



Appalachian Energy Summit

Mr. Roger M. Natsuhara

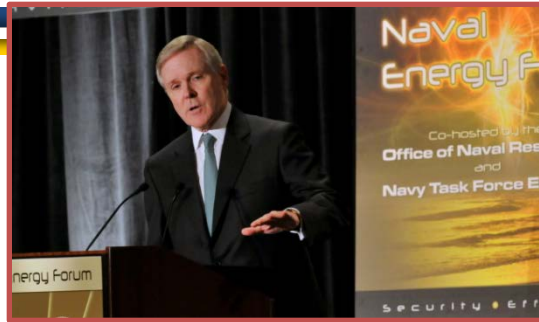
Acting Assistant Secretary of the Navy

Energy, Installations & Environment

July 19, 2013



Energy Goal Progress



**Increase
Alternative Energy
Department-wide**

By 2020, 50% of total Department energy consumption will come from alternative sources

23% Alternative Energy within DON

**Increase
Alternative Energy
Sources Ashore**

By 2020, at least 50% of shore-based energy requirements will be met by alternative sources; 50% of Department installations will be net-zero

\$300 M in energy projects for FY13

Reduce Non-tactical Petroleum Use

By 2015, Department will reduce petroleum use in vehicles by 50%

30% of fleet on alternative fuel, working infrastructure

**Sail the
"Great Green
Fleet"**

Department will demonstrate a Green Strike Group in local operations by 2012 and sail it by 2016

GGF Task Force preparing for 2016

**Energy Efficient
Acquisitions**

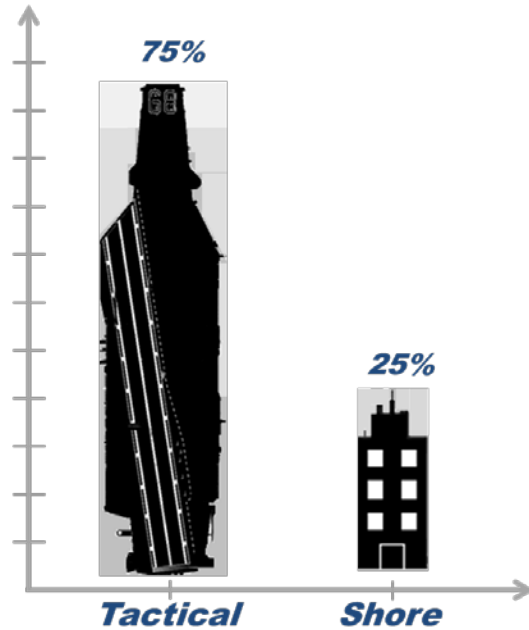
Evaluation of energy factors will be mandatory when awarding contracts for systems and buildings

Energy Evaluation Memorandum Signed

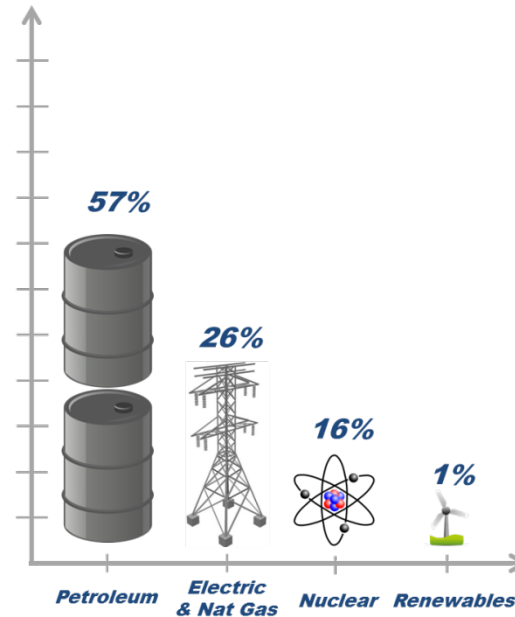


Naval Energy Profile

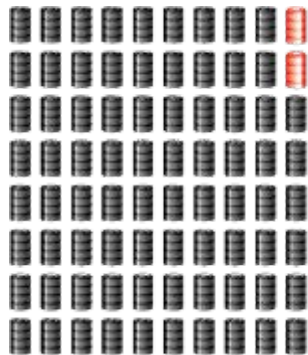
Energy Consumption



Energy Sources

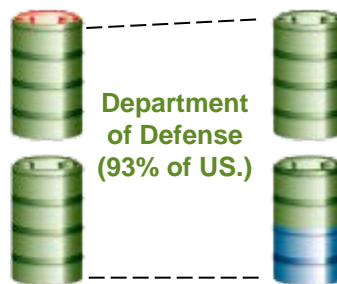


U.S. Petroleum Consumption



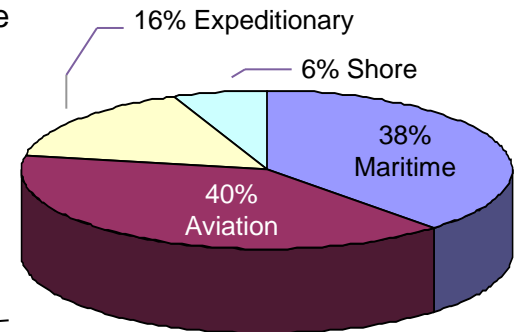
U.S. Government
(2% of U.S.)

Navy Petroleum Consumption in Perspective



Department of Defense
(93% of US.)

DON
(34% of DoD)





Renewables

Our installations are developing renewable energy projects on our bases and we are studying the use of micro-grids to allow all on base generation to operate effectively during a grid outage. Currently 18% of total shore energy is produced from renewables.





Alternative Energy Ashore

Solar

NSA Monterey



Total Installed: 55 MW
Total Planned: 75 MW

- *NAWS China Lake (14 MW)*
- *MCB Camp Pendleton (15 MW)*
- *Solar MAC, Hawaii (96 MW – Planned)*

Wind

MCLB Barstow



Total Installed: 6+ MW
Total Planned: 10 MW

- *9 MW in Newport, RI*
- *22 anemometer studies underway*

Advanced Metering



- *DON goal to install 27,000+ smart meters by 2016*
- *DON pursuing 95% tracking of all electricity*
- *Metering gas, water and steam*



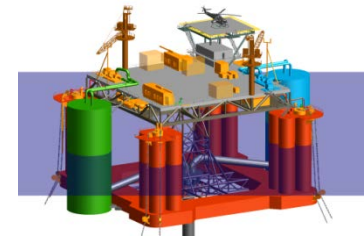
Shore Energy Highlights

1 GW Task Force

- 1GW TF Chartered February 2012
- “Renewable Energy Strategy” at:
<http://www.secnav.navy.mil/eie/Pages/Energy.aspx>
- Initial review identified 500-1500MW of potential projects nation-wide
- Master Plan being implemented by Services

Ocean Thermal Energy Conversion

- DON/NIPO in discussion with foreign partners to develop OTEC government/industry consortium
- Goal: 10MW pilot plant located in Hawaii FY17 (scalable to 100 MW)



Electric Vehicles (EV) Project

- OSD pilot focused on medium duty EV trucks
- Goal: lifecycle cost parity between EV's and comparables
- Concept: consider expanding EVs across fleet
- EVs will be rolled out to all six initial bases
NLT Jan 2014



Waste to Energy

- MCLB Albany: 1.9MW landfill gas PPA
- MCAS Miramar: 3.2 MW landfill gas PPA
- Navy working with DOE/NREL to determine additional opportunities for next generation waste to energy





Operational Energy Highlights

Great Green Fleet

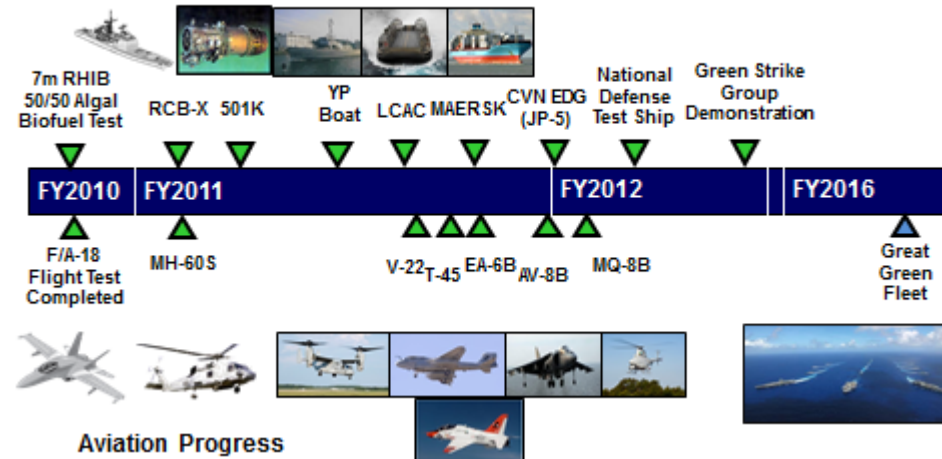
- Rim of the Pacific Exercise (RIMPAC) in 2012 successfully demonstrated use of biofuels
- Allison 501K Gas Turbine Engine Testing complete
- CV-22 Osprey testing soon, joint effort w/ Air Force
- 2016 event will span the year and demonstrate ships with 3+ ECMs

ExFOB

- ExFOB 2013: Demonstrated d hybrid power technologies with potential to reduce generator fuel use by 50% at FOBs, reduce run time by 80%, and reduce generator maintenance
- Training Marines in CONUS
- Demonstrated over 300 technologies at 6 sites
- Army and USMC working to build requirements for a family of 4 hybrid power systems

Alternative Fuels Testing

Ship Progress



Other Highlights

- LCAC Active Shaft Balancing/Torque Metering
- Combustion Trim Loop: Being installed on USS Bonhomme Richard
- Smart Voyage Planning Decision Aid could reduce Fleet fuel use by 4%, or 373,000 barrels, if implemented Fleet-wide
- Propeller coatings save an average of \$34,500 per ship in fuel costs and reduce maintenance needed



DON Alternative Energy Use

By 2020, 50% of total DON energy use for ships, aircraft, tanks, vehicles, and shore installations will come from alternative energy sources.

OPNAV Tactical Efficiencies



RCB-X tested on algae biofuels



Hull coating on DDG 67

Experimental Forward Operating Base



LED Lighting



Solar cooling system



Micro-grid with battery storage



President's Request



“I’m directing the Navy and the Department of Energy and Agriculture to work with the private sector to create advanced biofuels that can power not just fighter jets, but also trucks and commercial airliners.” President Obama at Georgetown University, March 2011







DPA Title III Advanced Drop-In Biofuel

- **Four Commercial Scale Integrated Biorefineries**
 - Produced domestically; non-food feedstock
 - Potential for 170 million gallons of drop-in compatible MILSPEC fuels (F-76, JP-5,8) to start production by 2016
 - \$510M Agency Funding, less than 50% Government cost share
- **Cost-competitive with conventional petroleum without subsidies**
- **Weighted average price in 2013 dollars <\$4/gallon**





Biorefineries

Company	Location	Feedstock	Conversion Pathway	Capacity (MM GPY)
	Gulf Coast	Fats, Oils, and Greases	Hydroprocessed Esters and Fatty Acids (HEFA)	94.0
	South Sioux City, NE	Fats, Oils, and Greases	Hydroprocessed Esters and Fatty Acids (HEFA)	65.8
	Western United States	Municipal Solid Waste	Gasification – Fischer Tröpsch (FT)	17.0
	Lakeview, OR	Woody Biomass	Gasification – Fischer Tröpsch (FT)	16.0



Timeline

