

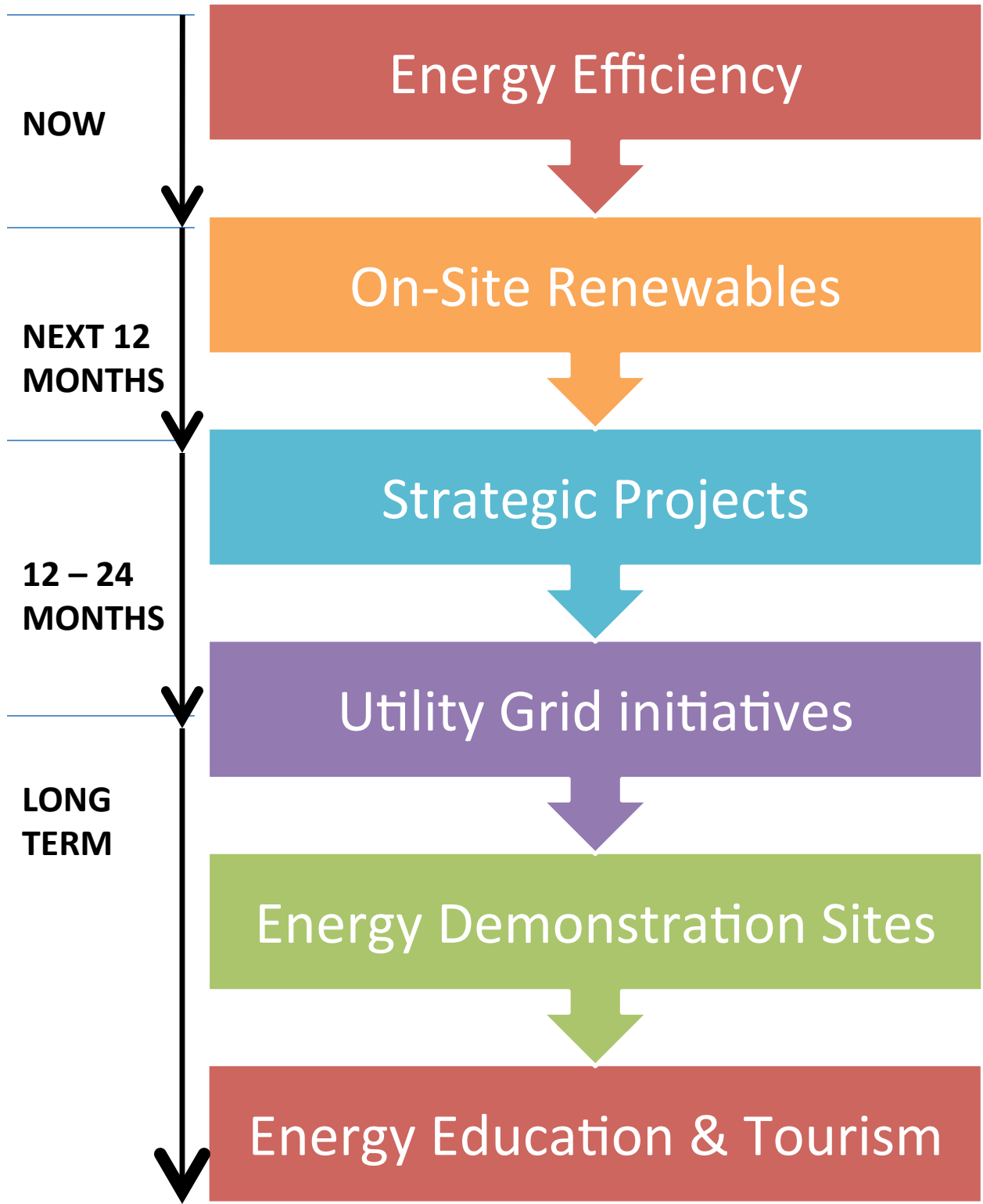


County of Hawai`i Energy Program



Research and Development
2013

County of Hawaii Energy Transformation



FY 2013-14-15

West Hawaii Civic Center Solar – PV-Battery-EV Project

- Implemented 250KW Array that can charge up to 30 Electric Vehicles and provide 100% of Facility Power (\$50-100K savings per year on Electricity – 100% Renewable)
- 6 Electric Vehicles Chargers – ready for Electric Vehicles
- Obtained Grant from Better Place to installed 3 chargers that can handle 6 vehicles

Department of Water Supply – Lalamilo WindFarm Repowering

- COH-DWS reviewing bids for Repowering WindFarm Project at Lalamilo Site

Hawaiian Electric Light Company Partnerships

- HELCO - COH leading the electrification of Vehicles
- HELCO/SAFT Battery placed at WHCC provides Renewable Energy 6pm-3am

Kona – Hilo Transportation Hubs

- Department of Public Works Facilities to increase Photovoltaic Energy
- Additional chargers planned at Hilo County Building, Aupuni Center and WHCC

Fleet Optimization

- Continue work with NREL on Fleet Electrification opportunities and optimization
- Analyzing adding Electric Vehicles – with Lease Terms and larger Battery

PUC Dockets and Legislation

- 2011-0206 Reliability Standards
- 2012-0036 Integrated Planning
- 2012-0185 Bio-fuels Supply Contract

Procedures Improvement

- Developed tools for analyzing energy projects:
- Developed Power Purchase Agreement (PPA) template
- Financing mechanisms including revolving energy fund, performance contracting, internally financed

Significant Regulatory Proceedings

Feed-in Tariff (2008-0273)

- Encourage specific forms of Renewable Energy
- Fair reliability standards for grid connection
- Reasonable prices and terms / conditions
- COH Intervener

Integrated Resource Planning (2009-0108) (2012-0036)

- 5-10-20 year planning for the Utility
- Distributed generation options
- Grid planning
- COH –Advisory Group Member

HELCO General Rate Case (2009-0164) (2012-0099)

- Maui, Kauai, Hawaii Counties do not normally participate in rate cases
- Can significantly Impact energy COH and Island Residents energy costs

Energy Efficiency Portfolio Standards (2010-0037)

- Island equity metrics accomplished
- COH Intervener

HELCO AKP Biofuels (2011-0005) (2012-0185)

- Impacts electricity costs
- Impacts renewable options for 20 years
- COH Intervener

Reliability Standards Working Group (2011-0206)

- COH - Demand Side Options Subgroup – working with HECO, MECO, HELCO

Geothermal – RFP (pending) Dockets

- Potential analyses and recommendations for Geothermal
- Up to 50 MW Geothermal RFP

Energy Project Portfolio

FY 2012-13

- Energy Management System
- No-cost energy savings initiatives
- Facility Efficiency retrofits
- LED streetlights
- PHEV fleet
- H2 Buses

FY 2013-14-15

- Solar-Battery-EV Opportunities
- Lalamilo WindFarm
- DWS – DR program
- EVs and charging stations
- WasteWater Efficiencies

Strategic / Long Term

- Curtailed Renewable to Cost-effective Storage
 - Geothermal & Wind to Hydrogen-Fuel
 - Electric Vehicles: PV - EV - Battery
 - NELHA - Energy Research RD&D
 - Hydrogen Buses and Vehicles
 - Waste-2-Energy WW2Energy

Key Performance Metrics

Energy efficiency savings

- \$ saved
- KWH / BTU's
- Time frames

Renewable energy portfolio

- Revenue Generation Projects
- 50% of COH energy from cost-effective renewable energy
- Civil-Defense ready energy systems

Greenhouse gas emissions

- Reductions in tons

WEST HAWAI'I CIVIC CENTER – LEED Silver Certified
250 kW Photovoltaic Array - PPA and FIT Contracts
100% Daytime Renewable Energy on Sunny Days
100 kW Lithium Battery Extends Nighttime Energy
5 Plug-in Hybrid Electric Vehicles – Chevy Volt
6 Electric Vehicle Charging Stations





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Lāiānilo Windfarm Information Sheet

Overview

The Department of Water Supply has obtained a new State land lease approval-in-concept for a windfarm site adjacent to eight (8) high-capacity wells in Lāiānilo, South Kohala region. In December 2010, DWS's state lease expired for a previous windfarm constructed in the mid 1980's, so this windfarm was decommissioned in anticipation of re-powering the site. The proposed windfarm will generate significant energy savings for the Department and its customers as the wind regime is perfect for renewable-energy generation and the site is located adjacent to eight DWS water wells, allowing less-expensive renewable energy to power DWS pumping equipment. Besides renewable energy generation, DWS plans to install wireless communications equipment on existing towers for DWS use in operating the public water supply equipment. Tower space will also be available for use by other County, State, and Federal agencies for island-wide communications.



Benefit to Water Supply Customers, Hawaii County, and State of Hawaii

DWS continues to support the people of Hawaii Island by providing affordable water service. As water rates go up, DWS is doing everything it can to control and reduce these increases. In April 2011, DWS established an energy policy to continually strive to reduce energy use and its associated costs and environmental impacts. The windfarm is consistent with this policy, and is expected to save DWS customers more than \$1.5 million per year in energy costs for the next 20 years. Construction of the new facility would generate about 50 temporary construction jobs and about 3 permanent positions would be needed to operate the site. This project will further the State's Clean Energy Initiative's goal of having 70 percent renewable energy by 2030, and will help Hawaii County become a leader in wind energy applications within the State.

Project Status

The National Renewable Energy Laboratory in Colorado through a partnership arranged by Mayor Kenoi's Department of Research and Development completed its modeling of the energy output potential for the site. This was done at no cost to DWS or its customers. The DWS and Research and Development have been working closely as a team in every aspect of project development. The Request for Proposal for prospective bidders to propose on a Third-Party, design-build-own project is expected to be published in February and the project should take a little more than one-year to get online. The project will require an Environmental Assessment and an interconnect agreement with HELCO.



About the Department of Water Supply

The Department of Water Supply is a semi-autonomous agency of the County of Hawaii which operates by rules and regulations adopted by a nine-member, appointed Water Board. The Department operates and maintains its water systems with revenues generated wholly through water service sales. The primary function of the Department is to provide safe domestic water service through its 24 water systems and 70 sources scattered throughout the island. The Department continually strives to provide dependable, high quality, potable water at a reasonable cost.

Contact

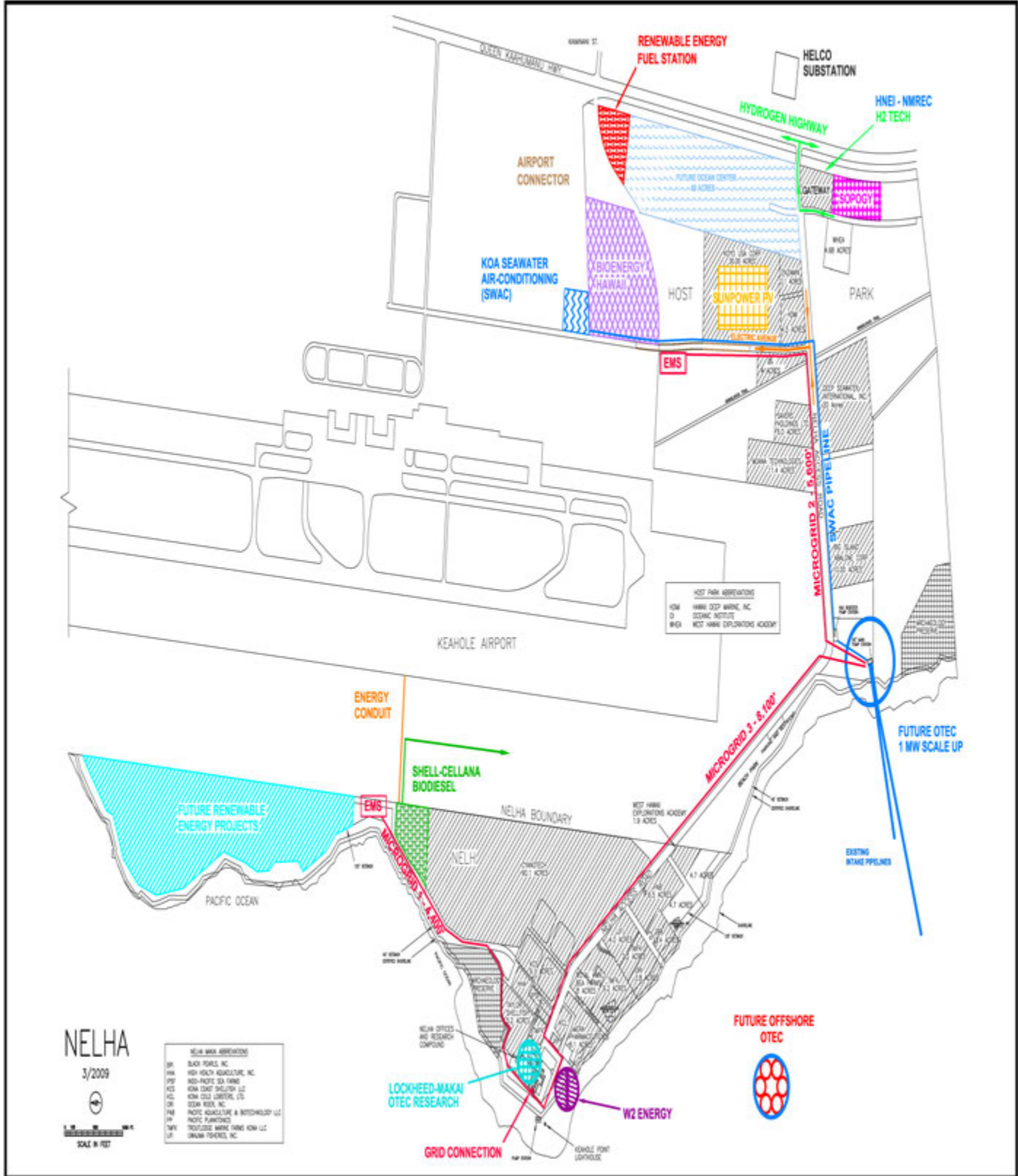
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The Department of Water Supply is an Equal Opportunity provider and employer.

...Water, Our Most Precious Resource...Ka Wai A Kāne...

NELHA – Energy



NELHA

3/2009



NELHA AREA ABBREVIATIONS	
BR	BLACK PEARLS, INC.
HR	HAWAIIAN RESEARCH, INC.
JP	JOB PACIFIC OIL TANK
KS	KONA CRUISE SHIPWAY LLC
KL	KONA COAST SUBMERSE, LTD.
OR	OCEAN REEF, INC.
PA	PACIFIC AQUACULTURE & BIOTECHNOLOGY LLC
PR	PACIFIC RAINBOWS
TR	TROUBLESHOOTING MARINE ENGINE KONA LLC
UT	UNION FISHERIES, INC.

FUTURE OFFSHORE OTEC

