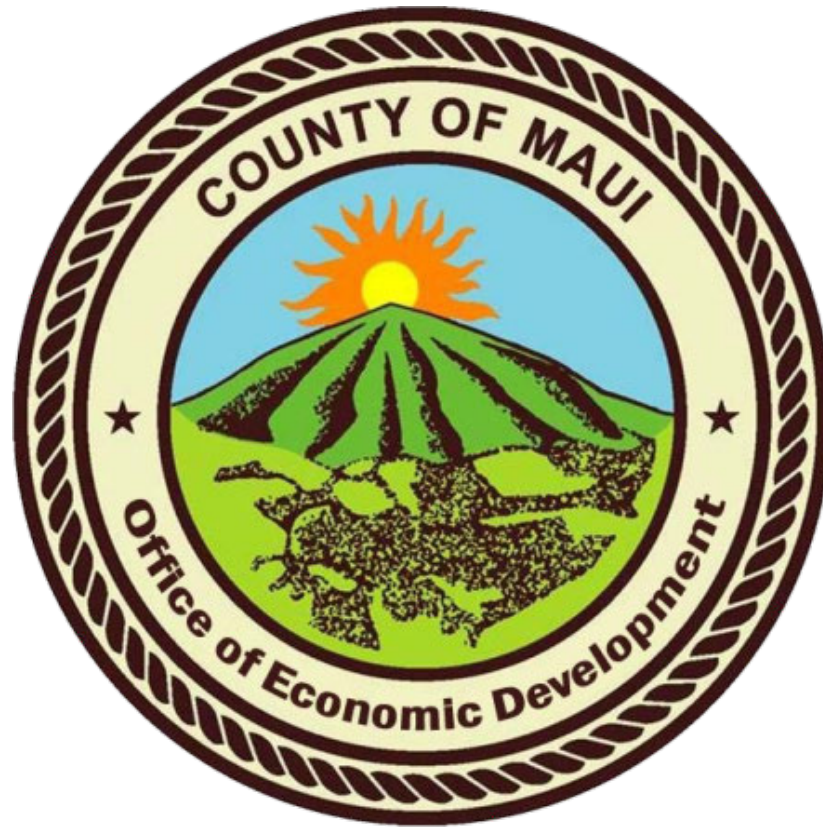


ISSUES AND CONTROVERSIES IN CLEAN ENERGY

Undersea Cable

Doug McLeod

Energy Commissioner, Maui County



DOUG MCLEOD
COUNTY OF MAUI
ENERGY SPECIALIST

What is the purpose
of the cable?

IS THIS JUST A WAY TO BOOST THE RPS
PERCENTAGES FOR HECO ON OAHU?

IS THIS THE CABLE?

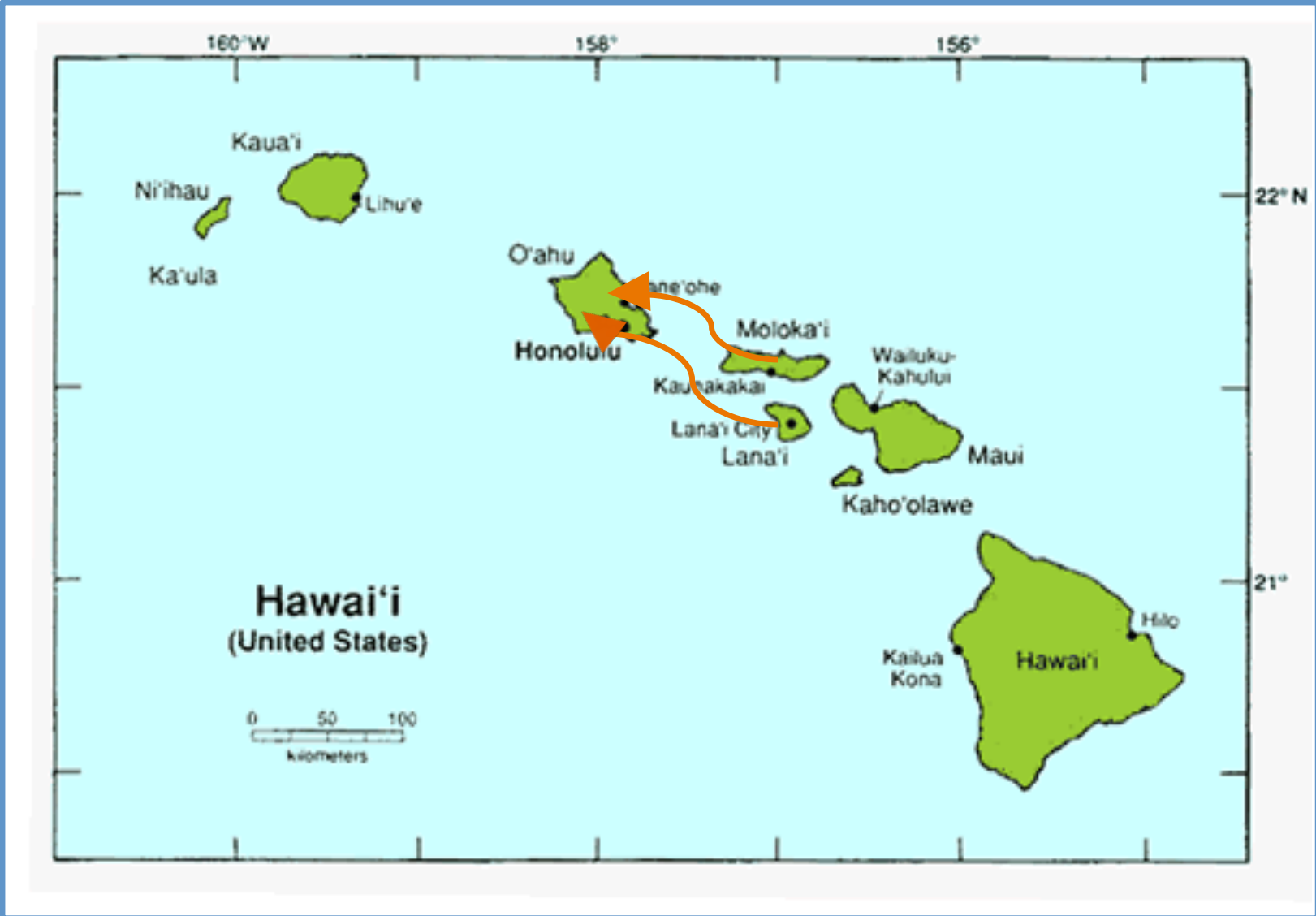


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OR, IS THIS THE BEGINNING OF A STATEWIDE INTERISLAND CABLE SYSTEM ?

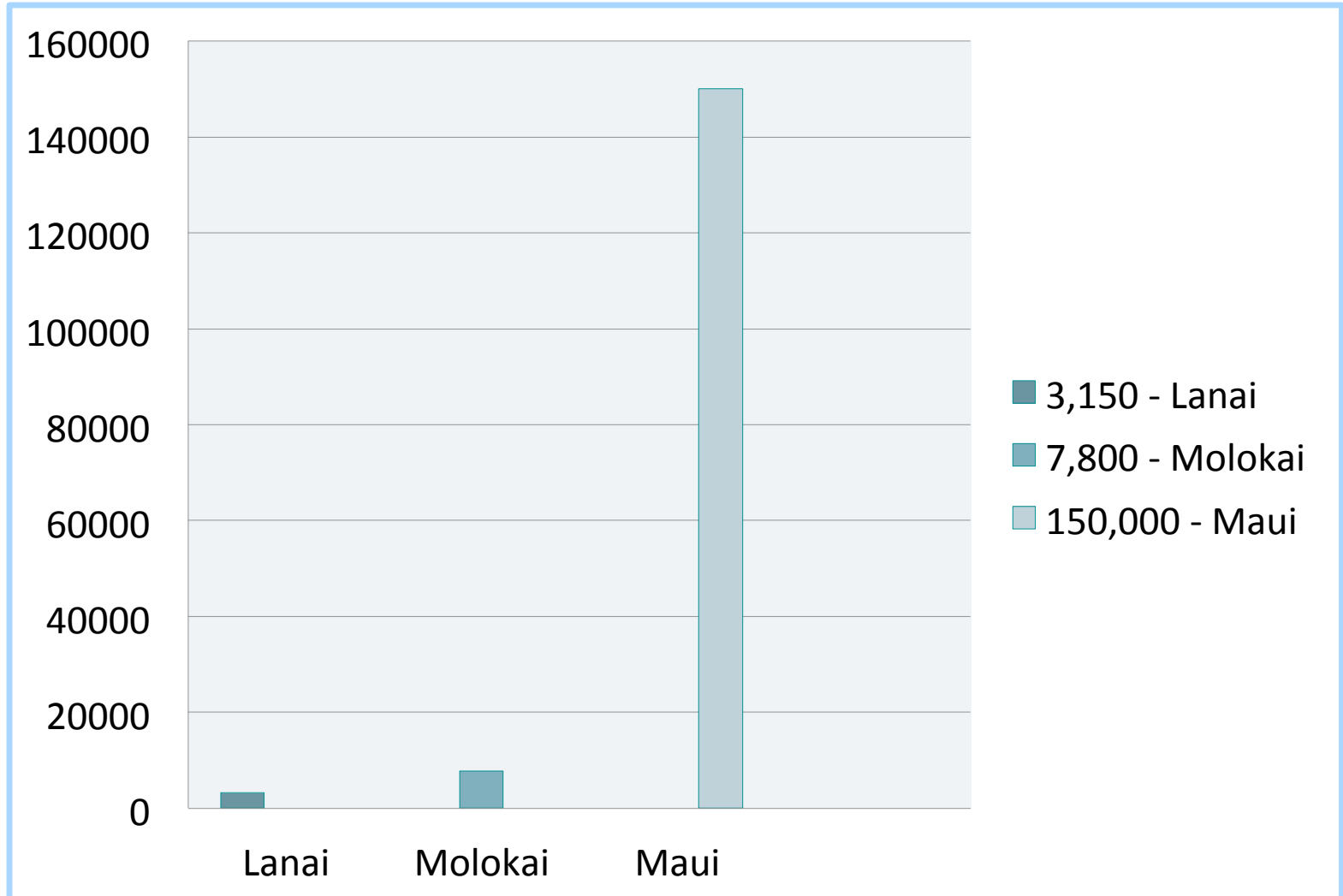
- MAUI COUNTY MAYOR ALAN ARAKAWA:
 - SUPPORTS A TRUE STATEWIDE CABLE SYSTEM THAT CREATES BENEFITS FOR ALL OF THE AFFECTED ISLANDS.
 - AGREES WITH HAWAII COUNTY MAYOR KENOI THERE IS A ‘ONCE IN A LIFETIME OPPORTUNITY’ TO DESIGN A CABLE SYSTEM THAT WILL HAVE THE CAPACITY TO ACCEPT GEOTHERMAL POWER FROM THE ISLAND OF HAWAII IN THE FUTURE.



DO WE NEED IT ALL?

- THE HCEI IS ONLY A SUCCESS IF WE BREAK THE LINK BETWEEN A RISE IN OIL PRICES AND A RISE IN ELECTRICITY COSTS.
- NOT ALL RENEWABLES ARE EQUAL IN THIS REGARD.
- ON MAUI, MECO HAS ANALYZED “100% RENEWABLE” SCENARIOS THAT STILL LEAVE THE “SHARE OF ENERGY NOT LINKED TO OIL AT ONLY 30%.

MAUI COUNTY POPULATION



MAUI ELECTRIC COMPANY, LIMITED

TEST YEAR 2012

GENERATING CAPABILITIES

UNIT	TYPE	NORMAL TOP LOAD (NTL) MW (GROSS)	RESERVE CAPABILITY MW (GROSS)	SERVICE DATE	2012 TEST YEAR AGE
KAHULUI POWER PLANT					
K-1	Steam	5.00	5.90	1948	64
K-2	Steam	5.00	6.00	1949	63
K-3	Steam	11.50	12.70	1954	58
K-4	Steam	12.50	13.00	1699	46
Subtotal Kahului Power Plant		34.00	37.60		
MAALAEA POWER PLANT					
Subtotal Maalaea Power Plant		212.10	212.10		

MECO FACILITIES IN TOP 10 FOR TOXIC RELEASES

“THE POWER UTILITY’ S KAHULUI GENERATING STATION RANKED FIFTH WITH 190,022 POUNDS OF CHEMICALS IN 2012, AND MECO’ S MAALAEA GENERATING STATION WAS 10TH WITH 84,199 POUNDS.”



MAUI NEWS ARTICLE
JANUARY 7, 2012

**MAUI ELECTRIC COMPANY, LIMITED – TEST YEAR 2012 –
GENERATING CAPABILITIES LANAI DIVISION**

UNIT	TYPE	NORMAL TOP LOAD KW (GROSS)	RESERVE CAPABILITY KW (GROSS)	SERVICE DATE	2012 TEST YEAR AGE
MIKI BASIN POWER PLANT (Peaking)					
LL-1	Diesel – EMD	1,000	1,000	1951	61
LL-2	Diesel – EMD	1,000	1,000	1954	58
LL-3	Diesel – EMD	1,000	1,000	1956	56
LL-4	Diesel – EMD	1,000	1,000	1956	56
LL-5	Diesel – EMD	1,000	1,000	1956	56
LL-6	Diesel – EMD	1,000	1,000	1962	50
Total Peaking Units (1)		6,000	6,000		
MIKI BASIN POWER PLANT (Base Capacity)					
LL-7	Diesel-Caterpillar	2,200	2,200	1996	16
LL-8	Diesel-Caterpillar	2,200	2,200	1996	16
MANELE BAY CHP (Base Capacity)					
LXI	Diesel – Caterpillar (2)	830	1,000	2009	3
Total Base Generation		5,230	5,400		
Firm Capacity Credit (1)		5,000	5,000		
TOTAL LANAI DIVISION		10,230 KW	10,400 KW		

MOLOKAI, LANAI AND MAUI

- COUNTY OF MAUI HAS NOT SUPPORTED THE “EXTENSION CORD” PLAN FOR TWO LARGE WINDFARMS, ONE ON MOLOKAI AND ONE ON LANAI.
- MOLOKAI AND LANAI PRESENT VERY DIFFERENT ISSUES FROM OUR PERSPECTIVE.
- WHAT ELSE DO THE PEOPLE ON MOLOKAI NEED TO SAY BEFORE WE WILL BELIEVE THEY DON’ T WANT THIS WIND FARM?

MAUI ISLAND IS A MORE LOGICAL CONNECTION THAN MOLOKAI

- ◎ THIS REACHES A POPULATION 20 TIMES GREATER THAN THE POPULATION OF MOLOKAI.
- ◎ THIS AVOIDS ISSUES ASSOCIATED WITH 1 OR 2 SPECIFIC LANDOWNERS

LEVELIZED COST ASSUMPTIONS FOR COMPONENTS OF BIG WIND

COST COMPONENT	ASSUMPTIONS	ASSUMED LCOA (CENTS/KWH)
Levelized cost of Oahu Transmission and Distributions (“T&D”) infrastructure to connect to submarine cable system	<ul style="list-style-type: none"> • \$142 million • Based on 1,480 GWH of delivered wind energy • Hawaiian Electric owned and financed • South shore landing with substation and underground circuits 	1.11
Levelized cost of submarine cable system	<ul style="list-style-type: none"> • \$816 million capital cost • \$101.7 million per year revenue requirement based on 1,480 GWh of delivered wind energy • O&M Expense – 2.1% capital • Financing Terms: <ul style="list-style-type: none"> Debt to equity – 80/20 ration Debt – 5%, 20 yrs Nominal return on equity – 20% 	6.87
Levelized cost of wind energy	<ul style="list-style-type: none"> • \$222.8 million per year revenue requirement 	15.0
Levelized cost of project	<ul style="list-style-type: none"> • \$340 million per year revenue requirement based on 1,480 GWh wind delivered • Assuming Oahu infrastructure, wind energy and submarine cable at costs listed above 	23.0