



*IEEE PVSC –  
Addendum Tour*

*June 26, 2010*

“Leading the Way  
to a Greener  
Hawai‘i”



*Castle & Cooke  
Hawai‘i*

## Topics

- Who is Castle & Cooke?
- Why the interest in Renewable Energy?
  - What has been completed?
  - What is going to be completed?

## Who is Castle & Cooke?

- Castle & Cooke, Inc. and Dole Food Company, Inc. are
  - privately held companies
  - owned by David H. Murdock since 1985
- Mr. Murdock's combined companies
  - one of the largest privately-held companies in America
  - 63,000 employees operating in more than
  - 90+ countries around the world.

## Who is Castle & Cooke?

- Diversified businesses in over 24 states
  - development and ownership of real estate,
  - leasing of transportation equipment,
  - manufacture of brick and building materials,
  - aviation services, and
  - ownership of public warehouses.
- Owns 98% of the 90,000 acre island of Lana'i and two award winning Four Seasons Hotels.

# Mililani Tech Park



FOUR SEASONS RESORT ĀNA'I AT MĀNELE BAY

# Dole Cannery



# Castle & Cooke Hawai'i



FOUR SEASONS RESORT LĀNA'I LODGE AT KŌ'ELE

BEST PACIFIC RIM HOTEL  
-Condé Nast Traveler

# Dole Plantation



# Lā Ola Solar Farm

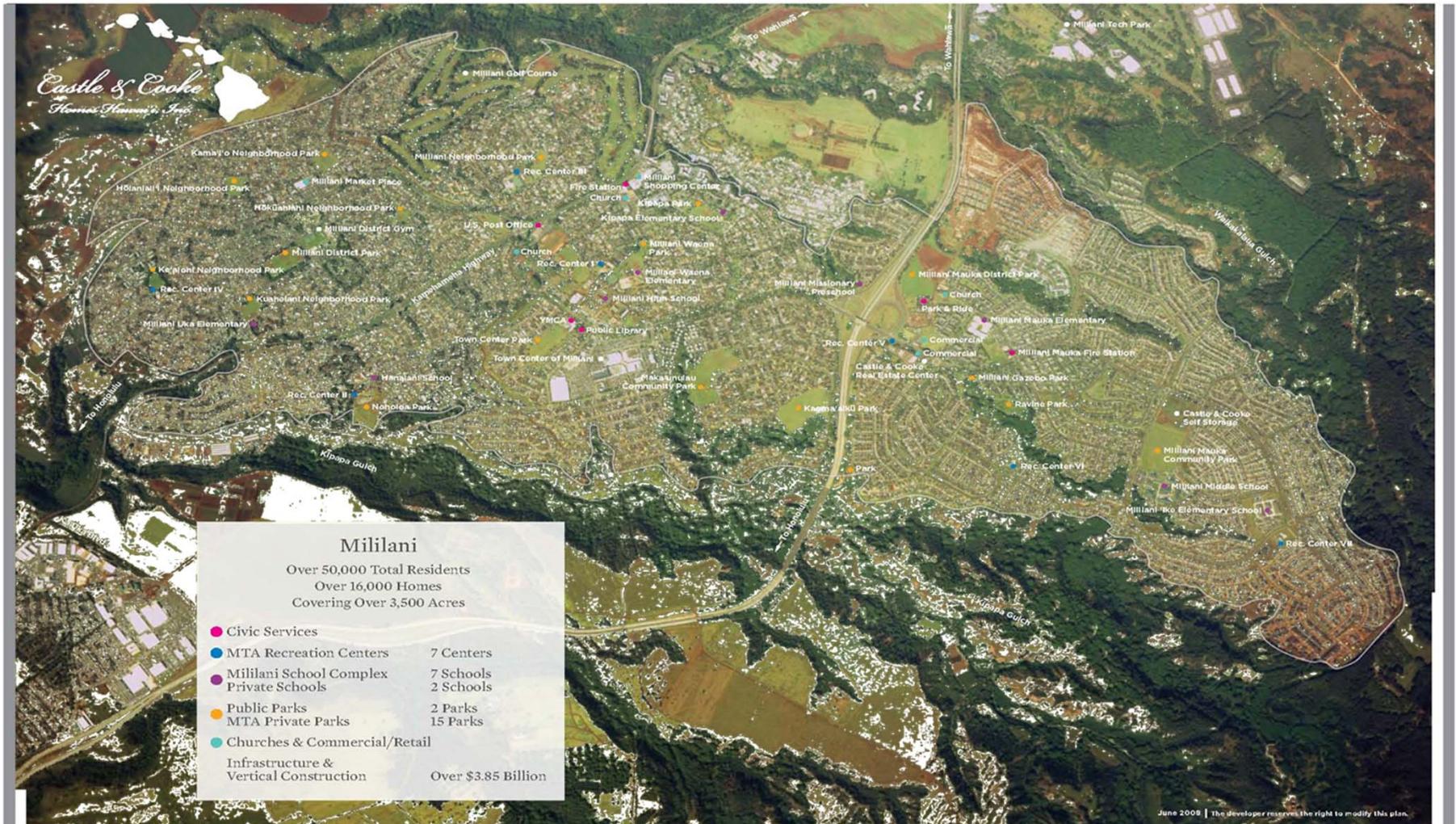
# Castle & Cooke Aviation Hawai'i



# Investing in Hawai'i

## Mililani - 1968 to 2008

### Over 16,000 Homes





- Why the interest in Renewable Energy?
  - Economic
  - Environmental

# Why the interest in Renewable Energy

30,000 MWhrs / yr used on Lana'i  
\$.50 / kWhr peak in September 2008  
\$15,000,000 / yr Lanai's electric bill

65% paid by Castle & Cooke

**~\$10,000,000 / yr**

**Castle & Cooke electricity bill on Lana'i**

# Electricity Ratepayers on Lānaʻi

Electricity demand is broken down as follows (approximate percentages):

- 30% --Four Seasons Resort at Mānele Bay
- 15% --Four Seasons Resort Lodge at Kōʻele
- 10% --Lānaʻi Water Company
- 10% --Other Castle & Cooke Commercial
- 35% --Non-Castle & Cooke residential and commercial customers



# Gulf Spill aftermath

Environmental and economic devastation  
Oil Price increases?



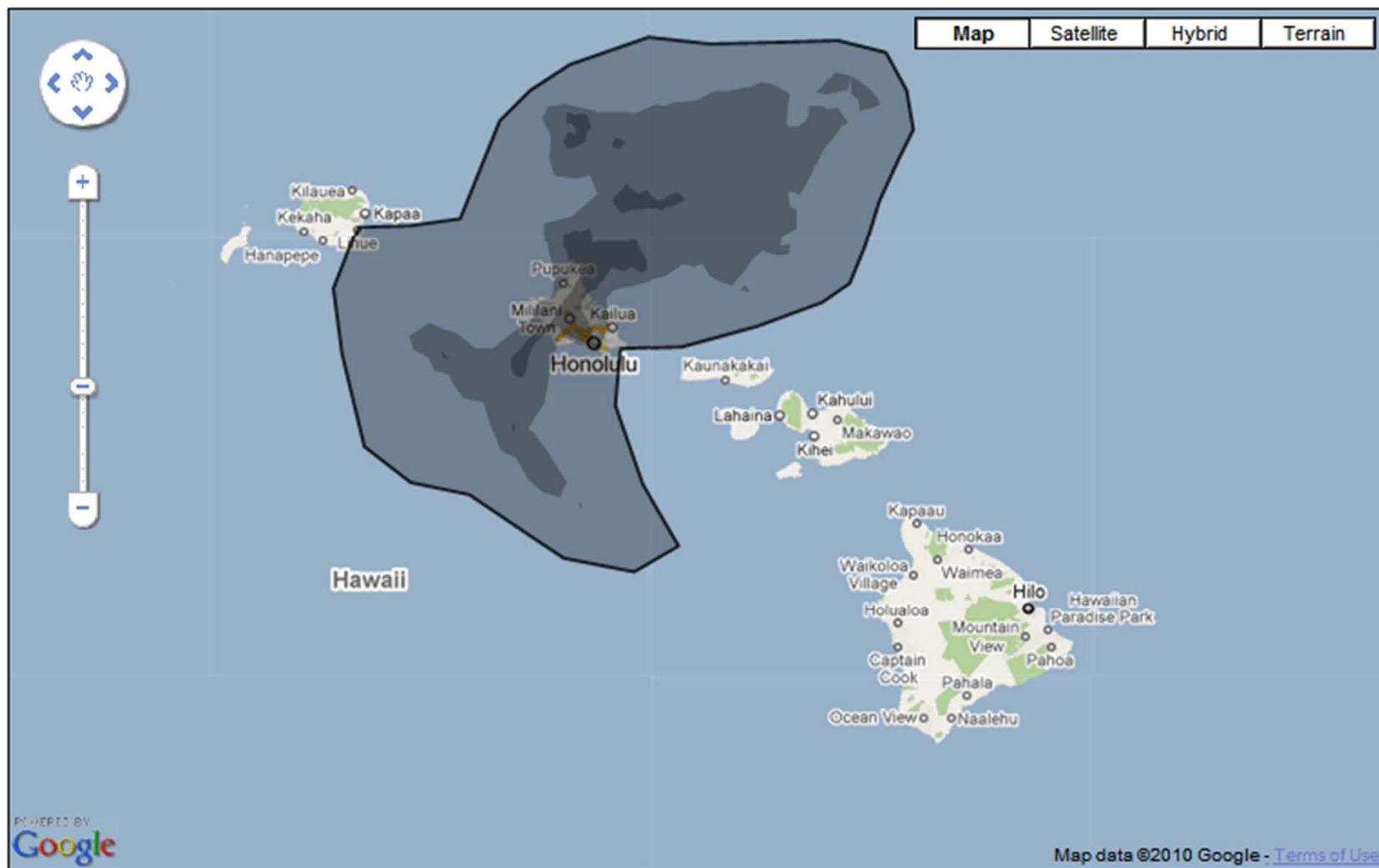
## Visualizing the BP Oil Spill Disaster

Location: Honolulu, HI, USA

Move The Spill

Put it back in the gulf

Put it in Honolulu, HI, USA



# Did you know....O'ahu Oil Spill



February 24, 1977  
Hawaiian Patriot oil  
tanker on fire 350 miles  
west of Honolulu.

Photo by DAVID YAMADA,  
Honolulu Advertiser

## Senator Gabbard - State Senate Energy and Environment Committee Chair:

"Back in **1977, the oil tanker Hawaiian Patriot caught fire and sank 300 miles off the coast of Honolulu spilling 30 million gallons of crude.** This was roughly three times the 10.7 million gallons that spilled from the Exxon Valdez. The question is not if we will have a disaster, but when, if we keep importing over **40 million barrels of oil each year** and do not make a major push toward renewable energy now."

# Renewable Energy Goals

- HCEI (Hawaii Clean Energy Initiative)

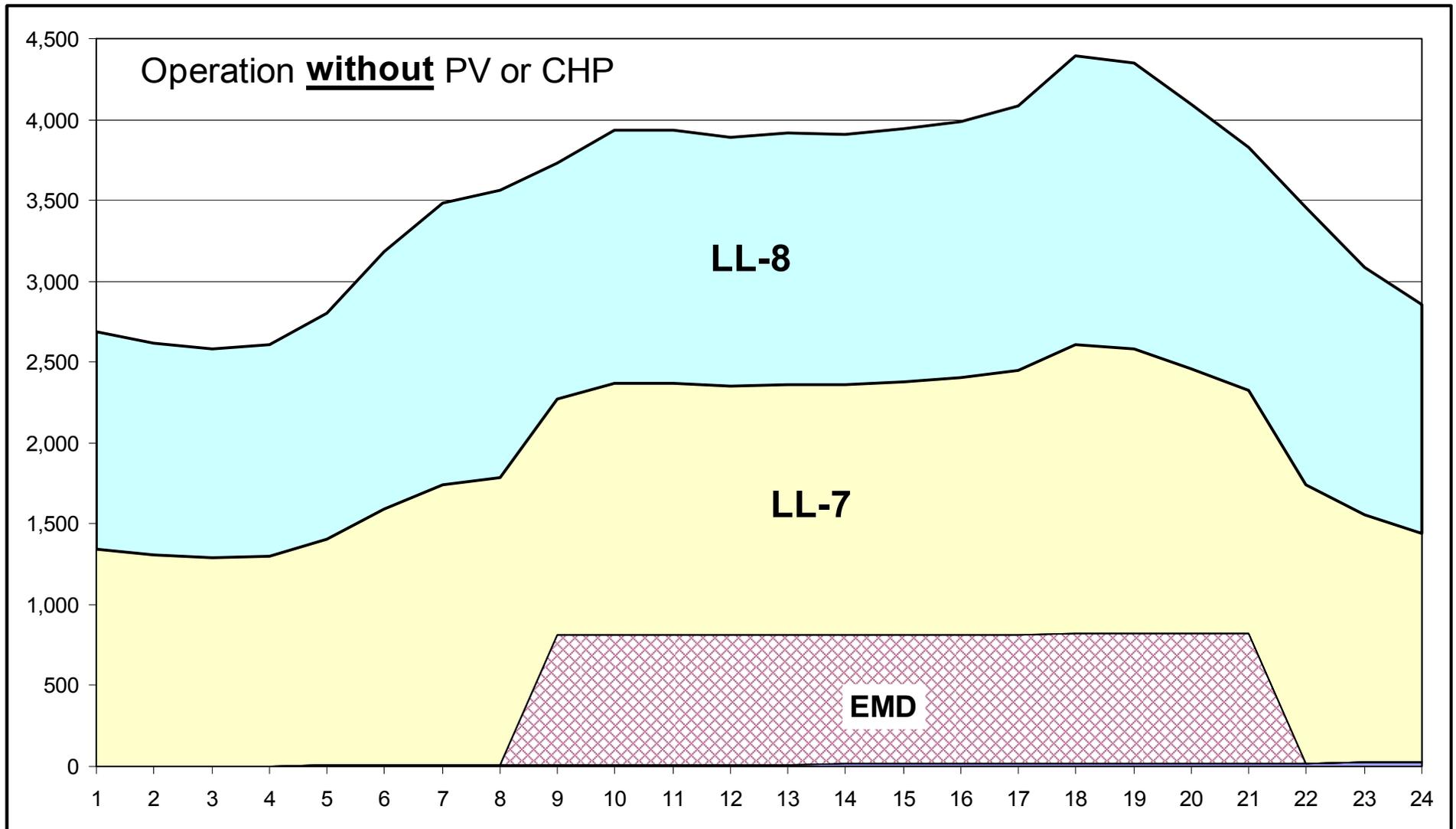
## Goal:

“efficiency and renewable energy resources to meet 70% of Hawaii’s energy demand by 2030”

- Lana’i Goal:

“100% renewable electricity generation”

# Lana'i Electricity Demand & Supply (without PV or CHP)

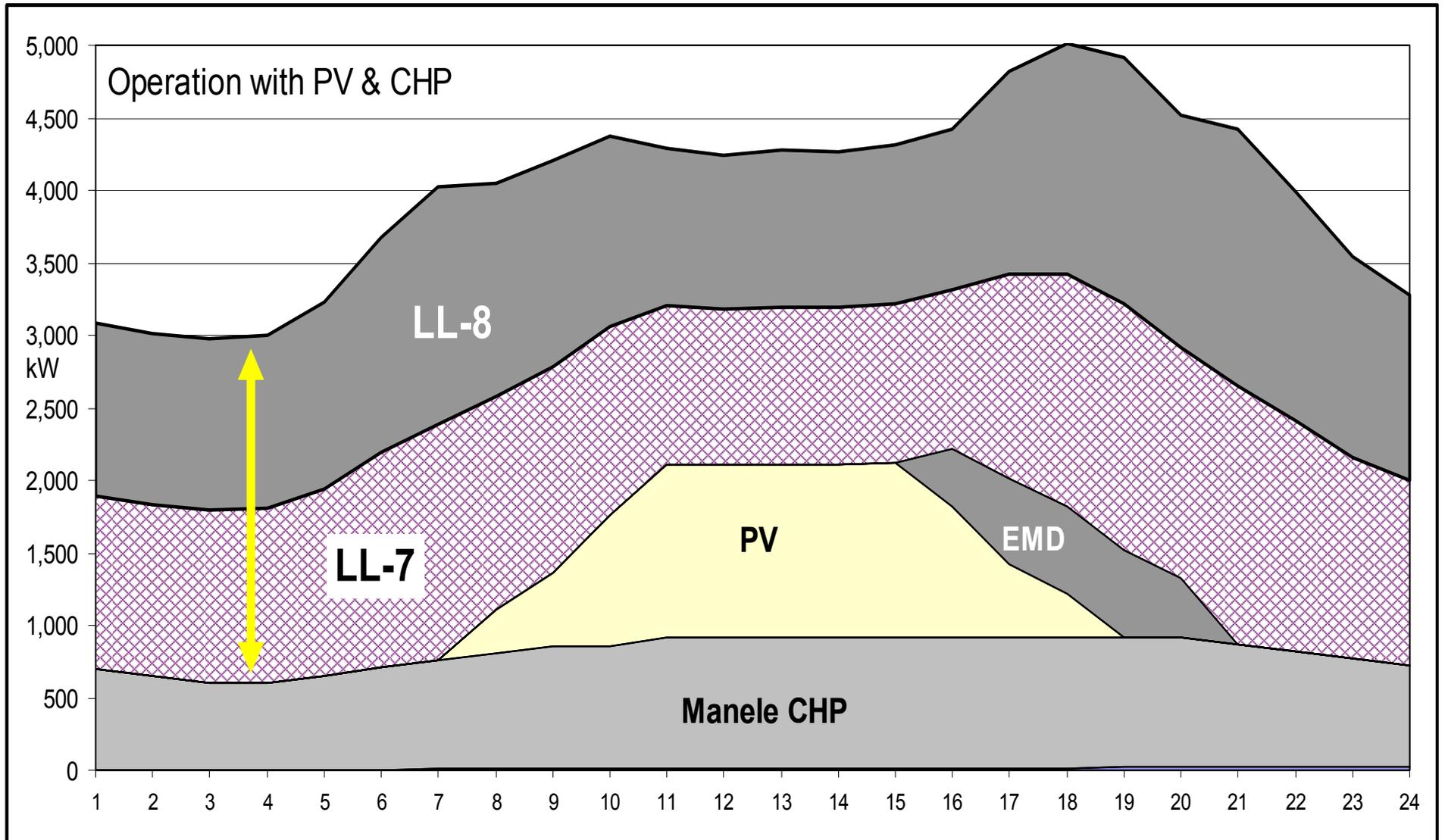




1.2MW AC Hawaii's largest Solar Farm in service 12/19/2008  
10 acres, 12 separate arrays, 7,000+ panels, tracker system  
3,000MWhour production = 30% of Lanai's daytime peak demand, 10% of Lanai's annual demand  
2,300 tons of carbon dioxide emissions eliminated annually = 5,000 barrels of oil or 237,000 gallons of gasoline  
\$1M+ in payroll to Lanai Residents: ~22 of 25 construction jobs were filled by Lanai Residents



# Lana'i Electricity Demand & Supply (with PV & CHP)



# Possible Path to 100% Renewable Electric Grid - Lanai

2008	2009	201X	20XX	20XX
Existing Diesel Generators	Existing Diesel Generators	Existing Diesel Generators	Existing Diesel Generators	Existing Gens To Bio-diesel (18%)
				CHP (Bio-Diesel) (22%)
	CHP (Diesel)	CHP (Diesel)	CHP (Bio-Diesel)	Large Wind Farm Interconnect (40%)
		1.0MW solar	1.0MW solar	
1.2MW PV				

%RE → 10%

10%

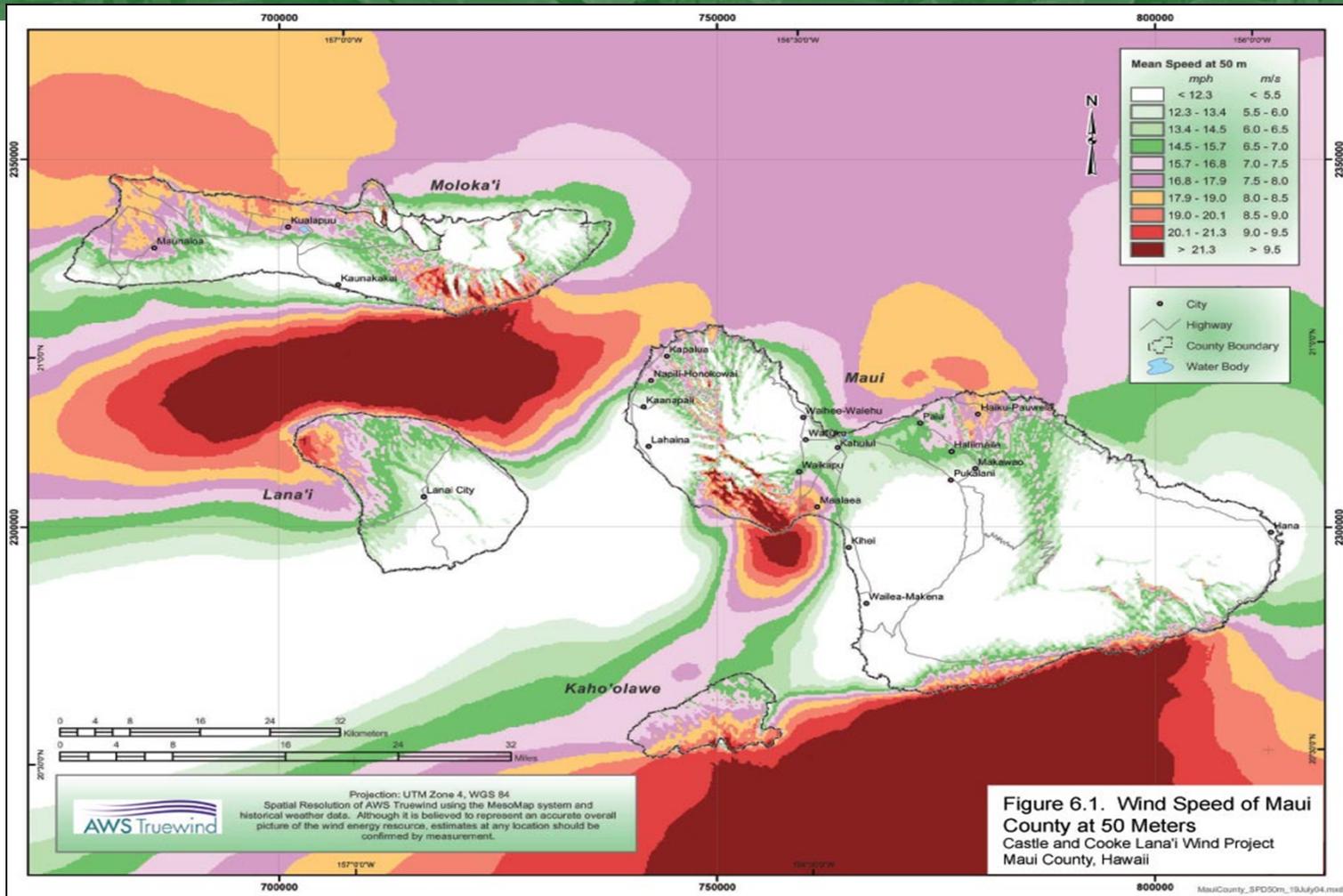
20%

50%

100%



# Wind Makes Sense



- HECO study found strong winds in northern part of Lānaʻi

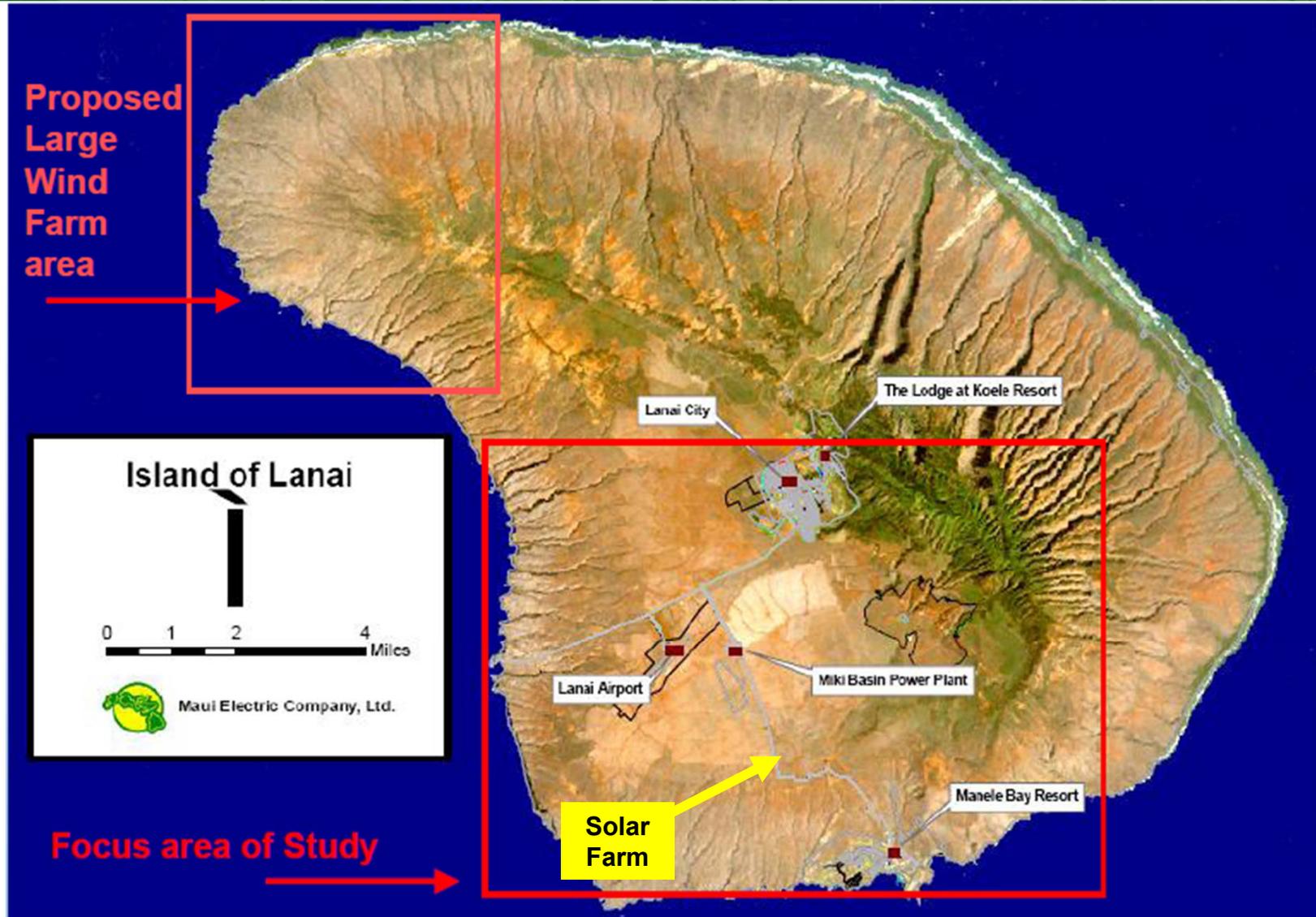
# INVESTING IN WIND

## WIND FARM BENEFITS

- Reduces Hawaii's dependence on foreign oil – saving Hawaii \$billions
- Clean Energy from abundant renewable resource
- Stabilizes electrical rates, reduces impact from foreign oil price increases
- Potential to levelize electrical rates for Oahu & Maui County
- Diversifies Lana'i's economy; reduces strain of economic cycles
- Jobs created on Lana'i and indirectly throughout Hawaii
- Infrastructure on Lana'i improved (Kaunapali Harbor and roads)
- Tax revenues for public services increased
- Community benefit opportunities created

[www.lanaiwind.com](http://www.lanaiwind.com)

# Lana'i – A Source of Renewable Energy



## Continued Progress

- **“Hawaii's biggest solar farm proposed for Mililani fields: Castle & Cooke's planned 120-acre project would have 4 separate operators”**

Thursday, May 27, 2010 Honolulu Advertiser

–120 acres on Oahu

–20 megawatts of PV

–17 times bigger than La Ola

# Summary

- HCEI 70% by 2030 Renewable goal
  - Big Wind: up to 400MW of Wind Power
  - Mililani Solar Park: 20MW of Solar Power PV
- 100% Renewable Lana'i
  - La Ola is the “first step” toward renewable generation
  - Energy Efficiency
    - Lighting, VFDs, Voltage Regulation, BioD, Solar Hot Water Pilot Program, etc.
  - Continued partnership & study with Department of Energy’s National Labs (NREL, Sandia)

**Castle & Cooke is continuing to lead the way toward a greener Hawaii...**

# Mahalo

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