

# Sustainability Innovations



*CAPT John J. Hickey*

# Emergency Load Reduction



# Benefits of ELRP



Incentives



Protect the  
Community



Environmental  
Protection



Protect  
Your  
Operations



# ELRP Incentives





# ELRP Incentives



Hono  
Has  
Money

# Base Honolulu

- Exterior Lighting & Solar Domestic HW





# Base Honolulu

- Photovoltaics & Vending



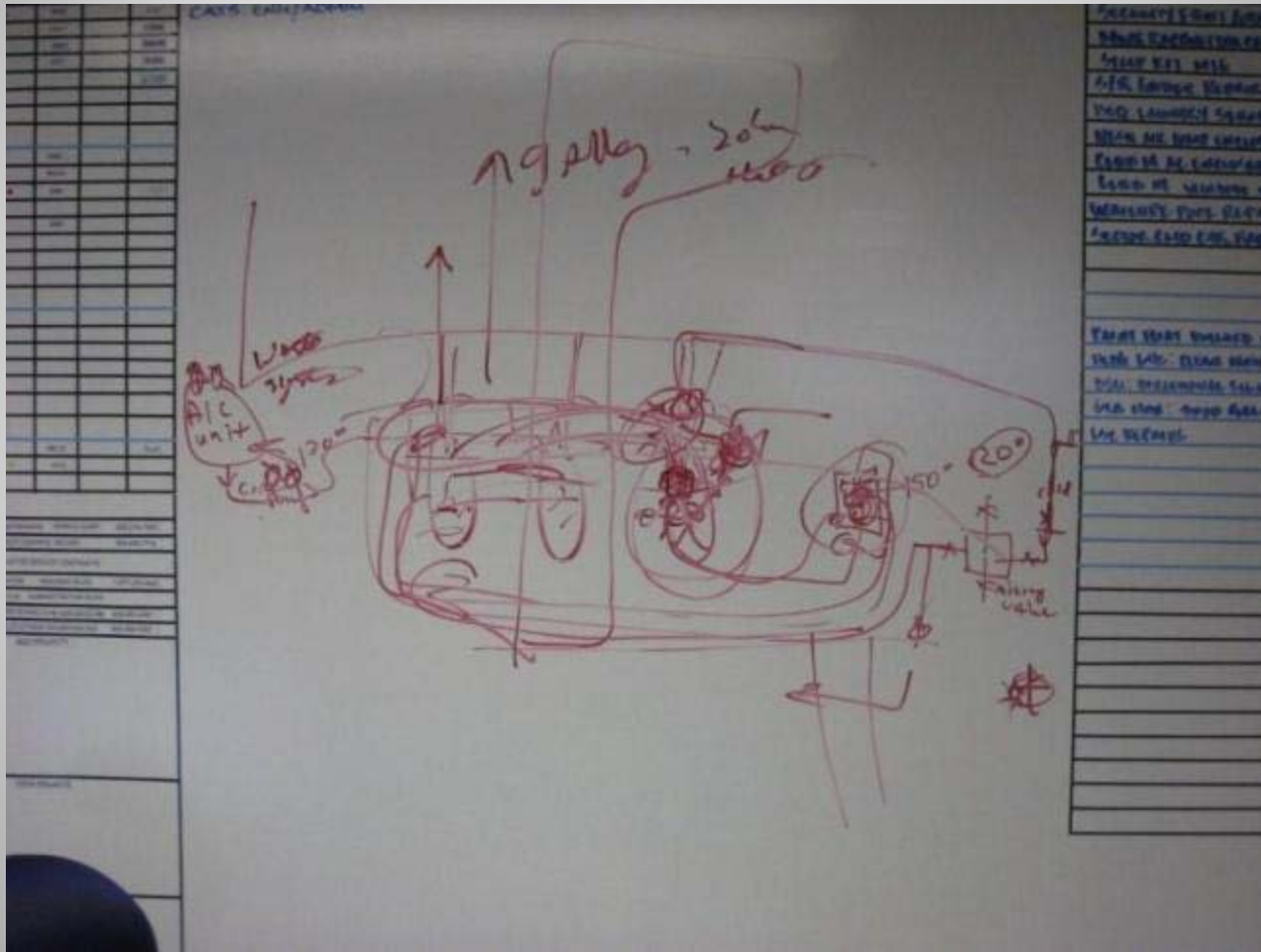


# Base Honolulu

- Conservation Voltage Reg & Cutter Retrofits



# Chiller Waste Heat Recovery





# AIR STATION BARBERS POINT VERTICAL AXIS TURBINE



# Energy Savings Performance Contracts

14 Contracts Awarded  
\$100 Million Invested  
14% Energy Savings



# Kodiak ESPC



# Leadership



*The Integrated Support Command Kodiak Energy Saving Performance Contract Team: (top row) FD&CC Seattle: Bob Mallahan, Project Manager; Kristina Meabon, Contracting Officer; Ed Rockenstine, Senior Contracting Officer  
(bottom row) Enery Gore, National Energy Program Manager, Headquarters; Jesse Maestas, Financial Analyst, Headquarters; Mike Brown, Facility Engineer, ISC Kodiak.*



The U.S. Coast Guard's Integrated Support Command Kodiak, Alaska entered into an energy savings performance contract (ESPC) with NORESKO to install \$20 million in energy efficiency projects. Contracting and administrative support was provided by the Facilities Design and Construction Center Seattle and the Coast Guard's National Energy Program. Facility improvements include lighting retrofits; a centralized steam system and piping system upgrades; variable frequency drives; combustion controls; boiler economizers; various refrigeration and HVAC upgrades; and highly efficient washers, dryers, and water fixtures. These and other measures will result in annual energy and water savings of 81 billion Btu and 49 million gallons.

Integrated Support Command  
Kodiak, AK



YOU HAVE  
the POWER™

U. S. Department of Homeland Security  
Federal Energy Management Program



For more information on how you can get involved in the YOU HAVE the POWER campaign, visit the FEMP Web site at [www.eere.energy.gov/femp](http://www.eere.energy.gov/femp).



# Energy Savings Performance Contracts

## Construction Phase

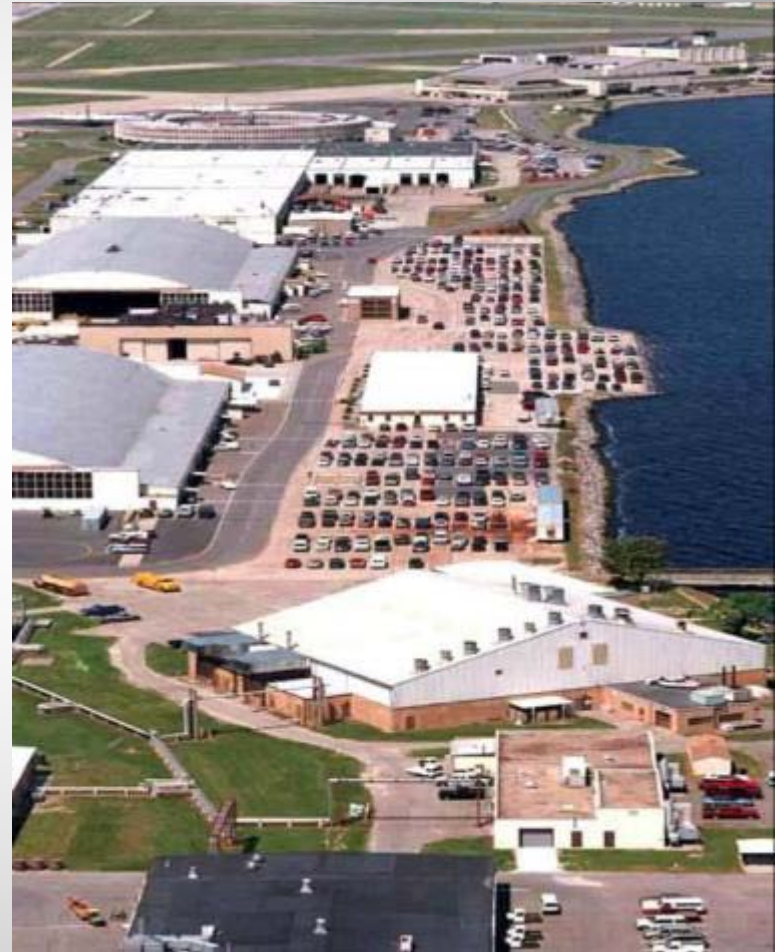
- Sector New York
- USCG Academy



# Energy Savings Performance Contracts

## In Development

- Cape May
- Puerto Rico
- Portsmouth  
Yorktown
- Elizabeth City
- UESC's



# JUNEAU WIND FOR SCHOOLS





# Alaska



**The Saudi Arabia  
of Biomass**

# *Aircraft Hangar Lighting*





# Training Center Petaluma Model Unit





# Petaluma PV PPA



# 1 MW Total Solar Power







# **Sector San Francisco Renewable Energy**



# High Performance Buildings

## Seattle Operations Bldg

### LEED Silver



# High Performance Buildings

25% More Efficient than code



# LEED Silver Housing





# LEED Gold Housing



# LEED Gold Housing



# *High Performance Buildings*

## *Station Marquette – LEED Certified*





# *High Performance Buildings*

*Station Marquette  
LEED Certified*

40% Water Savings



# High Performance Buildings

- Ground Source Heat Pumps

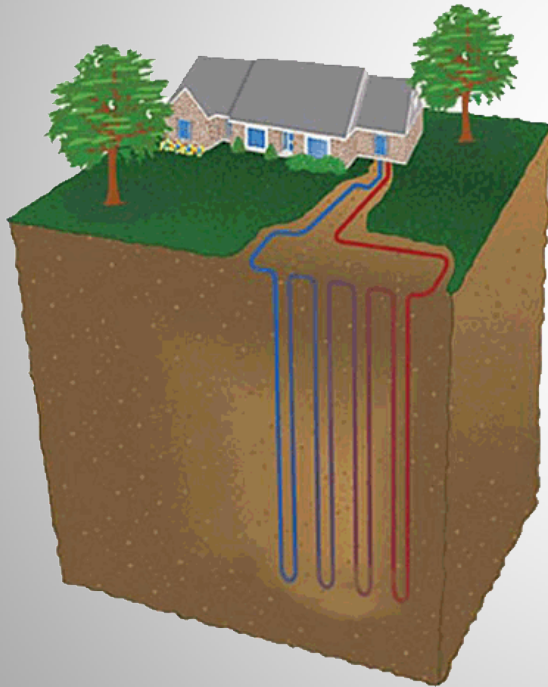


Image courtesy of ClimateMaster



# CUTTER LIGHTING RETROFITS





# Aton Initiatives



# Lighthouse Solarization



# LED Aids to Navigation





# Reliability through Renewables



# Readiness through Renewables







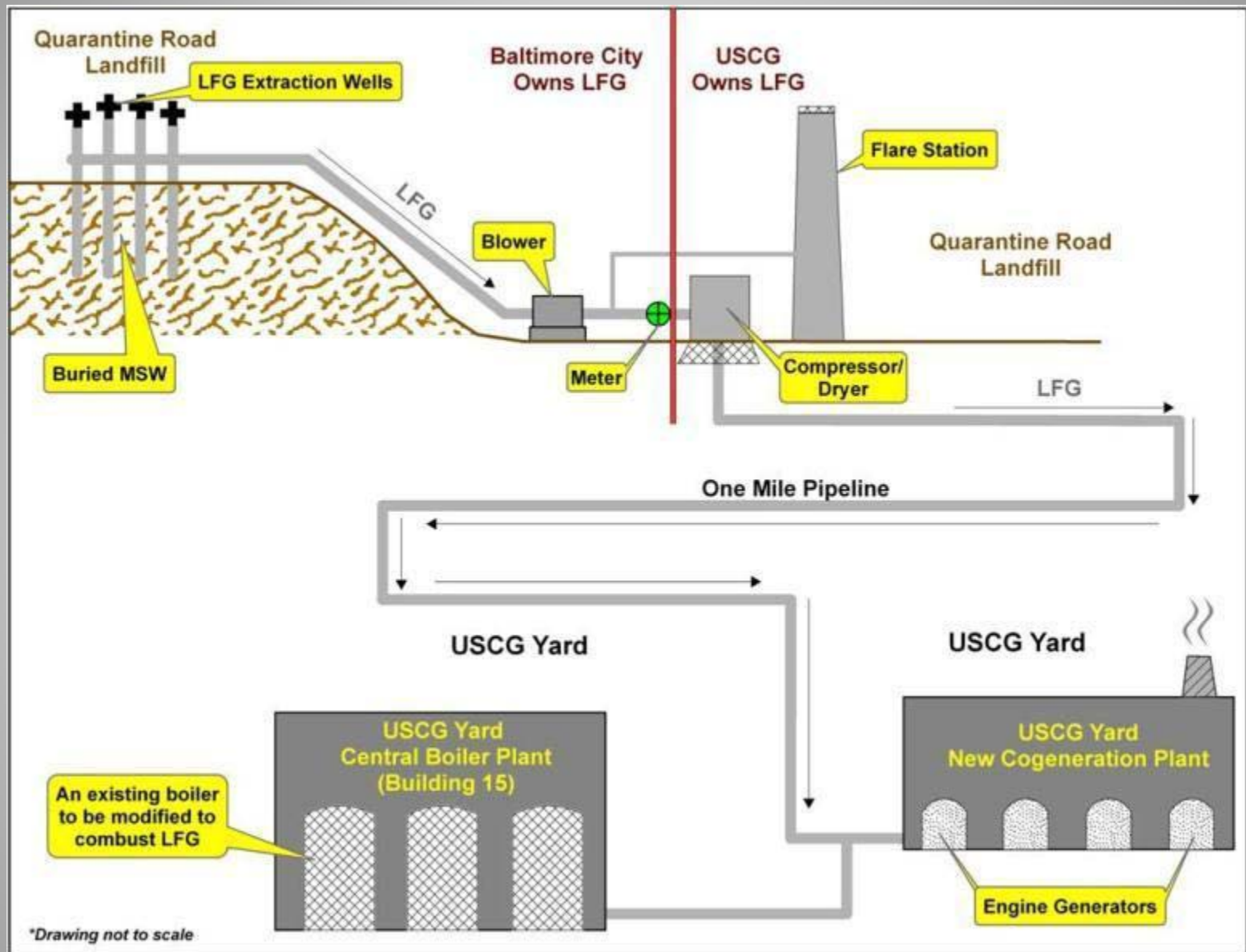
# Rescue 21 Wind Power



# Shipyard Renewable Energy

- Landfill Gas Co-Generation Plant (4 Megawatts)
- 100% Renewable Energy Project
- Operational April 2009







# SOUTHWEST HARBOR HOUSING



# Earth Day 2010





# SOUTHWEST HARBOR HOUSING





# Tidal Energy

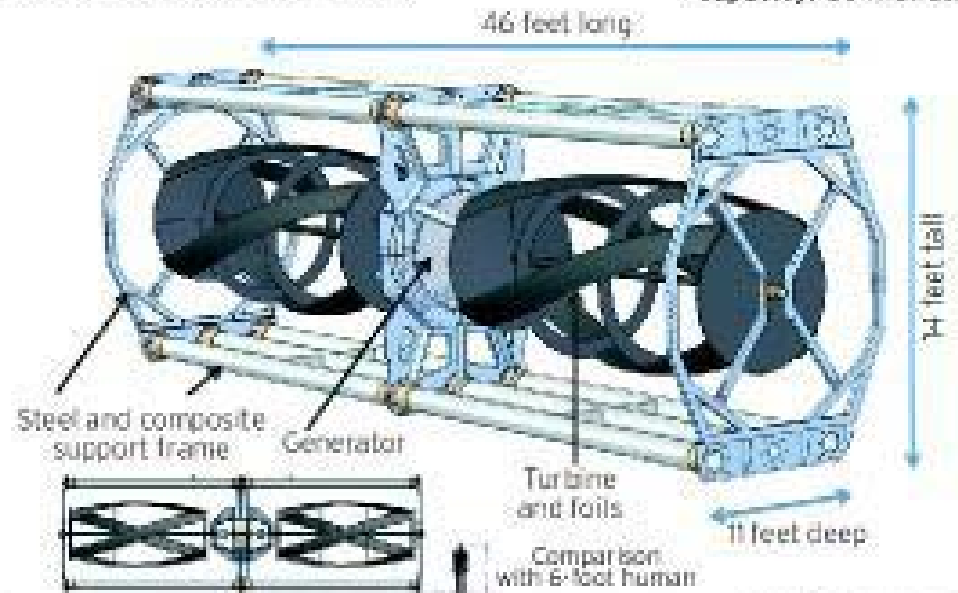


# The Kitty Hawk of Tidal Energy



**Ocean Renewal Power Co.'s Turbine Generator Unit**

Weight: 13 tons  
Maximum design capacity: 60 kilowatts



SOURCE: Ocean Renewal Power Co.

BANGOR DAILY NEWS

# BASE PORTSMOUTH





# USCGA SUSTAINABILTY



# SUSTAINABILITY

GUARDIAN - YOU SAVE LIVES, NOW SAVE A PLANET.



UNITED STATES COAST GUARD  
ENERGY MANAGEMENT PROGRAM



# Renewable Power Tools

**Dan Ingold**



*The Trusted Integrator for Sustainable Solutions*

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# Toolbox Needs

**Know your usage**

**Define your renewable resources**

**Find out what incentives and other help  
is available**

**Try some economic models to determine  
output and savings**



# USCG Utility Bill Access

BSU Alameda – One Month's Natural Gas Bill



# Utility Bill Access Made Easier

Home - Coast Guard Energy Program - CG Portal - Microsoft Internet Explorer provided by USCG

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Address <https://cgportal.uscg.mil/lotus/myquickr/coast-guard-energy-program>


U.S. COAST GUARD

Back to Collaboration Home

Coast Guard Energy Program SEARCH

## Coast Guard Energy Program


Home Efficiency & Renewables Fuel Logistics and Fuel Cards Tracking and Performance Organization Announcements Energy Library Energy Links



HOME

- EFFICIENCY & RENEWABLES  
Energy Sustainability
- FUEL LOGISTICS & FUEL CARDS  
Energy Reliability
- TRACKING & PERFORMANCE  
Resource Accountability
- ORGANIZATION
- ANNOUNCEMENTS
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**DO YOU KNOW YOUR ENERGY CONSUMPTION?**  
CLICK HERE TO FIND OUT



### IN THE NEWS

- \*10/18/10 - Coast Guard Operational Sustainability Performance Plan (OSPP) Available for Download**  
(Click for details)
- \*09/21/10 - Energy Awareness Month Outreach Materials Available for Download!**  
(Click for details)
- \*09/10/10 - FINCEN Utility WebApps available to track energy consumption**  
(Click for details)
- \*09/03/10 - Fuel Card Portal Goes Live!**  
(Click for details)
- \*08/06/10 - Pam Komer receives Federal 2010 Energy Mgmt. Award**  
(Click for details)
- \*08/06/10 - CG Yard Landfill Gas team receives Federal 2010 Energy Mgmt. Award**  
(Click for details)
- \*05/17/10 - DESC Worldwide Conference '10 Presentations Available for Download**  
(Click for details)
- \*05/11/10 - BSU Honolulu Sustainability Featured in TME**  
(Click for details)
- \*05/04/10 - Vice Commandant Unveils Energy Mgmt. Strategy**  
(Click for details)
- \*04/22/10 - USCG Sustainability Highlighted in White House Blog**  
(Click for details)
- \*04/12/10 - USCG Sustainability Poster Available for Download**  
(Click for details)
- \*04/09/10 - Petaluma Solar Array Featured in iCommandant's Blog**  
(Click for details)
- \*04/02/10 - TRACEN Petaluma 875 kW Solar PV Array Goes Live!**  
(Click for details)

**WELCOME!**  
Welcome to the CG-4 Energy Program new Portal Site. This site is continuously being updated with additional information and content. From here, you will be able to access the latest topics, announcements, initiatives and emerging requirements within the Coast Guard Energy Program and find links to other energy related sites throughout the Coast Guard.

You will note that the Energy Program has three major components,



Local Intranet

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FINCEN Utility Portal - Windows Internet Explorer provided by URS Denver

https://cgweb.fincen.uscg.mil/shoreenergy/

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FINCEN Utility Portal

U.S. Coast Guard  
**Finance Center Intranet**  
...Providing business solutions to enhance mission execution now and into the future.

U.S. DEPARTMENT OF HOMELAND SECURITY

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**USCG FINCEN Utility Portal**



**Consumption Data Search**



**Detailed Data Query**



**Submit a Problem Report**

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https://cgweb.fincen.uscg.mil/shoreenergy/

# U.S. Coast Guard Finance Center Intranet

...Providing business solutions to enhance mission execution now and into the future.



## USCG FINCEN Utility Portal ~ Consumption Data Search

Use this query to pull utility consumption data and view invoice images in either HTML or MS Excel format by Utility Type, Account Number, OPFAC, Cost Center and Date Range. The Utility Type and Date Range fields are mandatory. To increase query performance, please enter as many variables as possible.

<b>*Utility Type:</b>	<input type="text"/>
<b>Account No.:</b>	<input type="text"/>
<b>OPFAC:</b>	<input type="text"/>
<b>Cost Center:</b>	<input type="text"/>
<b>*Date Range:</b>	From Date: <input type="text"/> To Date: <input type="text"/>

HTML  Excel

\* Required field

Browser address bar: <https://cgweb.fincen.uscg.mil/shoreenergy/cons1.cfm>

Navigation: File Edit View Favorites Tools Help

Search:

U.S. Coast Guard Finance Center Intranet (cgweb.fin...)

**U.S. Coast Guard Finance Center Intranet**  
 ...Providing business solutions to enhance mission execution now and into the future.

Home Apps/Reports Publications User Tools Site Map About FINCEN



**USCG FINCEN Utility Portal ~ Consumption Data Search**

Util Type	Invoice Date	Account No.	OPFAC	CostCtr	Vendor Name	Service Location Address	Unit Name	City	State	Usage	Units	Amount	ViewDoc
NatGas	10/26/09	0010948332	47500	52145	PACIFIC GAS AND ELECTRIC COMPANY	EAGLE & HUDSON	USCG INTEGRATED SUPPORT COMMAND ALAMEDA	ALAMEDA	CA	6310.27933	TD - THERMS	5507.47	
NatGas	11/24/09	0010948332	47500	52145	PACIFIC GAS AND ELECTRIC COMPANY	EAGLE & HUDSON	USCG INTEGRATED SUPPORT COMMAND ALAMEDA	ALAMEDA	CA	15304.22460	TD - THERMS	14409.41	
NatGas	12/28/09	0010948332	47500	52145	PACIFIC GAS AND ELECTRIC COMPANY	EAGLE & HUDSON	USCG INTEGRATED SUPPORT COMMAND ALAMEDA	ALAMEDA	CA	33117.41791	TD - THERMS	28297.28	
NatGas	01/26/10	0010948332	47500	52145	PACIFIC GAS AND ELECTRIC COMPANY	EAGLE & HUDSON	USCG INTEGRATED SUPPORT COMMAND ALAMEDA	ALAMEDA	CA	34569.34468	TD - THERMS	31284.66	
NatGas	02/25/10	0010948332	47500	52145	PACIFIC GAS AND ELECTRIC COMPANY	EAGLE & HUDSON	USCG INTEGRATED SUPPORT COMMAND ALAMEDA	ALAMEDA	CA	27757.13716	TD - THERMS	27064.06	
NatGas	03/30/10	0010948332	47500	52145	PACIFIC GAS AND ELECTRIC COMPANY	EAGLE & HUDSON	USCG INTEGRATED SUPPORT COMMAND ALAMEDA	ALAMEDA	CA	26495.18538	TD - THERMS	19854.34	
NatGas	04/28/10	0010948332	47500	52145	PACIFIC GAS AND ELECTRIC COMPANY	EAGLE & HUDSON	USCG INTEGRATED SUPPORT COMMAND ALAMEDA	ALAMEDA	CA	21891.29707	TD - THERMS	18568.26	
NatGas	05/26/10	0010948332	47500	52145	PACIFIC GAS AND ELECTRIC COMPANY	EAGLE & HUDSON	USCG INTEGRATED SUPPORT COMMAND ALAMEDA	ALAMEDA	CA	3.45860	TD - THERMS	13065.86	
NatGas	06/27/10	0010948332	47500	52145	PACIFIC GAS AND ELECTRIC COMPANY	EAGLE & HUDSON	USCG INTEGRATED SUPPORT COMMAND ALAMEDA	ALAMEDA	CA	11175.75952	TD - THERMS	9368.00	
NatGas	07/27/10	0010948332	47500	52145	PACIFIC GAS AND ELECTRIC COMPANY	EAGLE & HUDSON	USCG INTEGRATED SUPPORT COMMAND ALAMEDA	ALAMEDA	CA	6747.99283	TD - THERMS	5996.42	
NatGas	08/27/10	0010948332	47500	52145	PACIFIC GAS AND ELECTRIC COMPANY	EAGLE & HUDSON	USCG INTEGRATED SUPPORT COMMAND ALAMEDA	ALAMEDA	CA	7154.78356	TD - THERMS	6580.32	
NatGas	09/27/10	0010948332	47500	52145	PACIFIC GAS AND ELECTRIC COMPANY	EAGLE & HUDSON	USCG INTEGRATED SUPPORT COMMAND ALAMEDA	ALAMEDA	CA	5925.52501	TD - THERMS	5506.76	
NatGas	10/26/09	9885947700	47500	52145	PACIFIC GAS AND ELECTRIC COMPANY	GOVT ISLAND TRAINING CENTER	USCG INTEGRATED SUPPORT COMMAND ALAMEDA	ALAMEDA	CA	39.23694	TD - THERMS	38.61	
NatGas	11/24/09	9885947700	47500	52145	PACIFIC GAS AND ELECTRIC COMPANY	GOVT ISLAND TRAINING CENTER	USCG INTEGRATED SUPPORT COMMAND ALAMEDA	ALAMEDA	CA	38.14985	TD - THERMS	42.23	
NatGas	12/28/09	9885947700	47500	52145	PACIFIC GAS AND ELECTRIC COMPANY	GOVT ISLAND TRAINING CENTER	USCG INTEGRATED SUPPORT COMMAND ALAMEDA	ALAMEDA	CA	41.37520	TD - THERMS	43.96	
NatGas	01/26/10	9885947700	47500	52145	PACIFIC GAS AND ELECTRIC COMPANY	GOVT ISLAND TRAINING CENTER	USCG INTEGRATED SUPPORT COMMAND ALAMEDA	ALAMEDA	CA	48.64448	TD - THERMS	54.13	
NatGas	02/25/10	9885947700	47500	52145	PACIFIC GAS AND ELECTRIC COMPANY	GOVT ISLAND TRAINING CENTER	USCG INTEGRATED SUPPORT COMMAND ALAMEDA	ALAMEDA	CA	41.40568	TD - THERMS	48.14	



**Department of Homeland Security  
Renewable Energy Resource  
Assessment**

**Prepared for Paul Fennewald  
Energy Manager  
Department of Homeland Security**

*Prepared by Robi Robichaud  
Federal Energy Management Program at the  
National Renewable Energy Laboratory*

*December 28, 2005*

**Ranking of  
Solar, Wind,  
Biomass, and  
Geothermal  
Resources**

Table 1 Compilation of USCG renewable energy resources

*Active USCG sites ranked for overall renewable energy resource availability*

ATU OFFAC	NREL Recno	Active Station	NAME	Latitude	Longitude	City	State	Wind	Solar fixed tilt	Solar horizontal	Solar vertical	Biomass	Geothermal	Total Renewable Resource Assessment
14-30143	3759	Y	CG STA MAUI	20.8	-156.5	WAILUKU	HI	20	16	16	0	0	8	60
08-40115	2442	Y	CG LORSTA LAS CRUCES	32.1	-106.7	LA MESA	NM	0	20	16	8	0	16	60
11-40137	2468	Y	CG LORSTA SEARCHLIGHT	35.5	-114.9	SEARCHLIGHT	NV	0	20	16	12	0	12	60
46-68160	2917	Y	CG RUITOFF ALBUQUERQUE	35.1	-106.6	ALBUQUERQUE	NM	0	20	16	12	0	12	60
46-68174	3065	Y	CG RUITOFF PHOENIX	33.5	-112.1	PHOENIX	AZ	0	20	16	12	0	12	60
08-40115	2428	Y	CG LORSTA BOISE CITY	36.6	-102.8	FELT	OK	4	16	12	8	0	12	52
11-30670	3752	Y	CG STA LAKE TAHOE	39.2	-120.1	TAHOE CITY	CA	0	16	12	8	0	16	52
11-40139	2434	Y	CG LORSTA FALLON	39.5	-118.8	FALLON	NV	0	16	12	8	0	16	52
11-40141	2445	Y	CG LORSTA MIDDLETOWN	38.8	-122.6	MIDDLETOWN	CA	0	16	12	8	0	16	52
21-32460	524	Y	CG CAMSPAC SAN FRAN	38.1	-122.8	PT REYES STA	CA	0	16	12	8	0	16	52
33-51252	2819	Y	378 WHEC MAT-ALAMEDA	37.8	-122.3	ALAMEDA	CA	0	16	12	8	0	16	52
33-53740	1326	Y	CG ESD PETALUMA	38.2	-122.7	PETALUMA	CA	0	16	12	8	0	16	52
58-34360	3919	Y	CG PACIFIC STRIKE TEAM	38.1	-122.5	NOVATO	CA	0	16	12	8	0	16	52
01-33130	2521	Y	CG MID NEW YORK	40.7	-74.0	NEW YORK	NY	4	8	4	4	20	8	48
01-36222	1462	Y	CG GROUP NEW YORK	40.7	-74.0	NEW YORK	NY	4	8	4	4	20	8	48
01-41855	4378	Y	CG VTR NEW YORK	40.7	-74.0	GOVERNORS ISL	NY	4	8	4	4	20	8	48
32-45000	4037	Y	CPRO GOVERNORS ISLAND	40.7	-74.0	NEW YORK	NY	4	8	4	4	20	8	48
44-68129	3044	Y	CG RUITOFF NEW YORK	40.7	-74.0	NEW YORK	NY	4	8	4	4	20	8	48
47-77103	692	Y	CGIS DET NEW YORK	40.7	-74.0	NEW YORK	NY	4	8	4	4	20	8	48
11-30462	3705	Y	CG STA BODEGA BAY	38.3	-123.1	BODEGA BAY	CA	8	12	8	4	0	16	48
14-31250	497	Y	CG BASE HONOLULU	21.3	-157.9	HONOLULU	HI	8	16	16	0	0	8	48
14-37340	3305	Y	SEC HONO ADMIN PERS DIV	21.3	-157.9	HONOLULU	HI	8	16	16	0	0	8	48
14-40301	2865	Y	CG OMSTA HAWAII	21.5	-157.9	KANEHOHE	HI	8	16	16	0	0	8	48
14-41990	213	Y	CG ANT HONOLULU	21.3	-157.9	HONOLULU	HI	8	16	16	0	0	8	48
21-34268	2791	Y	MSST 91107 HONOLULU	21.3	-157.9	HONOLULU	HI	8	16	16	0	0	8	48
33-47810	2102	Y	CG ISC HONOLULU	21.3	-157.9	HONOLULU	HI	8	16	16	0	0	8	48
33-51238	1369	Y	CG EMD ALAMEDA	37.8	-122.3	ALAMEDA	CA	0	12	12	8	0	16	48
33-51230	1370	Y	CG EMD HONOLULU	21.3	-157.9	HONOLULU	HI	8	16	16	0	0	8	48
33-51254	2820	Y	378 WHEC MAT-HONOLULU	21.3	-157.9	HONOLULU	HI	8	16	16	0	0	8	48
33-53600	1411	Y	ESU Honolulu	21.3	-157.9	HONOLULU	HI	8	16	16	0	0	8	48
47-77100	693	Y	CGIS DET PETALUMA	38.2	-122.7	PETALUMA	CA	0	16	12	4	0	16	48
11-20170	140	Y	AIRSTA SAN DIEG PERSRU	32.7	-117.2	SAN DIEGO	CA	0	16	12	8	0	12	48
11-20253	160	Y	CG AIRSTA LOS ANGELES	33.9	-118.4	LOS ANGELES	CA	0	16	12	8	0	12	48
11-30888	3792	Y	CG STA SAN DIEGO	32.7	-117.2	SAN DIEGO	CA	0	16	12	8	0	12	48
11-33255	2710	Y	CG MSO SAN DIEGO	32.7	-117.2	SAN DIEGO	CA	0	16	12	8	0	12	48
11-36261	1557	Y	Group San Diego	32.7	-117.2	SAN DIEGO	CA	0	16	12	8	0	12	48
11-37250	3545	Y	SEC SAN DIEGO ADMIN PERS DIV	32.7	-117.2	SAN DIEGO	CA	0	16	12	8	0	12	48
11-41982	241	Y	CG ANT SAN DIEGO	32.7	-117.2	SAN DIEGO	CA	0	16	12	8	0	12	48
11-73135	112	Y	CG ACTIVITIES SAN DIEGO	32.7	-117.2	SAN DIEGO	CA	0	16	12	8	0	12	48
21-34269	2793	Y	MSST 91109 SAN DIEGO	32.7	-117.2	SAN DIEGO	CA	0	16	12	8	0	12	48
21-34301	4100	Y	CG PACARPA TABLET	32.7	-117.2	SAN DIEGO	CA	0	16	12	8	0	12	48
21-34404	520	Y	CG UNIT C31 CTR WEST	33.9	-117.3	MARCH AFB	CA	0	16	12	8	0	12	48
21-83101	1600	Y	NCWGRU ONE	32.7	-117.2	SAN DIEGO	CA	0	16	12	8	0	12	48
21-83110	1590	Y	CGBU HCU 110	32.7	-117.2	SAN DIEGO	CA	0	16	12	8	0	12	48
33-53720	1360	Y	ESD SAN DIEGO	32.7	-117.2	SAN DIEGO	CA	0	16	12	8	0	12	48
46-68175	3097	Y	CG RUITOFF SAN DIEGO	32.8	-117.2	SAN DIEGO	CA	0	16	12	8	0	12	48
46-68176	3081	Y	CG RUITOFF RIVERSIDE	34.1	-117.3	COLTON	CA	0	16	12	8	0	12	48
47-77100	687	Y	CGIS DET LALB	33.7	-118.3	SAN PEDRO	CA	0	16	12	8	0	12	48
47-77100	693	Y	CGIS DET HONOLULU	21.3	-157.9	HONOLULU	HI	0	16	16	8	0	8	48

# Renewable Energy Assessment 20 Great Lakes USCG Facilities

Consolidated CG Airsta Traverse City RA.pdf (SECURED) - Adobe Reader

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1 / 41 55.7% Find

**Renewable Energy Resource  
Assessment Reports for a Select  
Group of Coast Guard Federal Facilities**





**United States Coast Guard  
Coast Guard Air Station Traverse City  
Traverse City, MI**

Prepared for:  
Bob Deering  
Environmental & Energy Branch Chief  
USCG - Civil Engineering Unit Juneau

Prepared by:  
Craig Hustwit  
Terri DeMicco  
Charles Harlinski  
Edd Bills  
Kate Anderson

August 2010

U.S. Department of Energy

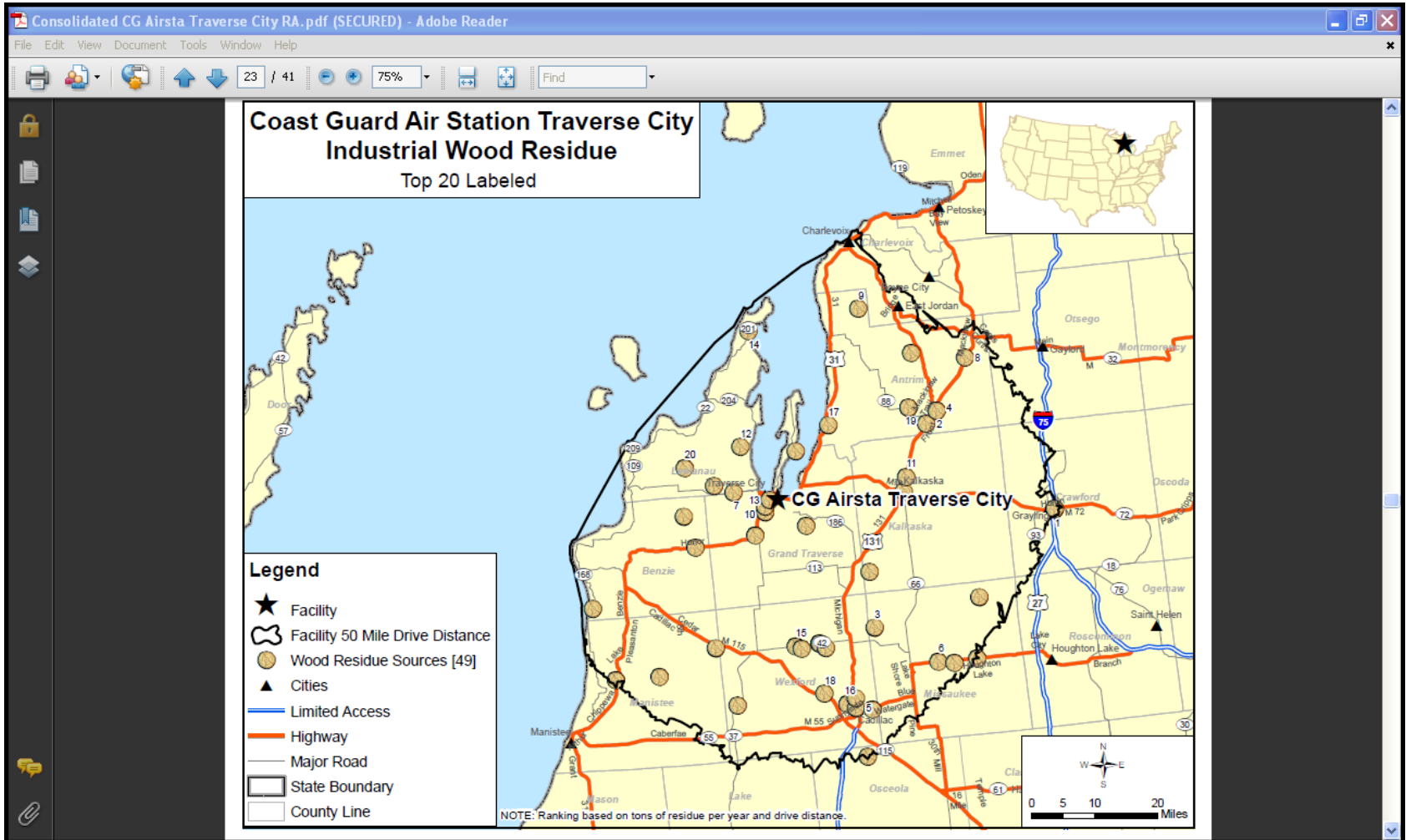


# Ranking of Renewable Energy Resources

	Sources	Estimated MMBTU	Sources	Estimated MMBTU	Sources	Estimated MMBTU	Estimated Wood Residue (Green Tons / Year)		kWh/m <sup>2</sup> /day
Coast Guard Air Station Traverse City	2	23,924	1	7,878	49	303,615	112,450	Marginal / Fair	4.00 - 4.25
Coast Guard Base Sault Ste Marie	0	n/a	2	61,167	4	28,431	10,530	Marginal	4.00 - 4.25
Coast Guard Marine Safety Office Detroit	15	Unknown	2	283,595	128	687,960	254,800	Marginal	4.00 - 4.25
Coast Guard Station Calumet Harbor	6	1,734,140	6	1,559,530	243	2,585,115	957,450	Marginal	4.25 - 4.50
Coast Guard Station Charlevoix	1	9,944	0	n/a	32	251,667	93,210	Fair	4.00 - 4.25
Coast Guard Station Erie	1	232,525	1	63,577	55	398,034	147,420	Fair / Good	4.00 - 4.25
Coast Guard Station Fairport	1	124,331	3	27,525	102	572,130	211,900	Good	4.00 - 4.25
Coast Guard Station Frankfort	0	n/a	0	n/a	25	77,220	28,600	Good / Excellent	4.00 - 4.25
Coast Guard Station Grand Haven	2	132,872	1	6,182	91	951,210	352,300	Good / Excellent	4.00 - 4.25
Coast Guard Station Harbor Beach	0	n/a	3	53,623	8	15,795	5,850	Fair	4.00 - 4.25
Coast Guard Station Ludington	0	n/a	2	21,779	17	55,809	20,670	Good / Excellent	4.00 - 4.25
Coast Guard Station Manistee	1	30,295	0	n/a	26	96,876	35,880	Good	4.00 - 4.25
Coast Guard Station Marquette	2	27,481	1	5,746	20	209,898	77,740	Fair	<4.00
Coast Guard Station Michigan City	3	508,161	2	17,609	99	1,025,973	379,990	Fair	4.00 - 4.25
Coast Guard Station Port Huron	1	33,882	1	18,536	35	195,858	72,540	Marginal	4.00 - 4.25
Coast Guard Station Portage	0	n/a	5	262,093	30	113,022	41,860	Marginal	4.00 - 4.25
Coast Guard Station Rochester	1	23,178	4	166,357	39	131,978	48,880	Marginal	4.00 - 4.25
Coast Guard Station Sheboygan	2	341	1	17,043	48	365,391	135,330	Marginal	4.25 - 4.50
Coast Guard Station St Ignace	0	n/a	1	12,836	16	162,864	60,320	Fair	<4.00
Coast Guard Station St Joseph	1	35,053	2	23,448	67	651,456	241,280	Good	4.00 - 4.25

# Traverse City

## Local Industrial Wood Residue





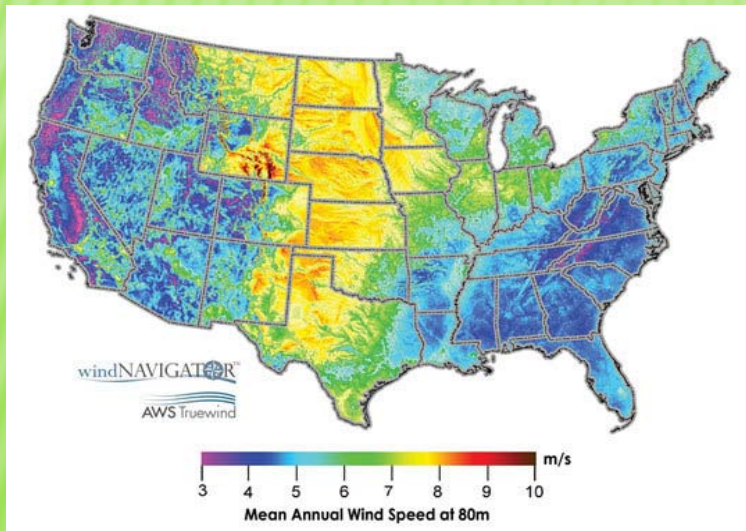
# Green Guardian

*Effect culture and policy change for a greener Coast Guard*

## A: Implement sustainable electricity generation

### Wind

Identify locations throughout CG with fastest payback  
Complete design, initiate permitting, advocate for funding







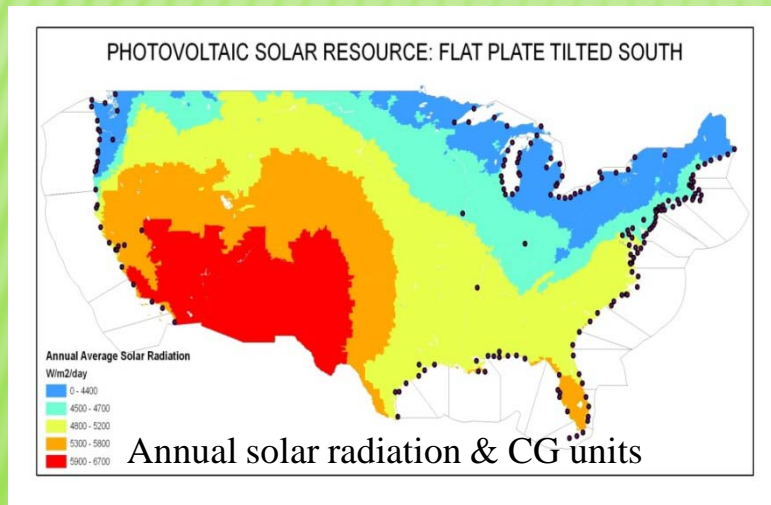
# Green Guardian

*Effect culture and policy change for a greener Coast Guard*

## A: Implement sustainable electricity generation

### Solar

Identify locations throughout CG with fastest payback  
Complete design, advocate for funding





# Green Guardian

Effect culture and policy change for a greener Coast Guard

## B: Save \$ and reduce energy use through healthy competition

### Energy policy recommendations:

- Send units their energy bills
- Meter cutters separately
- Send comparative energy reports
- Reward reduced energy usage

District	Station	City/State
1	Southwest Harbor	Southwest Harbor, ME

<b>2008 Consumption (kWh)</b>	580760
<b>2009 Consumption (kWh)</b>	614340
<b>Square Footage</b>	25000
<b>Avg. kWh/sqft/Year</b>	23.9

### Electricity Consumption Comparative Scale





# Green Guardian

Effect culture and policy change for a greener Coast Guard

## B: Save \$ and reduce energy use through healthy competition

### Energy policy issues:

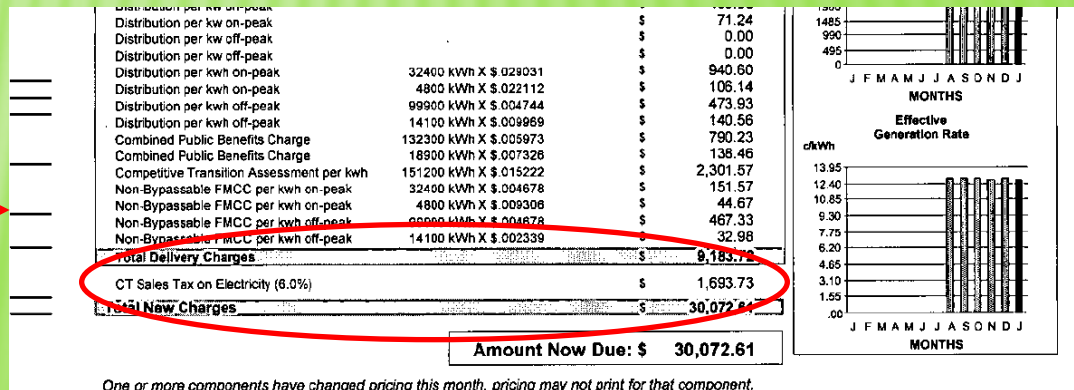
Only about half of energy bills are available

Lower some utility rates simply by asking!

CG pays sales tax on about 5% of energy bills

SEC Long Island Sound Electric bill, FEB09

\$18k in sales tax/year





# WIND POWER SITING, INCENTIVES, AND WILDLIFE GUIDELINES IN THE UNITED STATES



*Wind Farm – Sherman County, OR*



[http://www.fishwildlife.org/Science\\_research/AFWA Wind Power Final Report.PDF](http://www.fishwildlife.org/Science_research/AFWA_Wind_Power_Final_Report.PDF)

# FLORIDA

## BACKGROUND

Contact: Julie Rowland, Legislative Affairs Office, Florida Fish & Wildlife Conservation Commission, 850-487-3795, julie.rowland@MyFWC.com, 620 South Meridian Street, Tallahassee, FL 32399-1600

Installed Utility Scale Wind Power: None

## INCENTIVES FOR WIND DEVELOPMENT

**Renewable Portfolio Standard:** Florida does not have an RPS standard in place, but in July, 2007 Florida Governor Charlie Crist signed Executive Order 07-127, entitled "Immediate Actions to Reduce Greenhouse Gas Emissions within Florida". The executive order establishes reduction targets for Greenhouse Gas emissions and requests that the Florida Public Service Commission initiate rulemaking by September 1, 2007 to require that utilities produce at least 20% of their electricity from renewable sources with a strong focus on solar and wind energy.

### **Incentives for Industrial or "Big Wind" Production:**

Florida Renewable Energy Production Tax Credit is a corporate tax credit of \$.01/kWh for production of renewable energy (including wind) that is sold to an unrelated buyer.

### **Incentives for Residential and "Small Wind" Production:**

The Renewable Energy Technologies Grants Program provides renewable energy matching grants for demonstration, commercialization, research, and development projects relating to renewable energy technologies. Eligible recipients (must be in-state) include municipalities and county governments; businesses; universities and colleges; utilities; not-for-profit organizations; and other qualified entities; ranking criteria for grant awards includes availability of matching funds, economic development potential, technical feasibility, innovation, long-term production potential, and public visibility, among others.

### **Interconnection and Net Metering Standards:**

Current interconnection and net-metering only applies to photovoltaic systems.

## ENERGY SITING PROCESS

**Power Siting Authority:** There is not significant wind power potential at this time, so no current regulations and local governments would most likely have jurisdiction for small scale projects. Florida DEP, Siting Coordination Office has broad authorities for certification of power plants - these are currently defined as traditional as well as solar power plants 75 MW or greater. Should utility scale wind power opportunities increase, this would be the most likely authority.

**Reviews  
incentives as  
well as any  
state wildlife  
regulations for  
siting wind  
turbines**

# Database of State Incentives for Renewables and Efficiency

DSIRE: DSIRE Home - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://www.dsireusa.org/

Most Visited Getting Started Latest Headlines

DSIRE: DSIRE Home

**DSIRE**<sup>TM</sup>  
Database of State Incentives for Renewables & Efficiency

U.S. DEPARTMENT OF ENERGY Energy Efficiency & Renewable Energy  
North Carolina Solar Center  
IREC

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**DSIRE SOLAR**  
solar policy information

DSIRE is a comprehensive source of information on state, local, utility and federal incentives and policies that promote renewable energy and energy efficiency. Established in 1995 and funded by the U.S. Department of Energy, DSIRE is an ongoing project of the N.C. Solar Center and the Interstate Renewable Energy Council.

Choose one or both databases:  
 Renewable Energy  Energy Efficiency

Federal Incentives

**Resources**

- Summary Maps
- Summary Tables
- Library
- Search
- What's New?

**myDSIRE**  
customize DSIRE for your organization

Click on State

Done



# DSIRE.ORG

DSIRE: Incentives/Policies by State: Florida: Incentives/Policies for Renewables & Efficiency - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://www.dsireusa.org/incentives/index.cfm?re=1&ee=1&spv=0&st=0&srp=1&state=FL

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DSIRE: Incentives/Policies by State: ...



**DSIRE**<sup>TM</sup>

Database of State Incentives for Renewables & Efficiency

ENERGY Energy Efficiency & Renewable Energy  
North Carolina Solar Center  
IREC

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**FLORIDA**  
Incentives/Policies for Renewables & Efficiency

[Printable Version](#)

**DSIRE SOLAR**  
solar policy information

**Resources**

- Summary Maps
- Summary Tables
- Library
- Search
- What's New?

**myDSIRE**  
customize DSIRE for your organization

**Financial Incentives**

**Green Building Incentive**

- [Miami-Dade County - Green Buildings Expedite Process](#)
- [Volusia County - Green Building Program](#)

**Industry Recruitment/Support**

- [Capital Investment Tax Credit for Clean Energy](#)
- [Miami-Dade County - Targeted Jobs Incentive Fund](#)

**Local Loan Program**

- [Sarasota County - Get Energy Smart Retrofit Loan Program](#)

**Local Rebate Program**

- [Orange County - OCHEEP!](#)
- [Sarasota County - Get Energy Smart Retrofit Program](#)

**Other Incentive**

- [Lake Land Electric - Solar Water Heating Program](#)

**PACE Financing**

- [Local Option - Special District](#)

**Performance-Based Incentive**

- [Gainesville Regional Utilities - Solar Feed-In Tariff](#)
- [Orlando Utilities Commission - Pilot Solar Programs](#)

**Sales Tax Incentive**

- [Solar Energy Systems Equipment Sales Tax Exemption](#)

**Utility Grant Program**

- [City of Tallahassee Utilities - Low-Income Energy Efficiency Grant Programs](#)
- [Orlando Utilities Commission - Home Energy Efficiency Fix-Up Program](#)

**Utility Loan Program**

- [City of Tallahassee Utilities - Efficiency Loans](#)
- [City of Tallahassee Utilities - Solar Loans](#)
- [City Electric Cooperative, Inc - Energy Conservation Loans](#)
- [City Electric Cooperative, Inc - Solar Thermal Loans](#)
- [Gainesville Regional Utilities - Low-Income Energy Efficiency Loan Program](#)
- [Orlando Utilities Commission - Residential Solar Loan Program](#)

# Net Metering Example

Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://www.dsireusa.org/incentives/incentive.cfm?Incentive\_Code=FL19R&re=1&ee=1

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http://www.dsire...FL19R&re=1&ee=1

**DSIRE™** U.S. DEPARTMENT OF ENERGY Energy Efficiency & Renewable Energy  
North Carolina Solar Center IREC

Database of State Incentives for Renewables & Efficiency

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**DSIRE SOLAR** solar policy information

**FLORIDA** Incentives/Policies for Renewables & Efficiency

Printable Version

**Resources**

- Summary Maps
- Summary Tables
- Library
- Search
- What's New?

**myDSIRE** customize DSIRE for your organization

**Florida - Net Metering**

Last DSIRE Review: 02/01/2010

**Program Overview:**

State:	Florida
Incentive Type:	Net Metering
Eligible Renewable/Other Technologies:	Solar Thermal Electric, Photovoltaics, Wind, Biomass, Hydroelectric, Geothermal Electric, CHP, Cogeneration, Hydrogen, Small Hydroelectric, Tidal Energy, Wave Energy, Ocean Thermal
Applicable Sectors:	Commercial, Industrial, Residential, Nonprofit, Schools, Local Government, State Government, Tribal Government, Fed. Government, Agricultural, Institutional
Applicable Utilities:	Investor-owned utilities
System Capacity Limit:	2 MW
Aggregate Capacity Limit:	No limit specified
Net Excess Generation:	Credited to customer's next bill at retail rate; excess reconciled annually at avoided-cost rate
REC Ownership:	Customer owns RECs
Meter Aggregation:	Not allowed
Authority 1:	25-6.065, F.A.C.
Date Enacted:	3/19/2008
Date Effective:	4/7/2008
Authority 2:	Fla. Stat. § 366.91
Date Enacted:	6/25/2008
Date Effective:	07/01/2008

**Summary:**

# PV Watts (NREL)

PVWATTS v. 1 - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://redc.nrel.gov/solar/calculators/PVWATTS/version1/

Most Visited Getting Started Latest Headlines

PVWATTS v. 1

## PV Watts

A Performance Calculator  
for  
Grid-Connected PV Systems

---


### Version 1

PVWATTS v. 1 can be used for locations accessible through links on the [map](#) below, or through a [text list](#) for U.S. sites, or for sites outside the US, through text lists by region. Researchers at the National Renewable Energy Laboratory developed PVWATTS to permit non-experts to quickly obtain performance estimates for grid-connected PV systems.

Also available is an option to output [hourly performance data](#). This option can be run after the initial calculation, and outputs the data in a separate browser window. Instructions for saving the output to a text file can be accessed through the "Help" link at the top of the hourly output page.

#### The US & Its Territories

To start the calculator, click on a state, or choose a state from the [list of States and Territories](#).



Legend:  
15,000 h / 18,000 h  
12,000 h / 15,000 h  
9,000 h / 12,000 h  
6,000 h / 9,000 h  
3,000 h / 6,000 h  
Sea Level

#### Regions Outside the US

To start the calculator, select the appropriate region, choose a country-city pair from the region drop-down menu, and click

\*Name PVWATTS For International Site\*

For a list of country/province abbreviations click [here](#).

- Africa  
EGY Aswan
- Asia  
ARE Abu Dhabi
- Canada  
AL Calgary
- Central America & Caribbean  
BLZ Belize Intl Airport
- Europe  
AUT Graz
- South America  
ARG Buenos Aires

Pick the State and click on it



# Pick the closest location

The screenshot shows a Mozilla Firefox browser window with the URL <http://nrel.gov/solar/calculators/PVWATTS/version1/US/Florida/>. The page title is "PVWATTS: Florida".

The main content area features the "PVWatts" logo and the following text: "Click on the site where you want to use PVWATTS to calculate the electrical energy produced. Choose the site nearest to your location that has similar topography. If near a site border, you may wish to choose site location in the adjacent state."

Below this text is a map of Florida titled "Florida" with several location markers. A red arrow points to the marker for "TAMPA". A legend to the right of the map shows elevation ranges: 0-1000 ft, 1000-2000 ft, 2000-3000 ft, 3000-4000 ft, 4000-5000 ft, and Sea Level.

Below the map, it says "Adjacent States:" followed by links for [Alabama](#) and [Georgia](#).

In the bottom left corner, there is a link: [Return to NREL Home Page \(http://nrel.gov/\)](#).

At the bottom center of the image, the word "Tampa" is written in a large, green, serif font.

# PV Mounting



# Input the type and size of PV System

The screenshot shows the PVWATTS calculator interface in a Mozilla Firefox browser window. The URL is <http://redc.nrel.gov/solar/calculators/PVWATTS/version1/US/Florida/Tampa.html>. The page title is "PVWATTS: Florida - Tampa".

The form is divided into several sections:

- Station Identification:** WEBA Number: 1184, City: Tampa, State: Florida.
- PV System Specifications:**
  - DC Rating (kW): 4.0 (indicated by a red arrow from "DC Rating")
  - DC to AC Derate Factor: 0.77 (indicated by a red arrow from "DC to AC Conversion")
  - Array Type: Fixed Tilt (indicated by a red arrow from "PV Mounting Type")
  - Fixed Tilt or 1-Axis Tracking System:
    - Array Tilt (degrees): 28.0 (Default = Latitude) (indicated by a red arrow from "Default PV Panel Tilt Angles")
    - Array Azimuth (degrees): 180.0 (Default = South)
- Energy Data:** Cost of Electricity (cents/kWh): Default = State Average (indicated by a red arrow from "Cost per kWh")

Buttons for "Calculate", "HELP", and "Reset Form" are located at the bottom of the form.



# Output- Monthly Estimate of Power and Value




PVWATTS: AC Energy and Cost Savings - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://rredc.nrel.gov/solar/calculators/PVWATTS/version1/US/code/pvwattsv1.cgi

Most Visited Getting Started Latest Headlines

PVWATTS: AC Energy and Cost Savings

(Type comments here to appear on printout; maximum 1 row of 80 characters.)

Station Identification	
City:	Tampa
State:	Florida
Latitude:	27.97° N
Longitude:	82.53° W
Elevation:	3 m

PV System Specifications	
DC Rating:	4.0 kW
DC to AC Inverter Ratio:	0.770
AC Rating:	3.1 kW
Array Type:	Fixed Tilt
Array Tilt:	38.0°
Array Azimuth:	180.0°

Energy Specifications	
Cost of Electricity:	9.0 ¢/kWh


Results			
Month	%hr Radiation (kWh/m <sup>2</sup> /day)	AC Energy (kWh)	Energy Value (\$)
1	4.54	411	34.99
2	5.21	430	37.80
3	5.72	503	45.27
4	4.52	543	48.87
5	5.92	504	45.34
6	5.54	451	40.59
7	5.44	455	40.95
8	5.70	481	43.29
9	5.32	435	39.15
10	5.41	444	41.74
11	4.83	411	34.99
12	4.24	379	34.11
Year	5.37	5455	490.95

[Output Hourly Performance Data](#)      [Output Results as Text](#)  
[About the Hourly Performance Data](#)      [Saving Text from a Browser](#)

Run PVWATTS v.1 for another US location or an international location  
 Run PVWATTS v.2 (US only)

Please send questions and comments regarding PVWATTS to [Webmaster](#)

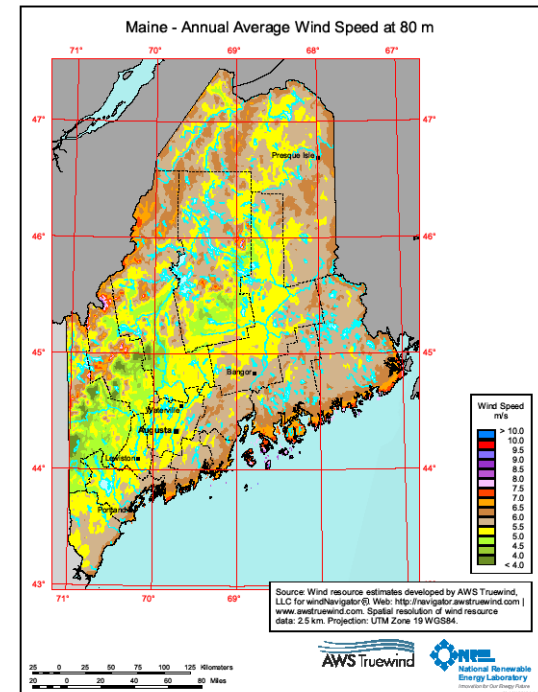
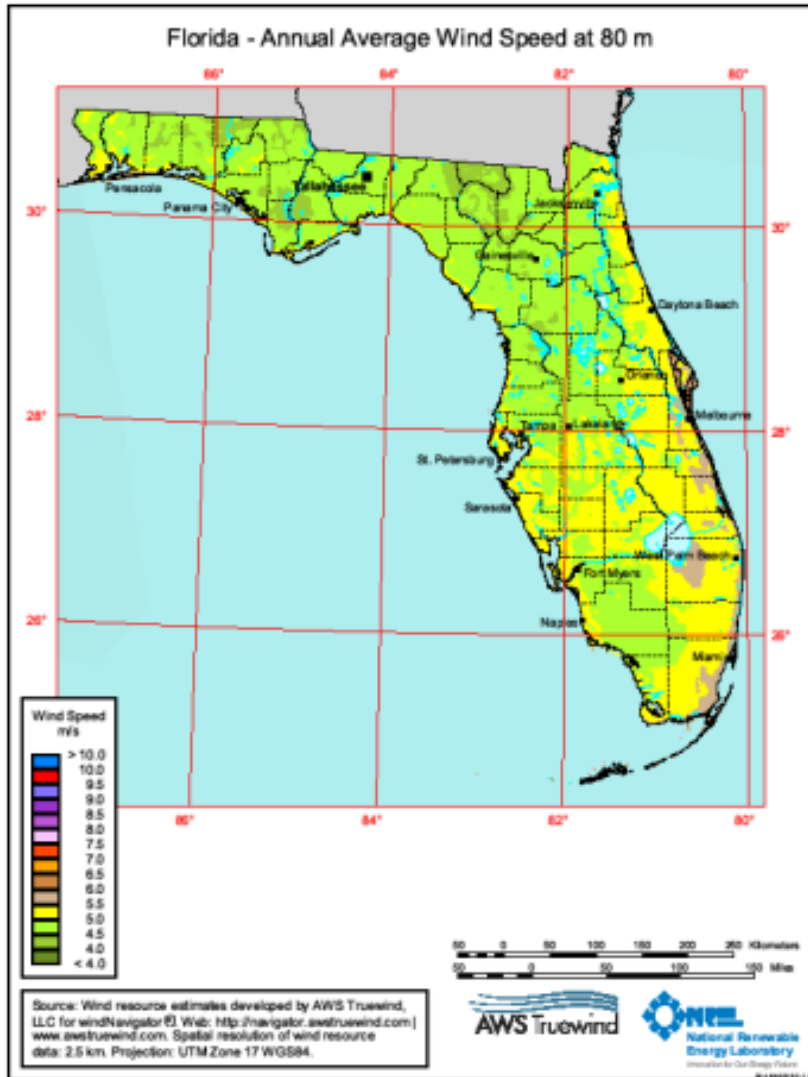
[Disclaimer and copyright notice](#)

 [Return to NREL home page \(http://rredc.nrel.gov\)](http://rredc.nrel.gov)

Done

# Wind Maps

WindPoweringAmerica.gov



# Solar Advisor Model (SAM)

**Welcome to SAM 2010**

**Start from a sample template**

- Sample Files
  - Combined Multiple PV Systems Example
  - Custom HTF Example
  - Excel Sample
  - PV Battery Storage Sample
  - PV Shading Example
  - Sample Dish Stirling Systems
  - Sample PV Systems
  - Sample Parabolic Trough Systems
  - Sample Power Tower Systems
  - Sample Solar Water Heating
  - Scripting With SamUI Example
  - Statistical Analysis Sample

**Start a new project**

Case Name:

Reminder:  
The default input values are intended to illustrate Solar Advisor's use. The data are meant to be realistic, but not to represent values for a specific project. Input values will vary depending on the market, technology and geographic location. New developments, policy changes, and price volatility mean that default values may be out of date or inappropriate. Before using results, be sure to review all inputs and determine whether they are appropriate for your analysis.

**Open a recent file**

<https://www.nrel.gov/analysis/sam/>

**NREL**  
National Renewable  
Energy Laboratory  
*Innovation for Our Energy Future*

# SAM Input Parameters

The screenshot displays the SAM 2010.4.12 software interface. The title bar reads "SAM 2010.4.12: untitled1". The menu bar includes "File", "Case", "Results", "Developer", and "Help". The main window title is "Tampa" and the project name is "Solar Hot Water, Commercial Cash".

**System Summary**

- Climate:** Location: TAMPA, FL; Lat: 28.0; Long: -82.5
- Utility Rate:** (Icon)
- Financing:** Analysis: 30 years; (Icon)
- Tax Credit Incentives:** Fed. ITC; (Icon)
- Payment Incentives:** (Icon)
- Annual Performance:** Degradation: 1%; Availability: 100%; (Icon)
- SWH System Costs:** Installed Cost: \$ 6017.52; (Icon)
- SWH System:** Area: 3.716 m<sup>2</sup>; (Icon)
- User Variables:** (Icon)

**Choose Climate/Location**

Location: [SAM]FL Tampa.tn2

Solar Advisor reads weather files in TMY2, TMY3, and EPW format. The default weather file library includes a complete set of TMY2 files for U.S. locations. To add files for other locations, use the web links below to find and download the files, and then click Add/Remove above to help SAM locate them on your computer.

Buttons: Add/Remove..., Refresh list, Copy to project, Remove from project, Create TMY3 file, Location Lookup...

Notes:  
SAM looks for weather files in the specified folders. To change the search folders, click "Add/Remove". The prefix "SAM/" indicates a location from the standard SAM library, and those preceded by "USER/" are stored in your project file to facilitate sharing with other people.

**Location Information**

City: TAMPA Timezone: GMT -5 Latitude: 27.9667 deg  
State: FL Elevation: 3 m Longitude: -82.5333 deg

**Weather Data Information (Annual Averages)**

Direct Normal: 191.4 Wh/m<sup>2</sup> Dry-bulb Temp: 21.9 °C  
Diffuse Horizontal: 81.9 Wh/m<sup>2</sup> Wind Speed: 3.6 m/s

Button: View hourly data...

**Web Links**

Solar Advisor reads weather files in TMY2, TMY3, and EPW format. The default weather file library includes a complete set of TMY2 files for U.S. locations. You can use the web links below to find weather data for other locations. After you have downloaded the desired weather files, click Add/Remove above to help SAM locate the downloaded weather files on your computer.

[Best weather data for the U.S. \(1200+ locations in TMY3 format\)](#)  
[Best weather data for international locations \(in EPW format\)](#)  
[U.S. satellite-derived weather data \(10 km grid cells in TMY2 format\)](#)

At the bottom of the interface, there is a row of icons for navigation and a "Print" button.

Has many locations already in pull down database



# Both PV and Thermal

SAM 2010.4.12: untitled1

File Case Results Developer Help

Tampa x

Select Technology and Market... [ Solar Hot Water, Commercial Cash ]

**System Summary**

**Climate**  
Location: TAMPA, FL  
Lat: 28.0 Long: -82.5

**Utility Rate**

**Financing**  
Analysis: 30 years

**Tax Credit Incentives**  
Fed. ITC

**Payment Incentives**

**Annual Performance**  
Degradation: 1 %  
Availability: 100 %

**SWH System Costs**  
Installed Cost: \$ 6,017.52

**SWH System**  
Area: 3.716 m2

**User Variables**

**Direct Capital Costs**

Collector Cost	220.00	\$/m2	\$ 817.52
Storage Cost	1,500.00	\$/unit	\$ 1,500.00
Balance of System			\$ 1,500.00
Installation Cost			\$ 2,200.00
Contingency	0 %		\$ 0.00
<b>Total Direct Cost</b>			<b>\$ 6,017.52</b>

**Indirect Capital Costs**

	% of Direct Cost	Non-fixed Cost	Fixed Cost	Total
Engineer, Procure, Construct	0 %	\$ 0.00	\$ 0.00	\$ 0.00
Project, Land, Miscellaneous	0 %	\$ 0.00	\$ 0.00	\$ 0.00
Sales Tax of	0 %	applies to	100 % of Direct Cost	\$ 0.00
<b>Total Indirect Cost</b>				<b>\$ 0.00</b>

**Total Installed Costs**

<b>Total Installed Cost</b>	<b>\$ 6,017.52</b>
<b>Total Installed Cost per Capacity (\$/kW)</b>	<b>\$ 2.55</b>

**Operation and Maintenance Costs**

	First Year Cost	Escalation Rate (above inflation)
Fixed Annual Cost	0.00 \$/yr	0 %
Fixed Cost by Capacity	50.00 \$/kW-yr	0 %
Variable Cost by Generation	0.00 \$/MWh	0 %
Fossil Fuel Cost	0.00 \$/MMBTU	0 %

Notes

- Escalation rates do not apply to O&M annual schedules, only first year values.
- Fossil fuel cost is not applicable to PV or Dish Stirling systems. Set to zero for these systems.

The diagram illustrates the energy flow in a solar thermal system. Solar energy (labeled as FREE) is captured by a Solar Thermal Panel on the roof. This energy is transferred to a Control Panel, which then circulates the heat to a Hot Water Tank. The Hot Water Tank provides Hot Water Usage and is also connected to a Boiler. The system is supplied with Mains Supply water.

May you all have fair  
winds and a following sea



Thanks!



[Daniel.Ingold@WestonSolutions.com](mailto:Daniel.Ingold@WestonSolutions.com)

[Dan@Powersmith.US](mailto:Dan@Powersmith.US)



# Innovative Approaches to Sustainable Asset Management

Presented to  
the 2010 U.S. Coast Guard  
Innovation Expo

Andrea Hart  
Sustainable Operations  
Weston Solutions, Inc.



4 November, 2010



# Securing the Homeland: Asset Management Strategies are Critical

---

Sustainability = Resilience

- Ability to withstand
- Ability to adapt
- Ability to recover
- Ability to respond
- Ability to defend



# What are the Drivers?

## TRIPLE-BOTTOM LINE *PLUS*

---

- Environmental
  - Minimize inputs and outputs
  - Ensure energy security  
(= national security)
- Economic
  - Reduce operating costs
  - Increase operating budget savings
  - Utilize savings on other projects
- Social
  - Entice new generations into service
  - Increase productivity

# The Plus?.. EO 13514

---

- Federal Leadership in Environmental, Energy and Economic Performance
  - builds upon earlier EO guidance
  - strengthens requirements for managing energy, water, recycling
  - requires development of sustainability plan for assets

# DHS SSPP

DEPARTMENT OF HOMELAND SECURITY  
STRATEGIC SUSTAINABILITY  
PERFORMANCE PLAN



June 2010

Goals

Develop innovative

projects, procedures

and sustainability into all

operations

and integration



# Innovation in Asset Management

---

- Optimize assets not to just make them more efficient – sustainable -- but to ensure longer term mission critical value is gained
- Prioritize assets for upgrade, retrofit – invest...or divest – based on value of that asset to achieving your mission
- Continuously think outside-of-the-box in applying new techniques, technologies

# Innovation in action!



## Nike

- Green supply chain
- Carbon neutrality by 2015
- Reduced energy intensity through lighting, HVAC retrofits
- New teleconference system to cut travel
- Belgium, Netherlands HQs uses 100% renewable energy

*Source: Newsweek, 2010 Nov*

# Innovation in action!



## Yahoo

- Promotes green lifestyle tips to 600M users worldwide
- Improved efficiency of data centers
  - Improved energy efficiency by using renewables (hydroelectric)
  - Relocated centers to cooler climates, reducing AC costs
  - Lockport, NY, facility monitors all Yahoo infrastructure--consumes 40% less energy, uses 95% less water than conventional centers
  - Water saved = drinking water for 200K/yr

# How to Make Innovation Happen

---

Creative Financing Models



# Power of PPPs!

---

- Public-Private Partnerships
  - Significant underfunded, aged asset base combined with private equity investment, management expertise
    - BRAC is a leading program
    - Fort Sam Houston historic renovation
  - Innovative models integrate sustainability
    - City of Newark Solar PPA
    - USCG Kodiak Island, AK Performance Contract

*Important to understand what the contract mechanisms are for PPPs!*

# What is Innovation and How Can I Get One?

---

- Keys to Building a Culture of Innovation\*
  - Coordinate top-down and grassroots efforts
  - Define the challenge clearly
  - Remove organizational silos
  - Recognize successful innovators among your employees
  - Don't treat innovation as an event
  - Give people free, unstructured time to be innovative



Isn't new

**TAKE THEM TO YOUR MEAT DEALER**

**TRUCKS AND TIRES MUST LAST TILL VICTORY**

# Call to Action!

---

- Everyone has a role and responsibility!
- Leadership is imperative to guide personal passions!
- Identify opportunities to maximize triple-bottom line benefits
  - Cleaner environment
  - Greater economic efficiency
  - Happier people



# *Sustainability isn't an option*



# U.S. Coast Guard Innovation Expo

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Thank you!

Questions?

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andrea.hart@westonsolutions.com  
www.westonsolutions.com



