

Navy Shore Energy Initiatives In Hawaii

Hawaii Energy Policy Forum
20 May 2011

NAVFAC HI Energy Office



2.5 MW Ford Island PV Runway concept

ALIGNMENT OF NAVY & STATE ENERGY GOALS



- Energy Security **“Energy is Security!” – CNO, ADM Roughead**
- Independence from foreign oil
- Clean Energy Future (EE & RE)

NAVY DIRECTIVES:	Energy Independence & Security Act 2007	Hawaii Clean Energy Initiative	National Defense Authorization Act 2007	OPNAV INSTR 4100.5E (draft)	SECNAV Goals	Executive Order 13514
Energy Reduction	30% by 2015 (18% in 2011)	30% by 2030		50% by 2020		
Renewable Energy		40% by 2030	25% by FY25		50% by 2020	
Water Reduction						26% by 2020
Green House Gas Reduction (Scope 1 & 2)			34%			28% by 2020
Reduce Vehicle Petrol Use					50% by 2015	

NAVY STRATEGIC ENERGY ALLIANCES IN HAWAII:

1. **PACOM** Energy Partnership Strategic Council (**PEPSC**)
2. **UTILITIES** – DOD HECO EXCOM, KIUC, BWS, - Grid Impact & Interconnection
3. **LOCAL GOVT** – State, County, City (GHG, Biofuels, Alt Transp, LFG, Wind, OTEC)
4. **INDUSTRY** - Current 40+ projects/contracts w/ Value of \$60M+;
5. **USDA, DOE, DLA...**

FIRST STEP – ENERGY CONSERVATION

‘The best renewable energy is the energy we don’t waste.’



1 - Energy Awareness – Create a Conservation Culture

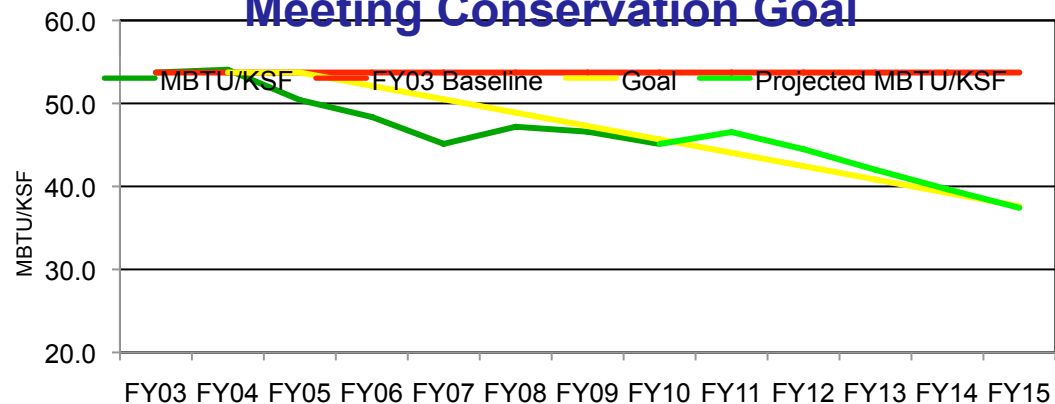
- Top-level Leadership - Monthly Energy Conservation Board + Accountability!
- Good Data & Monitoring (\$11M Advanced Metering Initiative)
- Pervasive Training – 4200 Audits, 1000 Building Monitor, news articles, training

2 – Energy Efficiency – Leverage Technology

- Current 40+ projects valued at \$60M+
- Innovative Financing – EUL, ESPC, UESC, PPA, Local, Other

3 - Operational Efficiency – Maintain Mission Readiness

Meeting Conservation Goal



ALTERNATIVE ENERGY TRANSPORTATION PLAN

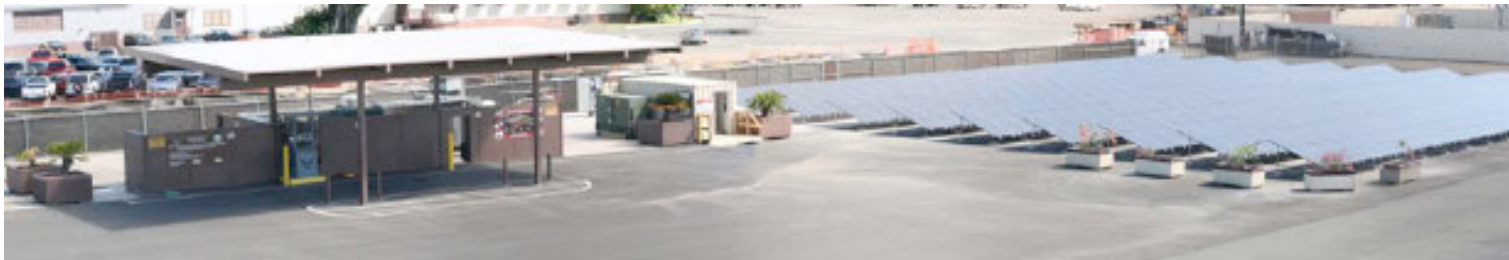
NAVY GOAL: REDUCE PETROLEUM 50% by 2015



1. **CONVERTED to 800 E-85 Vehicles** - Completed
2. **BUILD two E-85 Fuel Stations** (Planned in one year) ; B-20 Station by FY12
3. **CONVERT TO ELECTRIC VEHICLES** (130 NEV Current ; 400 more by FY15)
4. **OTHER ALT . ENERGY VEHICLES (Hydrogen, Hybrids, Bicycles...)**
5. **SUPPORT BIO-FUEL INITIATIVES** (USDA-Navy MOU; PACOM GIFTPAC, ONR, DARPA)

Hickam Hydrogen refueling station

- POWERED BY RENEWABLE ENERGY (146KW PV & planned 50KW Wind turbines)
- UNIQUE PARTNERSHIPS:
 1. JOINT BASE PEARL HARBOR-HICKAM HOST
 2. AIR FORCE FUNDING- Air Force Advanced Power Technology Office (APTO)
 3. HAWAII STATE MANAGEMENT - Hawaii Center for Advanced Transportation Technologies (HCATT)
 4. ARMY SUPPORT - Tank, Automotive Research Development and Engineering Center (TARDEC)



Supporting the Fleet, Fighter, and Family in Hawaii

RENEWABLE ENERGY GOAL – 50% BY 2020



2.5 MW Navy PV Rooftop Systems
(Largest PV Array in Hawaii)



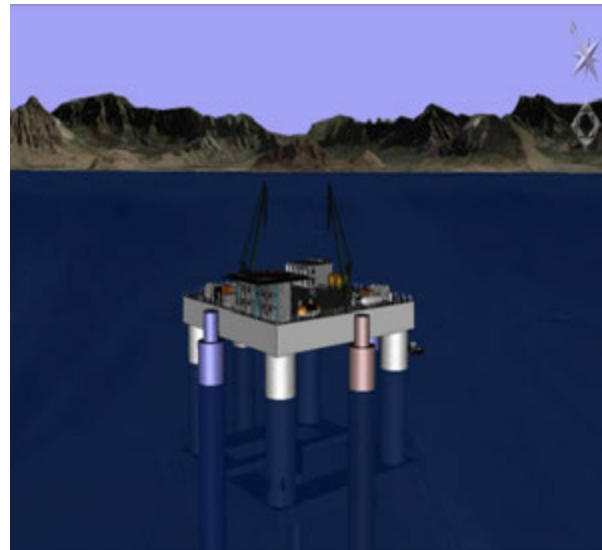
50 MW Bio-fuel Power Plant Study



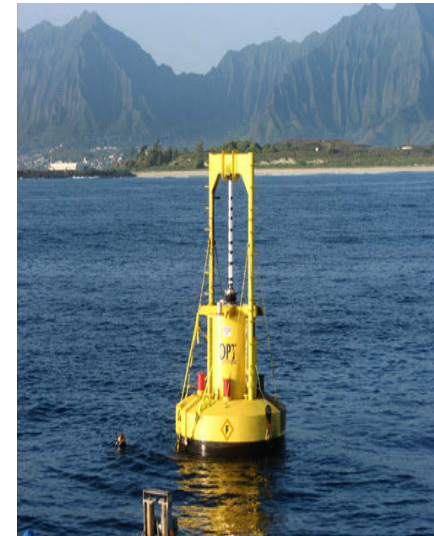
Cyber-Secure Smart Grid



Multi-MW FI PV Runway



5 MW OTEC Pilot Plant Study



Current Wave Energy Buoy

FORD ISLAND RUNWAY PV INITIATIVE

(Note – Under procurement)



➤ INNOVATIVE:

- Revitalizes Historic Runway with 'Green' Energy Mission
- First ever JOINT Power Purchase – All Services engaged – Economy \$cale
- Key Partners: All Services, Industry, HECO, HI Historic Partners
- Protected Appearance



MAHALO!



QUESTIONS?



'Green Hornet ' 1st Bio-fuel Flight
Earth Day 22 Apr 10