



Building a Foundation for the Green Fleet

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Ship Energy Initiatives – the Quick Wins



Name / Description (Cost Avoidance includes fuel and maintenance)	Cost Avoidance (CA)			Status/Notes
	Pay Back Period		10yr ROI	
Online Gas Turbine Waterwash for GTM and GTG (Ships) ~ 800 bbls / \$136K Per ship per year	< 1yr	DDG51 & CG47	7:1 ROI	Installed on USS PREBLE in Oct 08. Interim Report issued July 2010 on GTG results, which indicated ~ 0.3% fuel savings. GTM report will be issued 4 th qtr FY-11, due to ships ops.
Advanced Underwater Hull Coating System ~ 1880 bbls / \$320K Per ship per year	1yr	DDG51 & CG47	4:1 ROI	Applied to USS PORT ROYAL – data collection started 09-Oct. This data will be compared to control ship USS BUNKER HILL Applied to USS COLE – data collection started 09-Oct, in-process results favorable but waiting for full year of data to compare results to control ship USS GONZALEZ. Final Report due 11-Sept
Stern Flaps (LHD, LSD Ship Classes) ~ 5500 bbls / \$935K Per LHD per year ~ 2083 bbls / \$354K Per LSD per year	< 1yr < 2yrs	LHD LSD	6:1 ROI 3:1 ROI	LHD- Installed on USS KEARSARGE Nov 09 availability— Ship trial planned 11-June LSD- Installed on USS WHIDBEY ISLAND Nov 09 availability – Ship trial schedule is being identified by 2 nd Fleet and Ship.
Combustion Trim Loop ~ 3060 bbls / \$520K Per ship per year	< 1yr	LHD & LHA	30:1 ROI	Installed in USS PELELIU—testing completed and report issued 10-Aug addressing fuel savings. Data indicates a 2% fuel savings as estimated.
Propeller Coating ~ 1860 bbls / \$316K Per ship per year	< 1yr	LHA, LHD & LSD	17:1 ROI	Applied to USS GUNSTON HALL – data collection started 09-Apr; awaiting data from USS ASHLAND, control ship, to determine the increase in propulsion efficiency, scheduled for 10-Nov. Final Report due 11-Mar
SSL Lighting Systems (Amphibs) ~ 500 bbls/\$1.6M Per ship per year	2 yrs	LSD	3:1 ROI	Procurement for Well Deck and Passageway and Berthing Light fixtures underway with delivery Nov 2010. Lights installed on USS IWO JIMA for well deck catwalk. Testing is satisfactory. Demo on LSD 52 scheduled 4 th Qtr FY11
SSL Lighting Systems (CruDes) ~335 bbls/\$1.6M Per ship per year	2 yrs	DDG	3:1 ROI	Installed in USS WAYNE E MEYER data collection underway.
Directional Stability (L-Ships) ~ 4500 bbls/\$900K Per ship per yr	< 1yr	LSD	7:1 ROI	Model testing completed. Drawings and FEA completed and have been submitted to NNSY for approval. Still preparing for installation early FY 11 on planned test ship USS BONHOMME RICHARD.
Smart Voyage Planner ~2-4% fleetwide	< 1yr	All Ships	45:1 ROI	Working with MSC and METOC. Installing at METOC watch station.
High Efficiency Chiller (R-134a) ~ 600 bbls/ship yr	New Construction Only			Continuation of ARRA start - fabrication and demonstration of production capability of military spec high efficiency small capacity chiller
Hybrid Electric Drive ~ 8000 bbls/ship yr	5-10yrs	DDG51 Class	1.5:1 ROI	Motor in final assembly. Converter under unit testing. SCD initiated for USS TRUXTON. Land based testing in mid-2011. At-sea demo in 2012.

DDG 51 Hybrid Electric Drive Proof of Concept

- ✓ Design Complete – December 2009
- ✓ Released for Manufacture – March 2010
- ✓ Motor Testing – August 2010
- ❑ Converter Testing – October 2010
- ❑ Motor-Converter Testing – November 2010
- ❑ System Factory Testing – March 2011
- ❑ Navy Hot Plant Integration Testing – June 2011
- ❑ USS TRUXTUN Installation – January 2012



Risk Reduction for BackFit Production for the Great Green Fleet

Alternate Fuel Testing



