



*January 13th, 2009*

*Lāna‘i – A Source of  
Renewable Energy  
for Hawaii*



*Castle & Cooke  
Hawai‘i*

# Presentation Outline

- ✓ Hawaii needs Energy Source Security
- ✓ Hawaii needs Energy Price Stability
- ✓ Hawaii needs to Act Now
  
- ✓ Castle & Cooke is taking action for the benefit of Lanai and for the State of Hawaii
  - ✓ La Ola – Lanai's Solar Farm
  - ✓ Lanai's Wind Farm

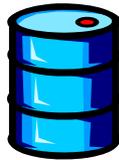
# Hawaii Needs Energy Source Security

- Hawai'i's dependence on imported oil is the highest in the U.S.
- Over 90% of our fuel for energy comes from overseas.



# Hawaii Needs Energy Price Stability

## -State wide average costs



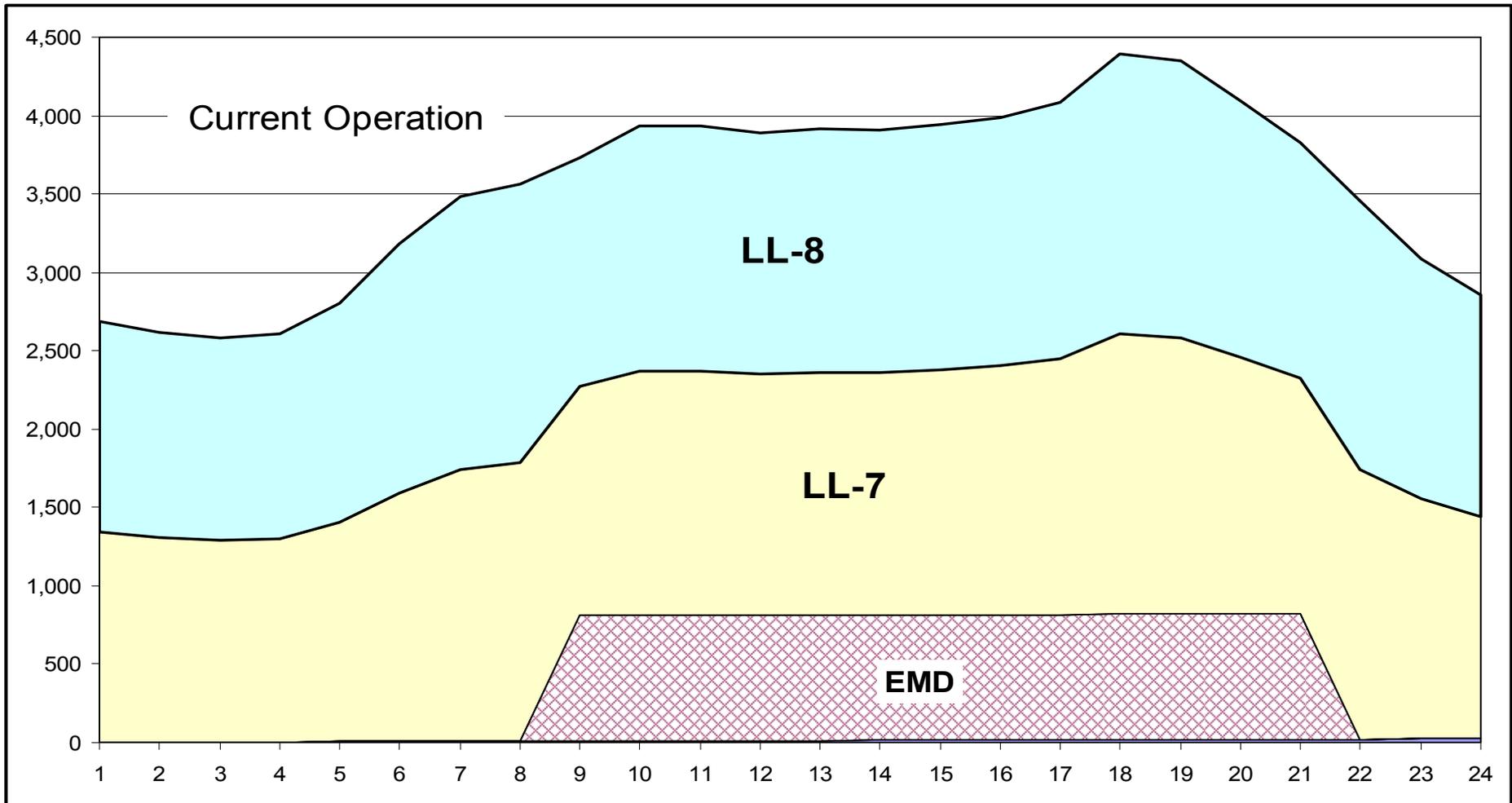
Year	State Average Electricity Rate /kwhr	~ Monthly Usage	~ Monthly Electric Costs
2002	\$0.13	1000 kwhr	\$ 130
2004	\$0.16	1000 kwhr	\$ 160
2006	\$0.21	1000 kwhr	\$ 210
2008	\$0.28	1000 kwhr	\$ 280

# Hawaii Needs to Act Now

## October 2008 State & HECO Energy Agreement

- ✓ Commitment to integrate 1100 MW of additional renewable energy already identified on HECO grids (700 implemented within 5 years)
- ✓ Construction of undersea cable connecting Maui, Moloka'i, Lāna'i into one grid to allow integration of additional 400 MW of renewable wind power generated in Maui County for transmission to O'ahu
- ✓ Require 40% of electric power from renewable sources by 2030, doubles current Renewable Portfolio Standard
- ✓ Commitment to integrate up to 400 MW of wind power into HECO's renewable energy commitments
- ✓ All parties commit to rapid development of as much renewable energy as possible

# Castle & Cooke – taking the lead for Lanai: Lānaʻi electricity demand & sources – Before the Solar Farm





1.5MW Hawaii's largest Solar Farm in service December 2008

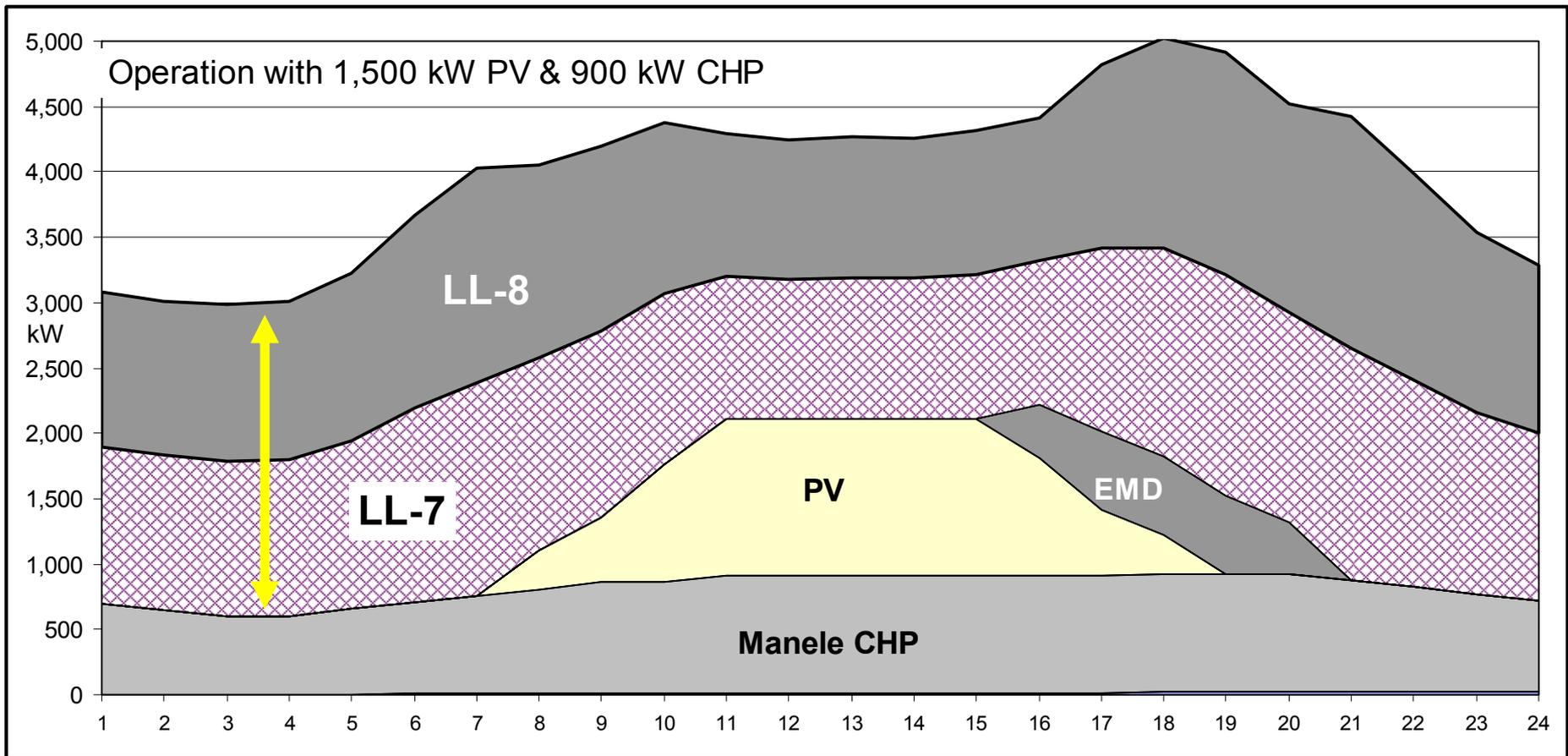
10 acres, 12 separate arrays, 7,000+ panels, tracker system

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

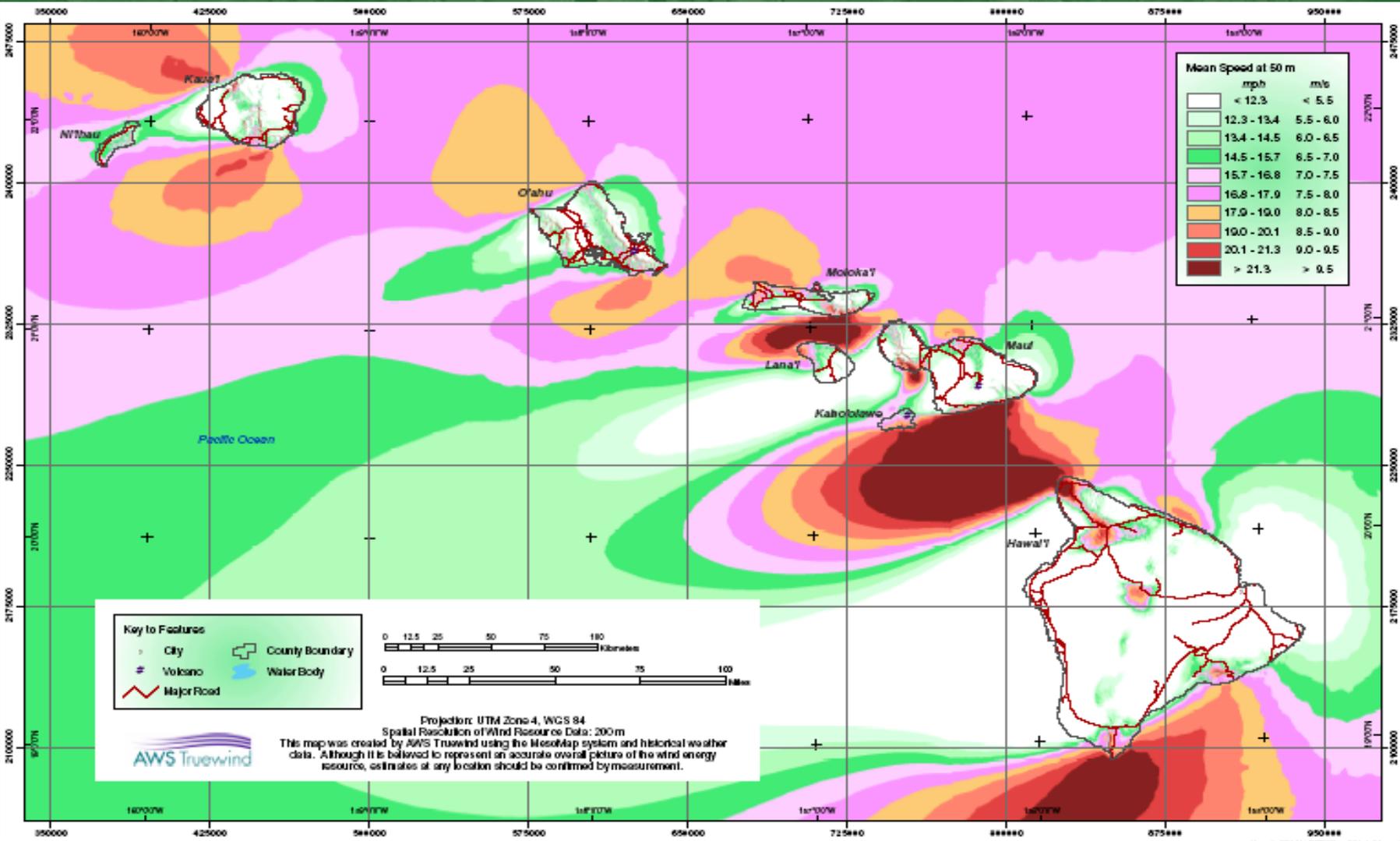


# Lānaʻi electricity demand & sources – Including the Solar Farm

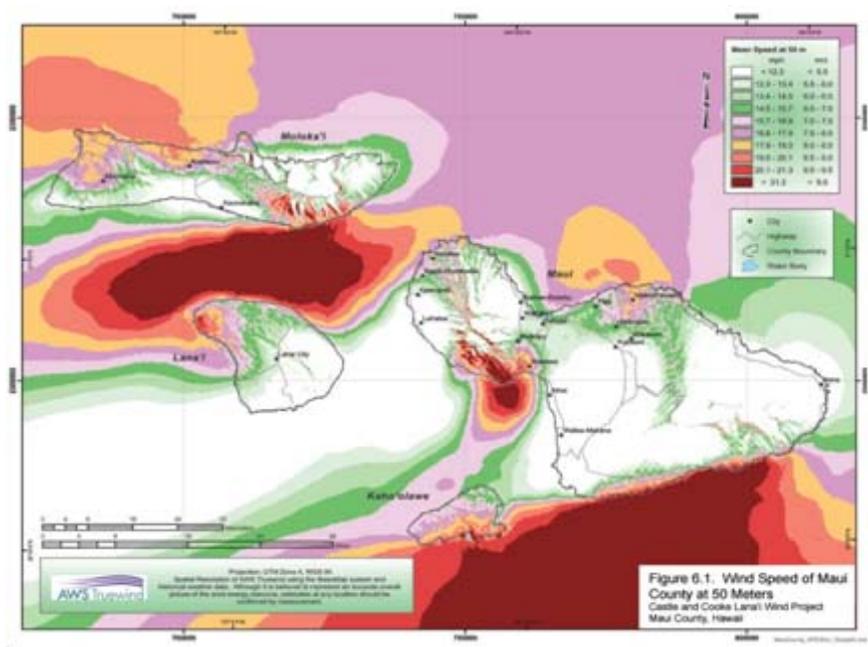


# Castle & Cooke taking the Lead for Hawaii: Lanai Wind power for Hawaii

Wind Speed Map of Hawaii at 50 Meters



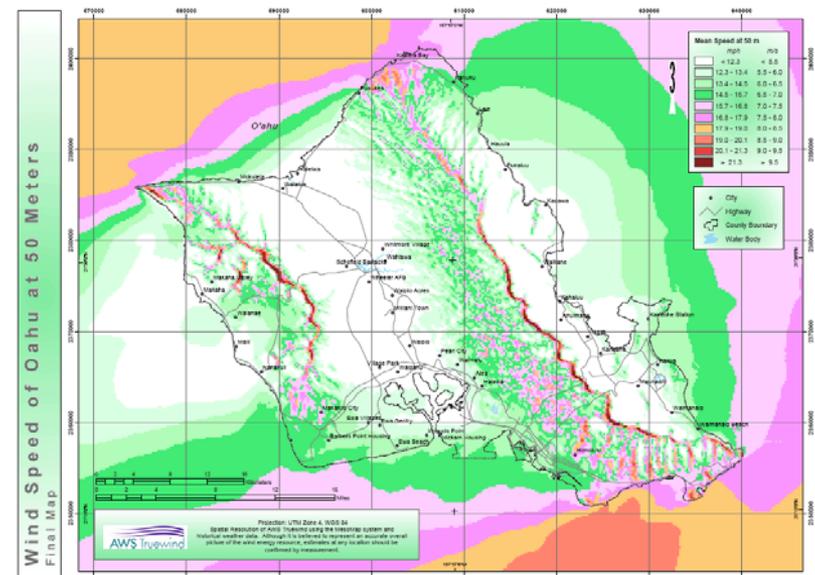
# Castle & Cooke taking the Lead for Hawaii: Lanai Wind power for Hawaii



HECo study found strong winds in northern part of Lānaʻi; confirmed by AWS Truewind study for Castle & Cooke; over one year of data.

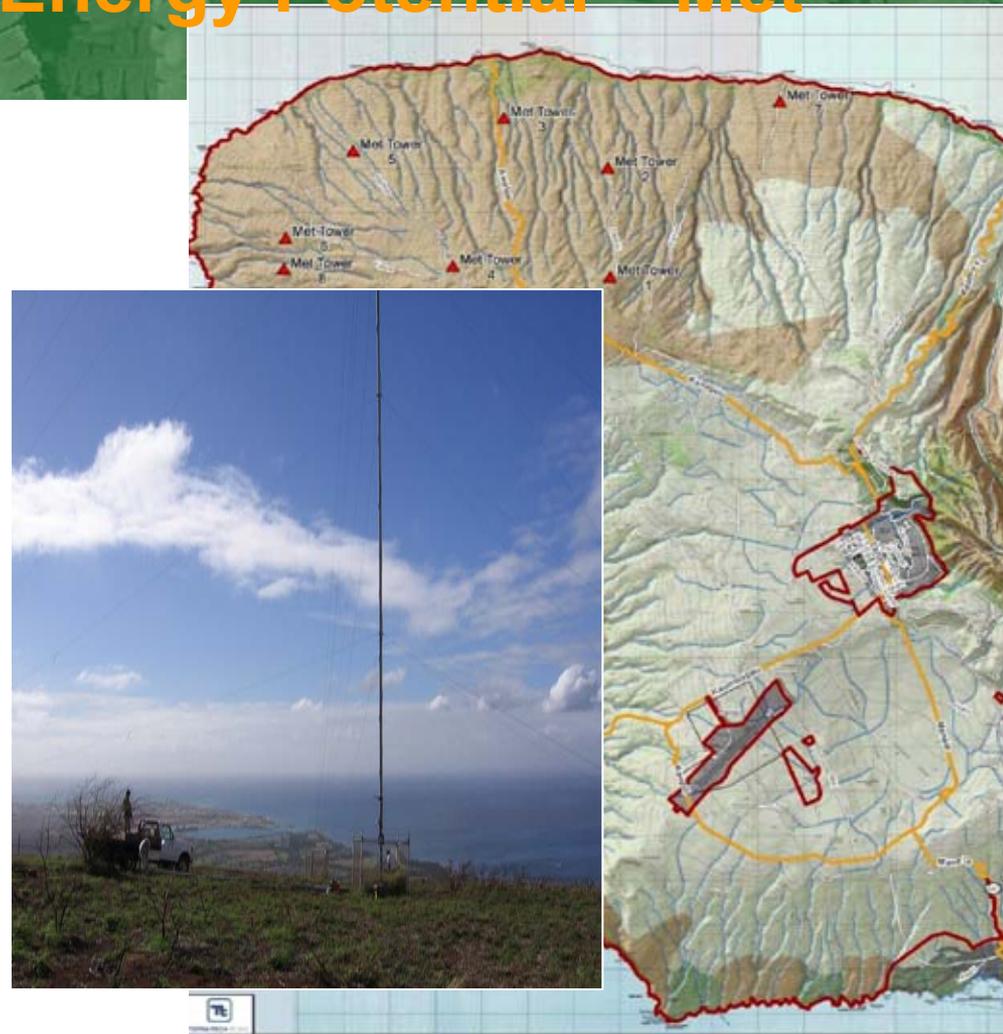
Lānaʻi has world class wind resources

Oʻahu has largest power needs but little wind resource



# Castle & Cooke taking the Lead for Hawaii: Assessing Lanai Wind Energy Potential – Met Towers

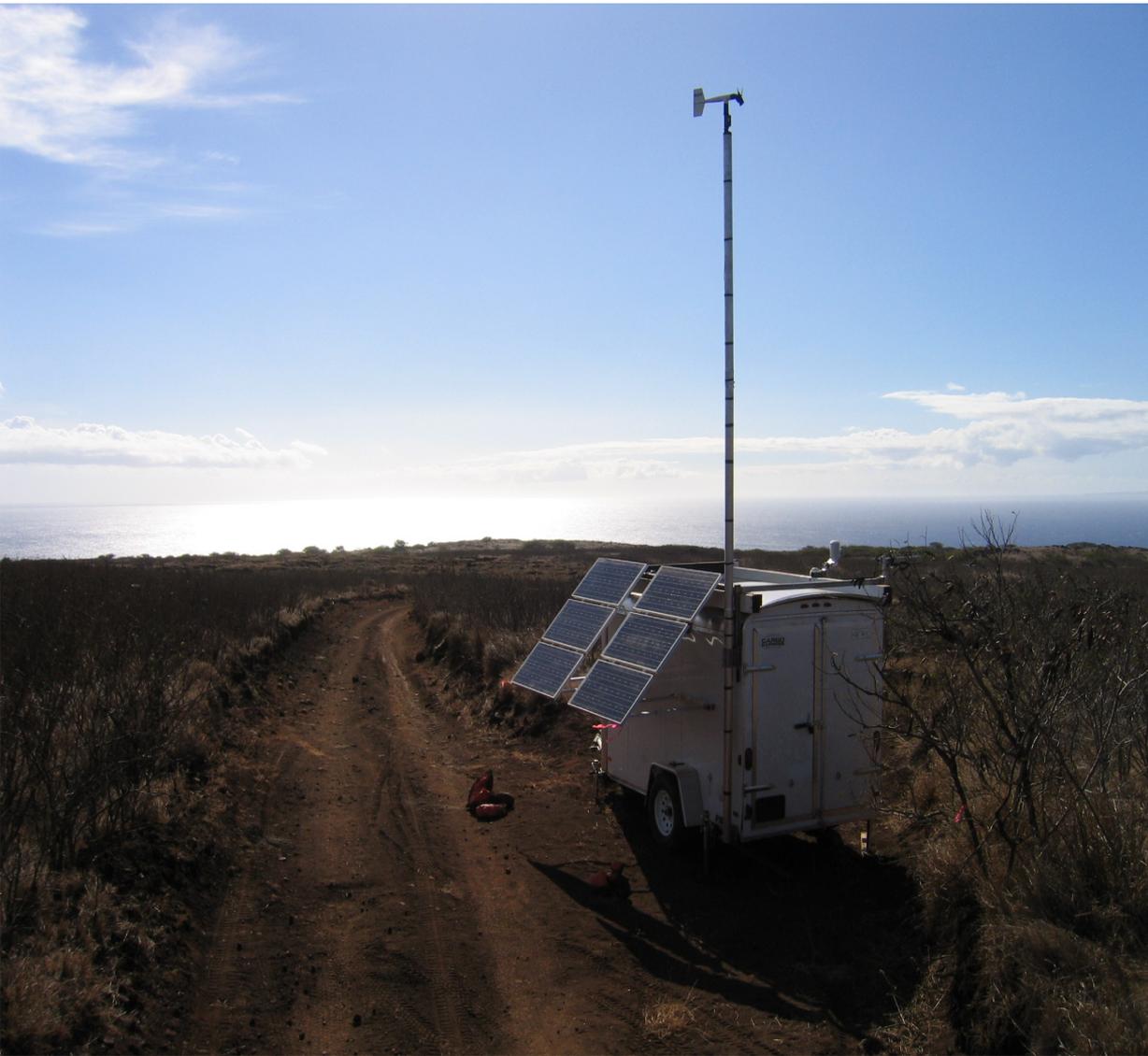
- Feasibility study conducted in March 2007
- Met towers to collect wind speed/direction data
- First met tower installed in August 2007
- An additional 5 towers installed February 2008
- Working with the State on environmental impact studies and permitting under Act 207
- Avian studies, cultural surveys, other biological and botany surveys are ongoing



**Exhibit A: Locations of Proposed Met Towers**  
Castle and Cooke CDUP  
Maui County, Hawaii



# Castle & Cooke taking the Lead for Hawaii: Assessing Lanai Wind Energy Potential - SODAR



- SODAR deployed 8/3/07
- Work in conjunction with met towers
- Collect wind data from additional sites

# Castle & Cooke taking the Lead for Hawaii: Lanai Wind power for Hawaii

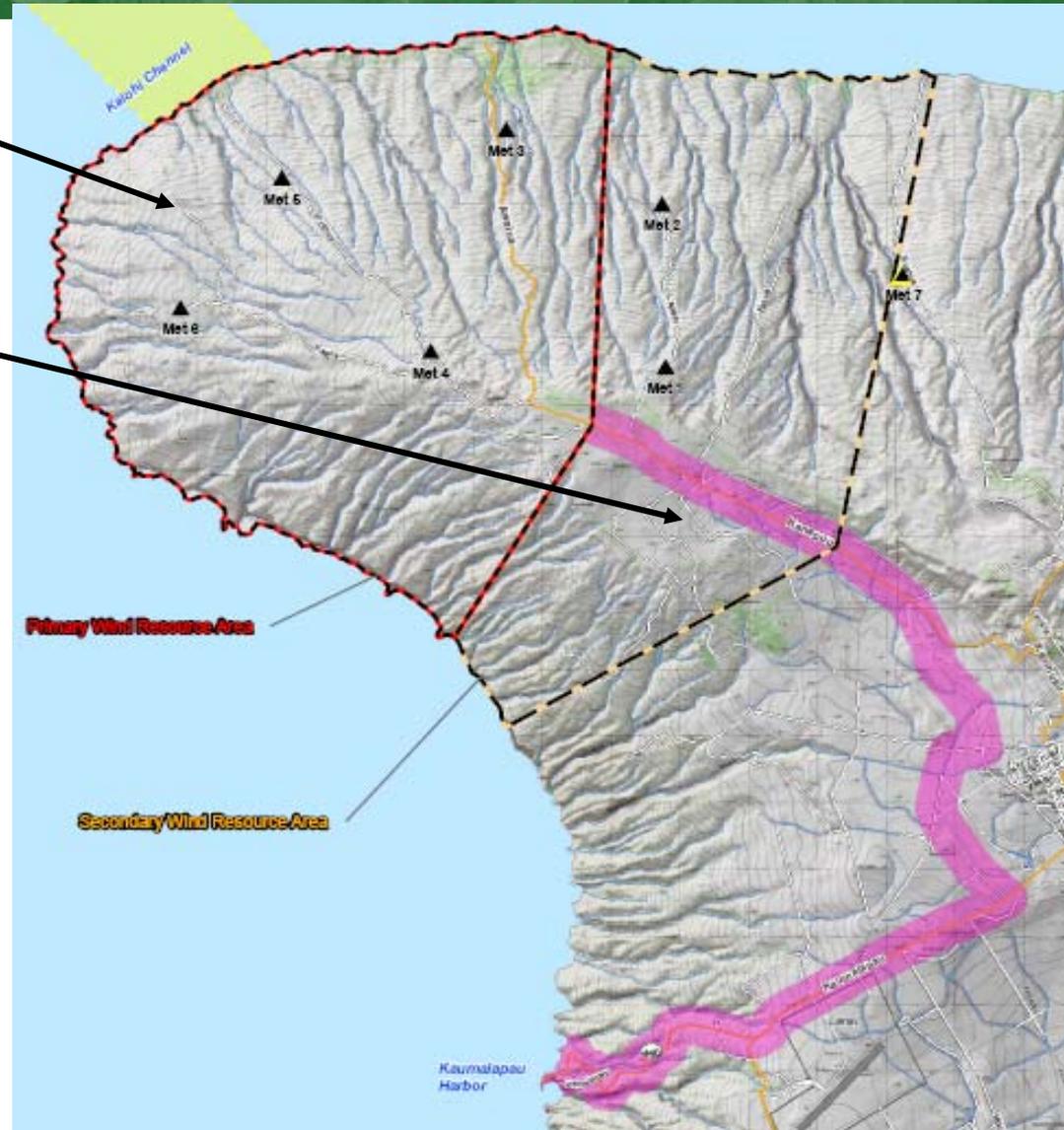
12,800 acres  
primary area

9,300 acres-secondary

Conservation District

300 - 400 MW possible  
in Primary area

100 - 200  
Wind Turbines



# Castle & Cooke taking the Lead for Hawaii: Advantages of the Lānaʻi Wind Farm

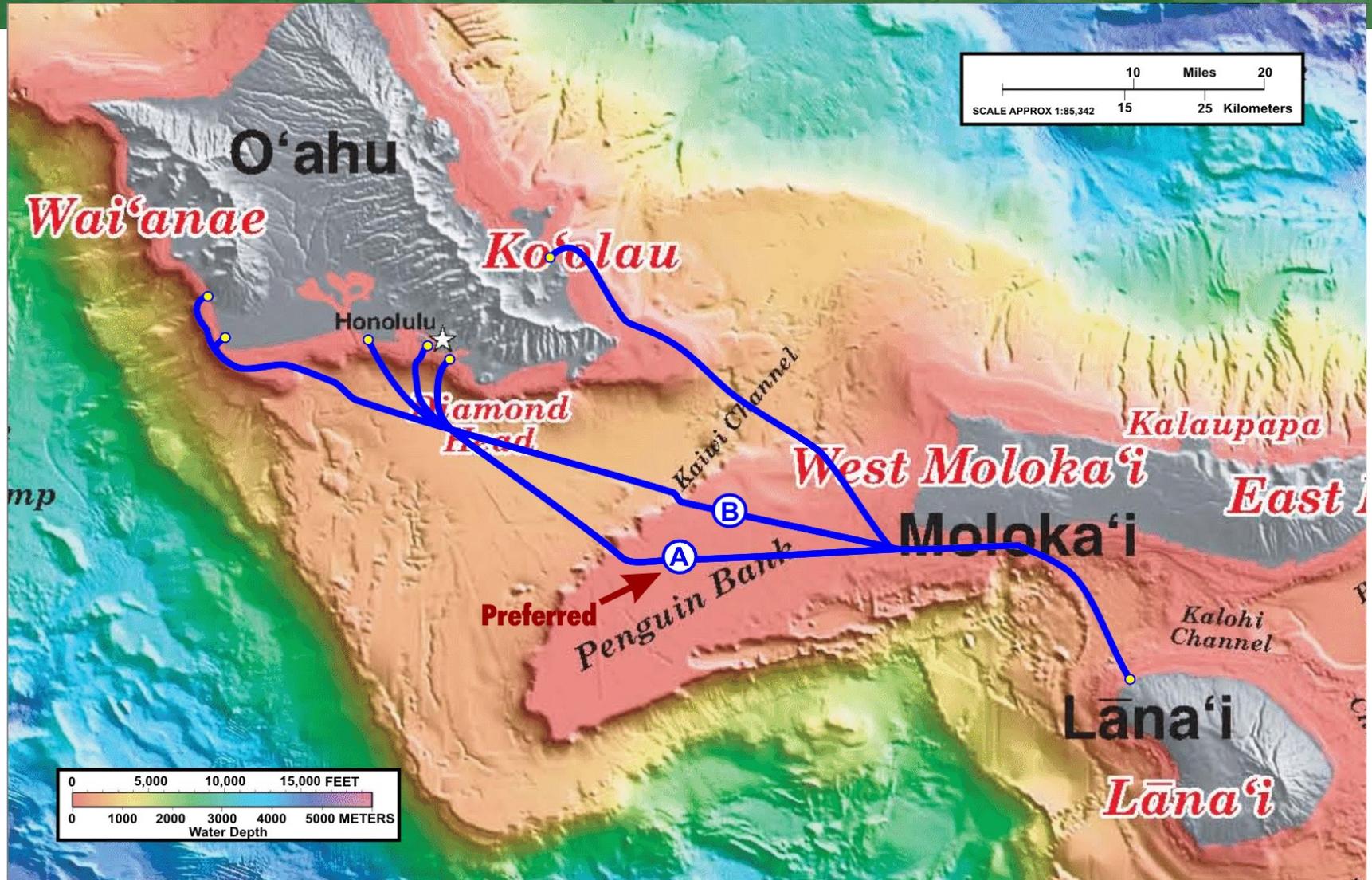
- Wind is the most cost effective renewable energy at a utility scale
- Efficiencies of one large scale project
- Land use primarily in remote area on Lānaʻi; controlled by one landowner
- With one project, Hawaiʻi can take a major step towards its goals of 70%, and create momentum to get it done
- Less development support effort needed for one project than with numerous smaller projects

# Castle & Cooke taking the Lead for Hawaii: Wind Energy Preparation



- Site analyses and topography maps generated
- Preliminary engineering underway
- Preliminary Geophysical investigation drilling completed
- Biological and cultural surveys underway
- Kaumālapa‘u Harbor analysis complete
- EIS underway the environmental impact study

# Castle & Cooke taking the Lead for Hawaii: Preliminary Cable Route Options



# Castle & Cooke taking the Lead for Hawaii: Community Outreach Efforts

- Lānaʻi Archaeological Committee and Hui Malama Pono o Lānaʻi Presentations – May 2007
- Lānaʻi Pineapple Festival Sustainability Booth - June 30, 2007 and July 4, 2008
- Lānaʻi Community Meeting at LHES to discuss potential Energy Projects with David Murdock - August 27, 2007
- Ka Nuleka o Lānaʻi Newsletter update – May 2007, October 2007, June 2008
- Lānaʻi Times update articles - Monthly articles from October 2007 - August 2008 ongoing
- Maui Energy Expo - November 2007
- Lānaʻi Energy Site Tour with State Legislators – November 2007, February 2008 ongoing
- Lānaʻi Energy Site Tour with U.S. Department of Energy - February 2008
- Lānaʻi Solar/Met Tower Site Tour and Energy Project update for Community Facilitators - March 8, 2008
- Solar Farm Site Tour and Lānaʻi Planning Commission Hearing – April 16, 2008
- Solar Farm Site Tour for Maui Community College-Lānaʻi Electricity Class students - April 28, 2008
- Lānaʻi Energy Site Tour for educators in Pacific Resource Partnership “Tools of the Trade” Summer Internship Program - June 25, 2008
- Lānaʻi Community Town Hall Meeting at LHES with David Murdock and C & C staff - August 15, 2008



# Castle & Cooke taking the Lead for Hawaii: Benefits from Lanai Wind Farm

- ★ Electricity price stability when delinked from oil prices
- ★ Energy Independence; Reduce reliance on barged fossil fuel & imported oil
- ★ Setting the example for Hawai'i, the United States and the World
- ★ Create opportunities for research and development
- ★ Diversify the Lāna'i economy
- ★ Jobs created in clean energy
- ★ Capital invested in clean energy creating a new tax base for the community
- ★ Keeps the island rural without negatively impacting property values
- ★ Future of our keiki and generations to come



# Mahalo

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