems assessment, all in support of the United States Pacific Fleet. The three locations, which are approximately 50 to 80 miles apart, are managed predominantly from Seal Beach. Challenges include operating within an immensely developed urban area within Southern California that effects prices due to the supply and demand of energy, water and waste. The Environmental Office, together with the Public Works Energy Manager, have collaborated on sustainable projects that provide resiliency to the installation mission and improve conservation objectives. Water and Energy Conservation programs are managed by Mr. Bruce Delling, Installation Energy Manager (IEM) and waste reduction and clean-up is managed by Environmental Director Mr. Jeff McGovern.

Seal Beach



NAVWPNSTA-SB is the critical munitions supply point for Pacific Fleet surface ships homeported in San Diego. The base is host to Navy Munitions Command Pacific CONUS West Division (NMCPAC CWD), Naval Surface Warfare Center (NSWC) Corona Division, as well as several other Navy and USMC commands. The base is home to the Seal Beach National Wildlife Refuge, the only refuge fully contained within the fence line of a naval installation. **Acres: 5,256 — Population: 750**

Detachment Fallbrook

Detachment Fallbrook directly supports Marine Corps warfighters and has the only West Coast air-launched missile maintenance facility. A unique component of the mission is to load amphibious assault ships with munitions via vertical replenishment pictured here. The NSWC tenant conducts post deployment test and evaluation of weapon systems, ensuring quality control for the Sea Services.

Acres: 8,852 — Population: 234.



Detachment Norco



On Detachment Norco, NSWC Corona Division provides transparency to warfighting readiness through data analytics and assessment as well as assuring the accuracy of measurements. The installation's central feature is the Lake Norconian Resort Historic District, which includes a shallow lake that is an important flyway stopping point for migratory birds.

Acres: 247 — Population: 2,019

BACKGROUND:

Environmental Management System Overview

INTRODUCTION: The **Environmental Management System (EMS)** is the methodology of managing multiple environmental programs, identifying pollution prevention opportunities, assessing risks, annually evaluating significant aspects and reducing adverse effects. Primary mission tenant commands and military training units aboard the installations are fully integrated into the host EMS and support our sustainability objectives.

Key tenants include:

- Navy Munitions Command Pacific CONUS West Division (NMCPAC CWD)
- Naval Surface Warfare Center Corona Division (NSWC)
- USMC 5/14 and 2//23 Reserve Training Center
- US Army Reserve Training Center (Det Fallbrook)



Left, Jeff Mcgovern-IEPD, Right, Bruce Delling-IEM

BACKGROUND: The installation Environmental Office and Public Works Energy Program at NAVWPNSTA-SB and Detachments collaborate together to identify and implement initiatives and sustainable projects that increase resiliency, meet conservation requirements and provide uninterrupted support to the mission. Mr. Bruce Delling is the Installation Energy Manager (IEM) for NWS Seal Beach and NAF El Centro. Mr. Jeff McGovern, Installation Environmental Program Director (IEPD), manages a team of 13 individuals managing compliance, cultural and natural resources at three installations, the Navy Golf Course and several special areas. The installation Commanding Officer has established the EMS environmental goals and objectives to focus on energy and water conservation which requires both the Environmental and Energy objectives to align with each other in support of the installation missions. The Environmental Office also monitors waste reduction goals and implementing measures to reduce solid waste impacts to installation.

The Energy Program guidance followed is Executive Order (EO) 13834 Efficient Federal Operations, and P-602 Three Pillars of Energy Security. Using this guidance, the Energy Program seeks funding for immediate, short term and long term projects that align with EO objectives in reducing energy and water consumption. Utilizing data collected from the Base automated metering infrastructure (AMI), adverse usage spikes and trends are documented, and root causes are identified and resolved. This same data is reported to Region quarterly through the Defense Utility Energy Reporting System (DUERS). Installation projects not only save energy and water (lighting and irrigation controls), but projects are also replacing outdated electric infrastructure which are critical failure points. New projects provide reliability and efficiency.

Critical to meeting our energy conservation objectives, Navy Region Southwest and the installation awarded a \$9M Utility Energy Services Contract (UESC) to a local utility. The five energy conservation measures installed under the UESC are projected to annually save 5% of base electric consumption. Base electrification helps meet the Navy's carbon reduction goals. Projects are developed to fully utilize yearly 2912E & I Energy funds across multiple projects. Through a Region contract and the UESC Project, work to repair and recommission five non-working base photovoltaic (PV) systems was completed. These systems are now collectively generating 670 mega-watt hours (MWH) annually, providing sustainability, and reducing the base electric bill by over \$73,000.



Energy conservation awareness is implemented by both IEM and Environmental staff meeting with Building Energy Monitors (BEM) quarterly to review goals and objectives, and instructing them on how to report energy and water waste incidents. Energy and water objectives are tracked by providing the Installation Energy Program Summary (IEPS) to the ICO and PWO.

ACCOMPLISHMENTS:

Installation Energy Program Summary

GOAL: *To report up annual energy and water use, and track reductions or increases. Also, to identify Capability Gaps, identify Courses of Action and develop projects aimed at eliminating these gaps through reliability, resilience and efficiency, thereby strengthening NWS Seal Beach's Three Pillars of Energy Security.*

BACKGROUND: Each year, the IEM presents the Installation Energy Program Summary (IEPS) to the Installation Commanding Officer (ICO) to inform on energy and water usage for the year. The IEPS serves to integrate Installation and higher-level guidance and policies into a roadmap that enables the installation to meet its energy goals and objectives. It also provides a standardized framework for Navy Installations to monitor progress against energy program metrics. The IEPS is the framework, similar to the Environmental Management System, that provides direction and means in sustaining our conservation strategies.

PROJECT: The NAVWPNSTA-SB Energy Program is shaped by Navy Region Policy Guidance and Executive Orders. The eight focus areas are to optimize maintenance performance, analyze systems for vulnerabilities, conserve energy, develop and maintain redundant sources of electricity, develop and maintain on-base generation assets, develop and maintain energy storage, establish cyber-secure control systems and enhance monitoring and control systems.

RESULTS: For Energy Intensity, the reduction goal for CNO's shore installation energy consumption target was a 25% reduction by 2025, from the 2015 baseline (OPNAV 4100.5E). For Water Efficiency, the goal was to achieve 36% reduction in water intensity from the 2007 baseline by 2025 (Energy Policy Act of 2005). For FY21, DUERS reported a 7.1% energy intensity reduction from the 2015 baseline and a 44.3% water usage reduction in comparison to 2007 baseline year. Note that between 2015 and 2021, installation and detachment personnel increased by over 41% not including reserve units, creating increased energy and water usage. The continuing Seal Beach energy and water goal is to identify and implement courses of action that build upon these savings and achieve further savings towards Navy annual reduction goals.

Utilities Energy Services Contract

GOAL: *To utilize third party financing to capitalize new energy saving equipment and installation and repay financing through energy savings.*

BACKGROUND: A Utility Energy Services Contract (UESC) project was initially developed and sent out for Request for Proposal (RFP) in 2019. This multi-discipline project was awarded in March 2021 and is substantially complete. Addressing reliability, this project replaced the existing end-of-life heating, ventilation and air conditioning (HVAC) system in a mission critical building on base. The new system will deploy two new high efficiency dehumidification systems (HEDS) which will maintain temperature and humidity within strict facility requirements.

PROJECTS: Other efforts included upgrading and recommissioning two photovoltaic (PV) systems, replacing inefficient lighting with new LEDs, and installing new irrigation controllers to replace non-working units. These projects hit on all three pillars of energy security: reliability, resilience and efficiency.



View of Rooftop PV system

RESULTS: All these efforts combined will contribute to base efficiency by producing electricity, natural gas and water savings. This project is estimated to save: 1,878 MWh of electricity, saving \$333,307 | 3,513 MBTU of natural gas, saving \$51,004 | 3,929 gallons of water, saving \$45,891

High Efficiency Dehumidification System

GOAL: *Provide new Heating, Ventilation and Air Conditioning system to mission critical buildings keeping temperature and humidity within strict tolerances.*



BACKGROUND: In FY21, Naval Facilities Engineering Systems Command (NAVFAC) collaborated with the local natural gas utility, to execute a Utility Energy Service Contract (UESC). This project addressed a critical HVAC system at NAVWPNSTA-SB. This critical infrastructure for major tenant Navy Munitions Command (NMC) had exceeded its useful life in 2020 and NMC did not meet mission requirements, due to lack of humidity and temperature control. NAVFAC considered and evaluated various solutions, determining that the High Efficiency Dehumidification System (HEDS) met mission needs and provided the highest overall labor, maintenance, and energy cost savings.



PROJECT: This project was custom designed to provide energy, maintenance and labor savings and enable the building HVAC system to consistently meet stringent temperature and humidity requirements. In past years, production was lost due to the inability of the HVAC system to maintain those requirements. Therefore the entire system was evaluated and a significant portion replaced with the latest HVAC technology and design. A key part of this design was the HEDS units, which create significant savings. The existing nine air handlers were replaced with only two. A small, inefficient chiller was replaced by a larger, more efficient one. State of the art controls and monitoring points were installed to allow real time data to be reviewed and modified as needed. Many of the weak links of the existing systems were replaced with reliable new equipment that contributed to added energy savings. The building occupant is very satisfied with the end result, and mission can be reliably accomplished.



RESULTS: The annual energy and maintenance savings from the HEDS energy conservation measure is estimated to be \$693,577 for the life of the contract. More importantly, mission requirements can now be consistently met regardless of outside ambient temperature and humidity conditions, ensuring NMC can reliably support the warfighter.



HEDS Unit being delivered to installation



Enhanced Use Lease Projects



GOAL: *Lease open base acreage to develop micro grids and receive in-kind consideration via the lease.*



BACKGROUND: Currently NAVWPNSTA-SB and Det. Norco do not have the resilience required in P-602, Three Pillars of Energy Security. These projects aim to increase resilience by providing black-start capability and the ability to energize critical buildings for extended periods should there be an electric grid outage.



PROJECT: Two sustainability projects are in development. Both are Enhanced Use Leases (EUL) that leverage open base acreage for full base automated black-start and islanding capability to support critical infrastructure during an extended grid outage. This in-kind consideration provides needed energy security and resiliency to the base.



RESULTS: EUL #1 NAVWPNSTA-SB allows use of 59 acres of land for development of up to 10 MW of solar generation along with a battery energy storage system (BESS) and diesel generation backup. This will cover a 14-day outage 24 hours a day.



EUL #2 NAVWPNSTA-SB Detachment Norco allows use of 8.3 acres of land for development of 2.5 MW of solar generation, 2.5 MW of BESS and 2.1 MW of diesel generation. This will cover a 14-day outage 24 hours a day.

Reducing Light Pollution while Enhancing Mission

GOAL: *Reduce light pollution while sustaining security and safety compliance measures.*



BACKGROUND: To meet Chief of Naval Operations physical security requirements for ammunition and explosives handling and storage areas, the addition of nighttime lighting is required at two ordnance holding yards and a suspect cargo site. These lights are adjacent to endangered Stephens' kangaroo rat (SKR) and threatened coastal California gnatcatcher (CAGN) habitat. Artificial lighting instantly "urbanizes" a natural landscape and can cause significant deleterious effects on the environment, adversely affecting species at risk.



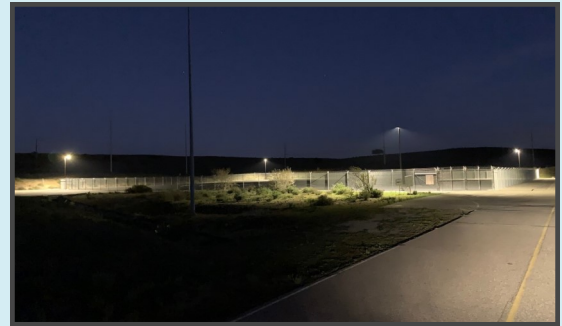
Excessive or poorly designed night lighting can also negatively affect the mission. Many legacy security lights are excessive in number, unshielded, brighter than necessary, and aimed out toward personnel. This not only increases energy consumption but creates disability glare and unsafe conditions, well-documented problems in the field of security lighting.



PROJECT: Collaborating with Facilities, NMC and Explosives Safety, the NRC program conducted a holistic assessment of artificial lighting at Det. Fallbrook, establishing baseline conditions, clarifying regulatory and mission drivers, and evaluating the efficacy of existing lighting.



In 2018, the NRC program worked with Public Works to get all existing lighting fixtures on base mapped in GIS. Subsequent lighting analyses required acquisition of specialized engineering software to be used in GIS applications, classroom training for use of the software, and photometric modeling for assessment of mission compliance and potential environmental effects.



Dark sky compliant lighting reducing unnecessary light trespass



RESULTS: A consensus plan objective has been met that brings legacy lighting fixtures into compliance with current Unified Facilities Criteria and International Dark Sky Association standards and reduces the existing lighting footprint (removing 51 excess lighting fixtures and replacing 18 others with the correct color temperature and a controlled light distribution pattern). This proactive solution simultaneously benefits the mission and helps offset adverse effects from the additional artificial lighting at the holding yards and suspect cargo area.

ACCOMPLISHMENT: REVIVING THE ENERGY PROGRAM



BACKGROUND: Prior to FY21 the Energy Program had become dormant, due to the IEM position being vacant for over two years. Outside of the UESC, no local energy and water projects had been developed, building energy monitors (BEM) were not meeting regularly, and lack of metric reporting failed to track installation objectives and no coherent energy strategy was implemented.



RESULTS: With hire of Mr. Delling, active management of the Energy Program has been restored, and new energy and water projects are being developed through leverage of regional contracts and other project funding opportunities. Annual tenant energy awareness training is occurring in concert with environmental training. BEM's meet quarterly and current energy and water topics are discussed. Energy and water use is tracked and tenants are empowered to report discrepancies, concerns and issues.



Waste Diversion

GOAL: *Reduce trash that adversely impacts our natural resources and mission*



BACKGROUND: Trash in the form of floating debris, hazardous materials and medical waste such as sharps have become a safety problem that adversely affects the mission and harms marine mammals.



PROJECT: NAVWPNSTA-SB completed 16 beach clean-up events, collectively removing nearly five tons of trash; this included volunteer and sanctioned events. In FY22, the installation partnered with local community stakeholders to form the Bolsa Chica Channel (C02) Drainage Area Trash Special Study Group to look at solutions to address upstream trash deposition that plagues the neighboring Huntington Harbor and Anaheim Bay. The Drainage Area Trash Special Study Group evaluates trash and quantities washing into Anaheim Bay to determine sources and what best strategies to eliminate the problem before reaching storm drains.



NAVWPNSTA-SB implemented multiple trash collection strategies to address immediate problems in our local waters. One was reinitiating the help from the USFWS and their volunteer group, Friends of the Seal Beach National Wildlife Refuge. The USFWS and Friends had been missing from past year due to USFWS staffing issues and COVID restrictions. Historically, 6-9 tons of trash are annually removed, so return of USFWS staff and volunteers are helping remove trash already deposited within sensitive areas of the refuge.

NAVWPNSTA-SB signed its first intergovernmental support agreement (IGSA) with the City of Seal Beach. The agreement provides beach cleaning services to Barney's Beach on a monthly basis removing trash, ocean debris and sharps, making the beach safe for families and Sailors. During the last quarter, the city removed over 30 cubic yards of trash and debris.



NAVWPNSTA-SB obtained end-of-year funds to acquire Southwest Region's first on-water trash cleanup system, the KECO Marina Trash Skimmer (MTS), which will be anchored at the installation's small security boat pier. The local currents in Anaheim Bay deposit large amounts of floating debris in this corner of the bay, which can affect security boats by fouling engine cooling ducts. The MTS trash system can remove 30 lbs of floating trash a week. Removal of the trash will reduce damage to security boats and elimination of floating debris will reduce threats to the endangered Green Sea Turtle and other animals that can mistakenly eat the plastics thinking they are jellyfish.



View of debris and sharp objects removed from Barney's Beach



The installation is committed to collaborating with adjacent cities and communities in seeking solutions to address in-water trash concerns. The NAVWPNSTA-SB command is committed to providing the resources to make the beaches and water safer for Navy families and protecting threatened species that make the refuge home.



MUNICIPAL AND C&D DIVERSION RESULTS: NAVWPNSTA-SB and its Detachments Norco and Fallbrook collectively diverted over **288.51** tons of Construction and Demolition (C&D) waste from the landfill between October 2020 to September 2022. This diversion consequently gave the Navy a total disposal cost avoidance of **\$23,121**. The effort also resulted in a diversion rate of **84.87%**, exceeding the DOD goal of **50%**. The success is attributed to the involvement and support of the Environmental Office, FEAD, and C&D contractual personnel, as well as the integration of EMS in the project review process. Over **1,048** tons of municipal waste was diverted.

NAVWPNSTA-SB has diverted **261.78** tons of organic waste from landfills in order to meet California's SB1383 requirements, including the collection of two tons of used motor oil and half a ton of used antifreeze.