



HAWAIIAN HOME LANDS

HAWAIIAN HOMES COMMISSION · DEPARTMENT OF HAWAIIAN HOME LANDS

# **DHHL GEOTHERMAL BENEFICIARY INFORMATIONAL BRIEFING**



# AGENDA

- Welina & Introductions (5 MINS)
- Presentations (50 MINS)
- **BREAK!** (10 MINS)
- Breakout Groups (45 MINS)
  - ✓ Culture
  - ✓ Environment
  - ✓ Technology
  - ✓ Benefits
- Closing (10 MINS)



# BENEFICIARY MEETING

## PURPOSE:

This **informational meeting** is meant to:

- **Share information** regarding DHHL's Geothermal resources
- Provide **beneficiaries an opportunity to ask questions**
- Gather **beneficiary mana'o** regarding DHHL's Geothermal related studies and efforts



# GUIDELINES

- There is a lot of information to cover, please **hold questions until after the presentation.**
- **Agree to disagree** —others have different opinions.
- Be respectful of the person talking – **please do not interrupt.**
- Take home new information.
- **Some are here to listen, some are here to speak;** our agenda is meant to provide opportunities for both.



# Message from Chair Kali Watson





# Message from Chair Kali Watson



HAWAIIAN HOME LANDS

HAWAIIAN HOMES COMMISSION · DEPARTMENT OF HAWAIIAN HOME LANDS



# The Māori experience

**Mana Newton**

Group CEO

Tauhara North No.2 Trust



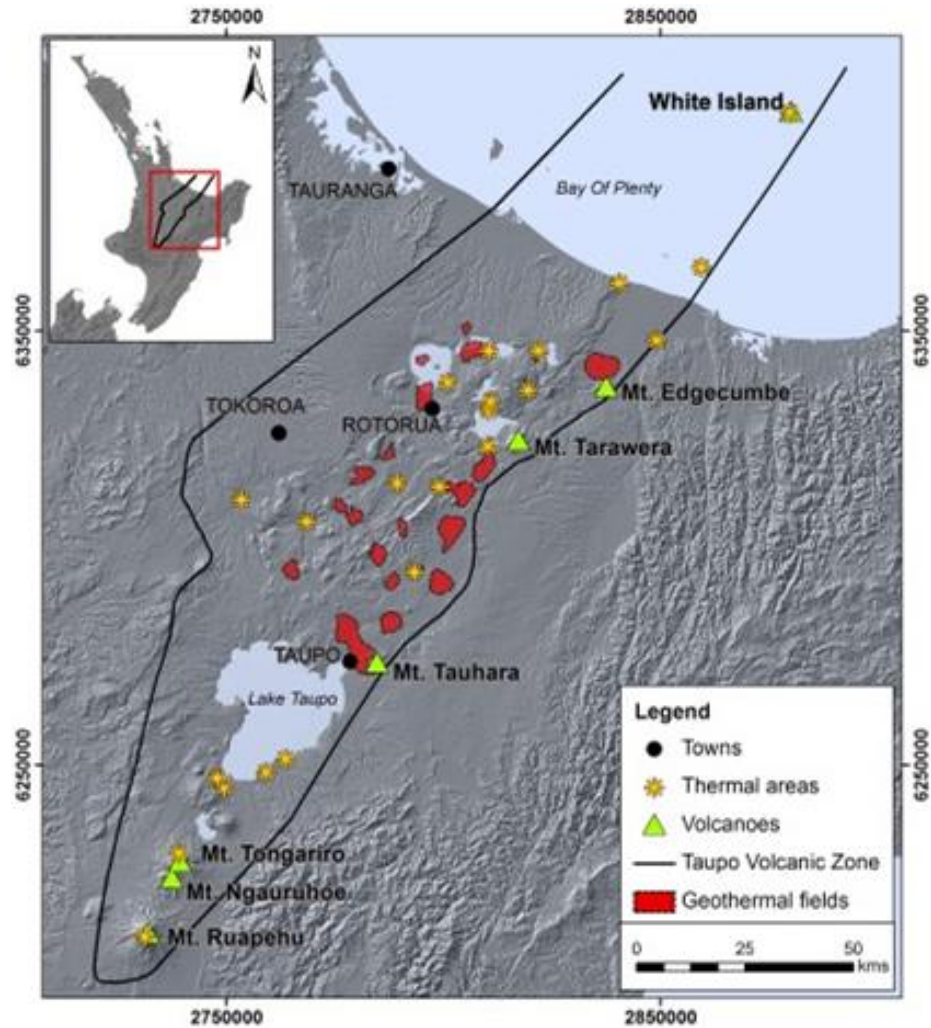
- Tahu Matua was the first tupuna who landed in 1250 AD (pre-migration) – Manunuiarangi.
- Settled in Reporoa – Orakei Korako.
- Never left the land and have had continued AHIKAAROA since the time he arrived in Aotearoa.

## Ngati Tahu Ngati Whaoa History



# Mana Newton - Our Rohe (Tribal Area)

## OUR IWI BOUNDRIES



# Ohaki





# Tauhara - Rotokawa





**Small Scale (2MW) Geothermal Facility**



**TOURISM**



**GEO THERMAL**



**HOUSING**



**POU**



**FARMING**



**HEALTH**

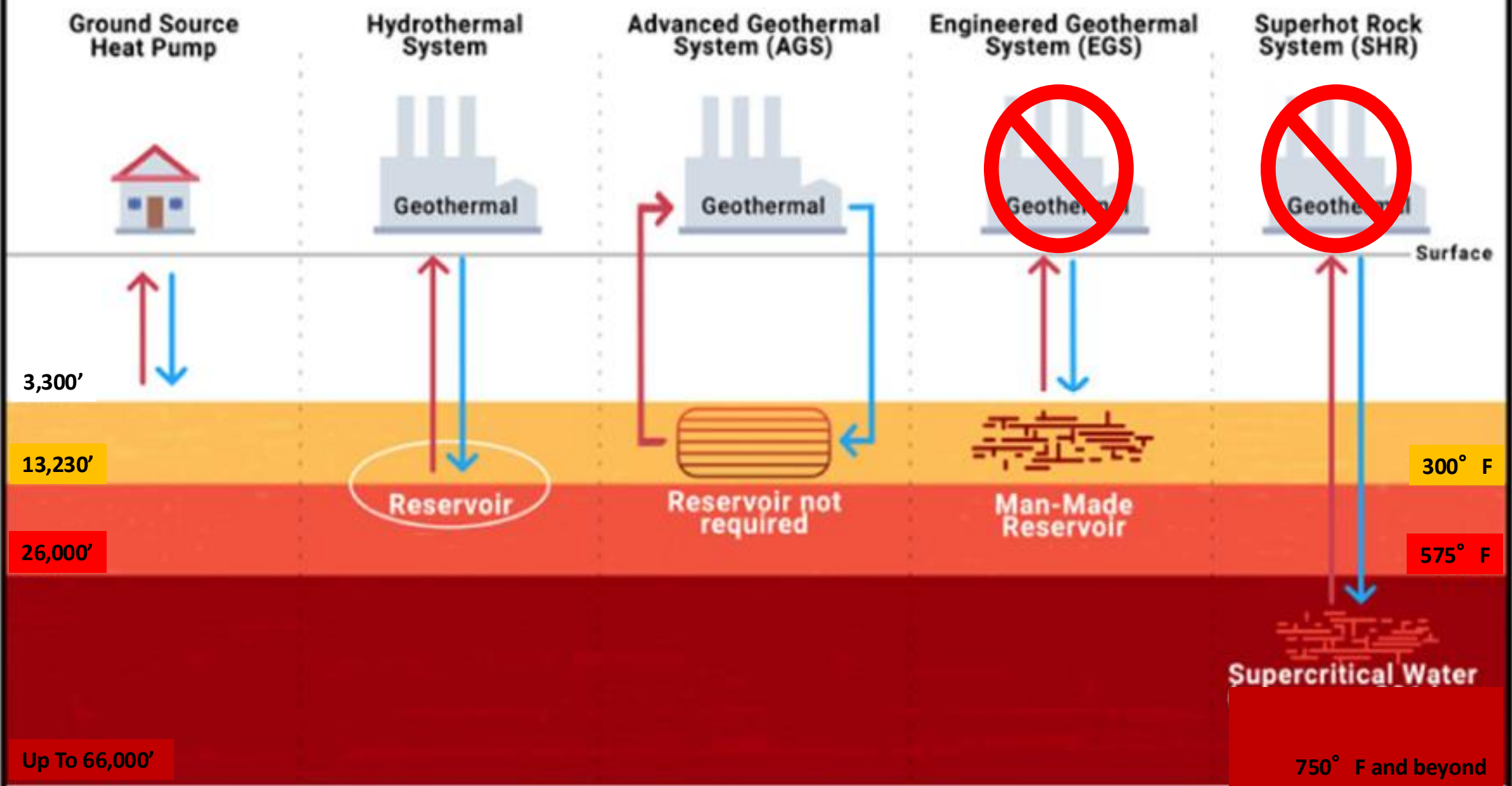


**EDUCATION**



# **GEO THERMAL 101**

# Types of Geothermal Energy Systems



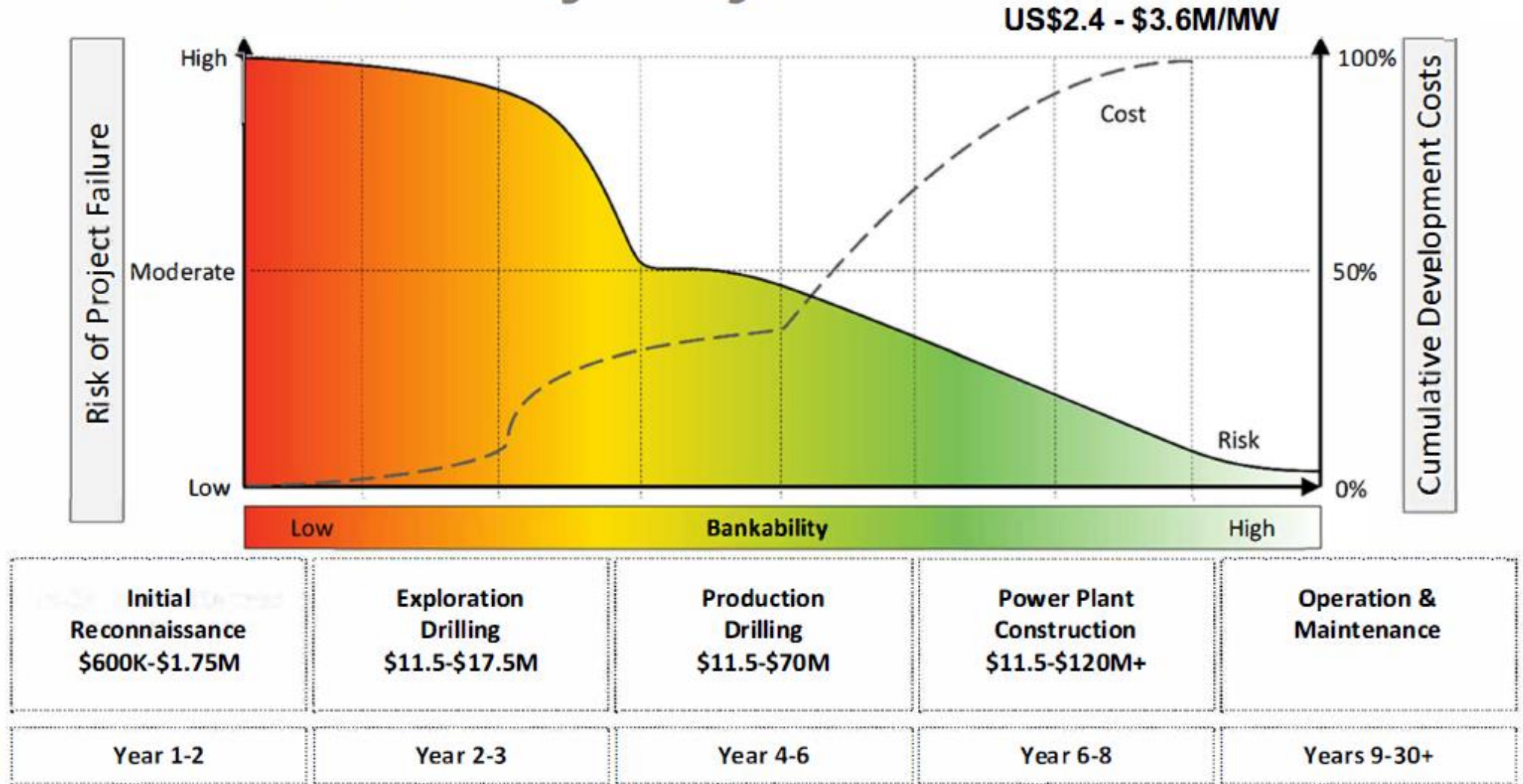
Conventional

Next-Generation



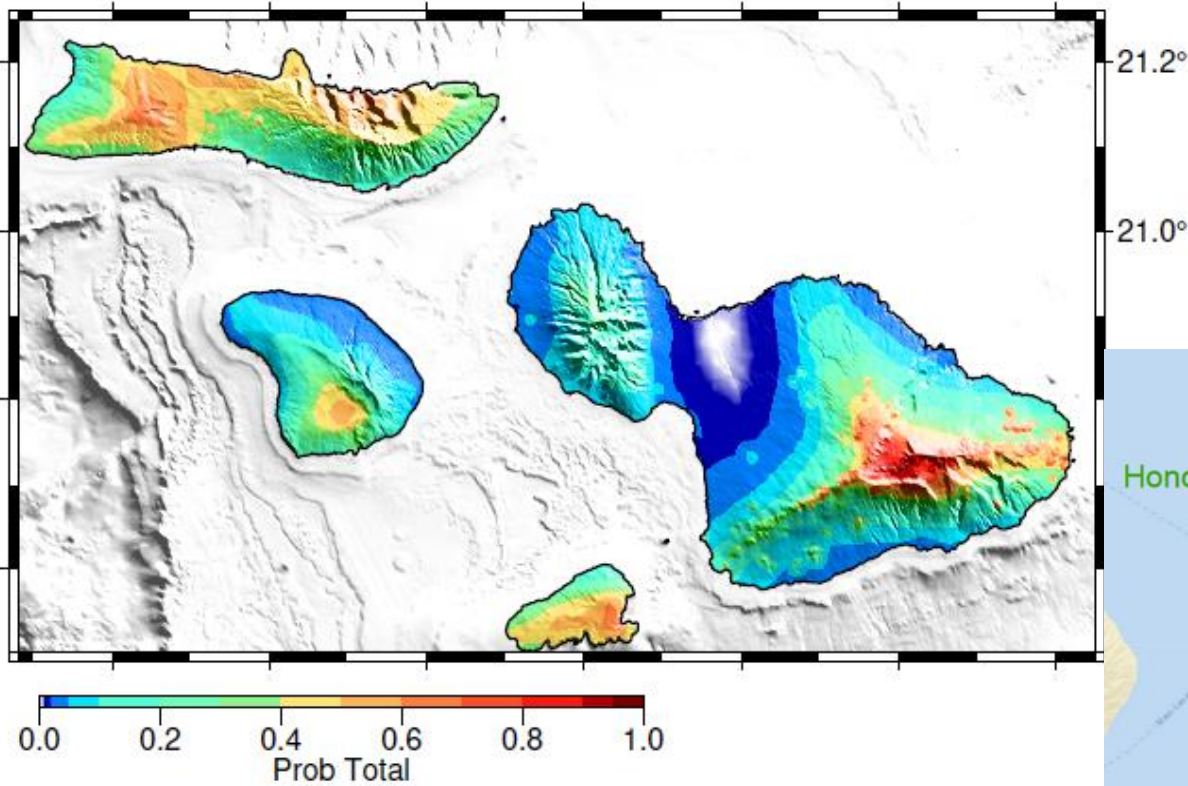
# 'IKE FROM AOTEAROA

## Geothermal Electricity Project



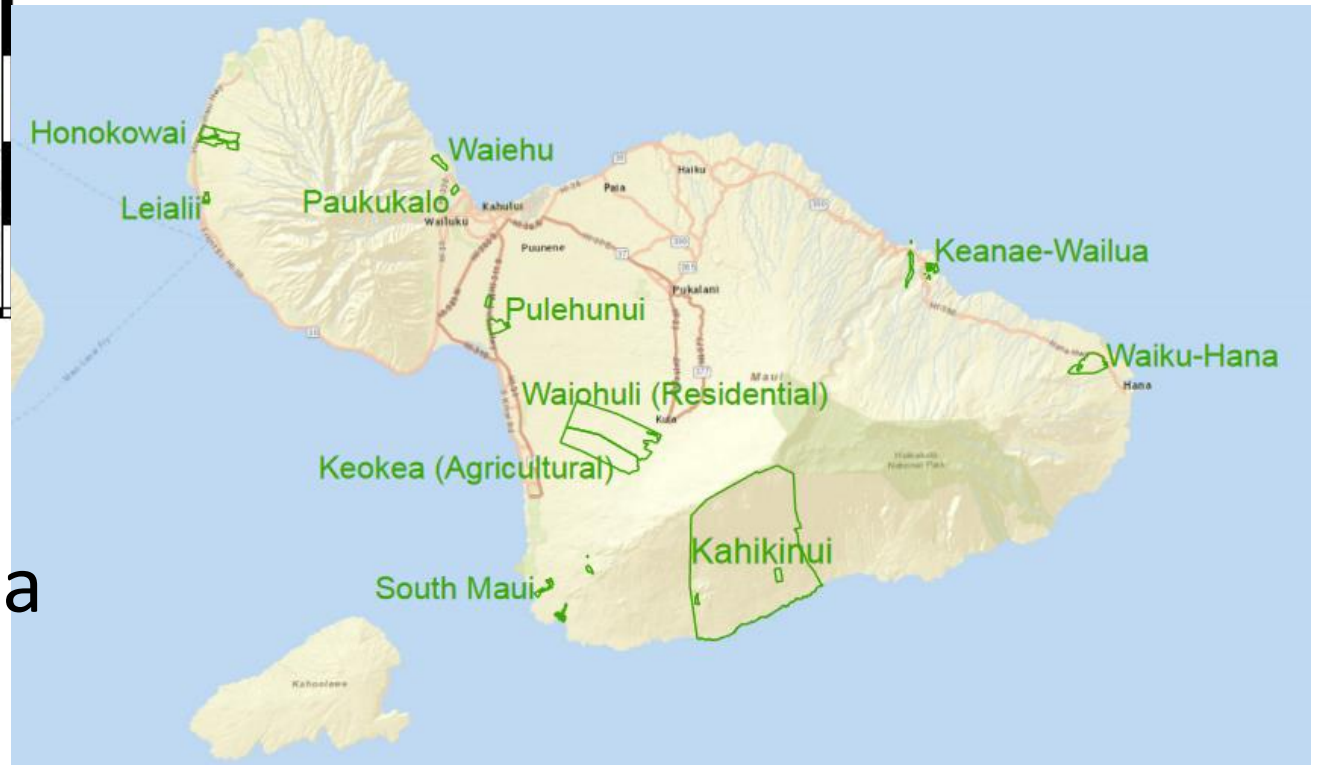


# GEOHERMAL RESOURCES ON HHL



Statewide: 10 – 12 sites of interest

Maui: Kahikinui and Wākiu/Hāna





# PHASED GEOTHERMAL PRODUCTION

3 Potential Development Sites?

PHASE 3

6 Potential Sites?

PHASE 2

10 - 12 Potential Sites

PHASE 1

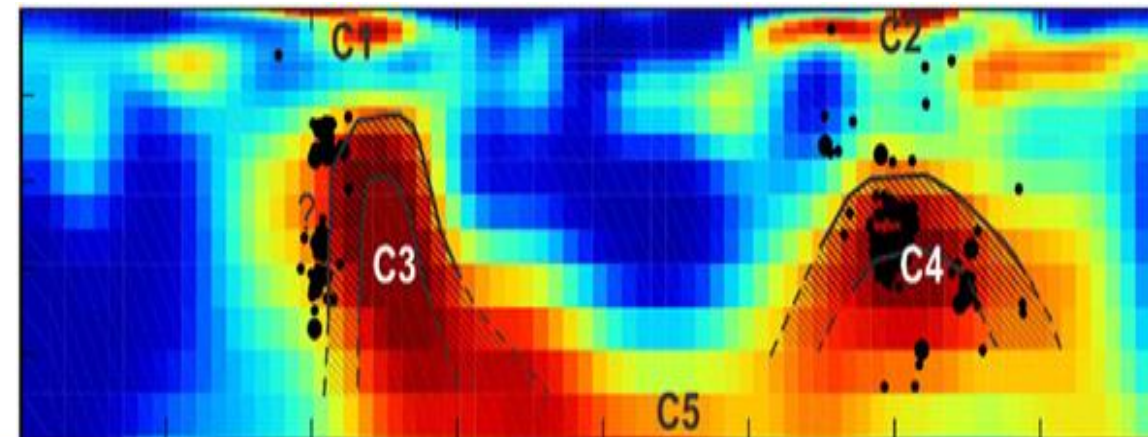


# GEOPHYSICS: MT SURVEYS

- Field team of 2-4 people carrying equipment
- Data logger set on the ground and sensors connected by wires laid out on the ground surface.
- Coils and pots are buried 4-6” below the ground
- Left for 2-4 days to record and collect the data



Induction coils (red tubes), Telluric sensors ‘pots’ (white cylinders), Data logger & GPS (grey case). Cables, battery, water and shovels.

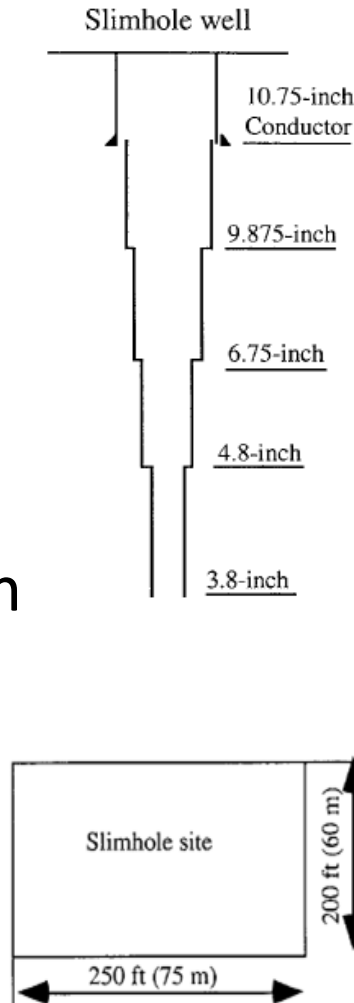




# SLIM HOLE DRILLING

Used to explore the subsurface and validate geophysics and conceptual model. Tells us about the rocks, temperature and pressures.

- Water well sized rig transported on truck
- Small diameter wells (< 6")
- To depths 1600-6500 feet
- Drill add cement to case the well
- Takes between 20 to 40 days





# **Environmental Considerations**

# Air Discharges

- Gases such as  $\text{H}_2\text{S}$ ,  $\text{CO}_2$ , Hg
- Steam and heat plumes



# Subsidence



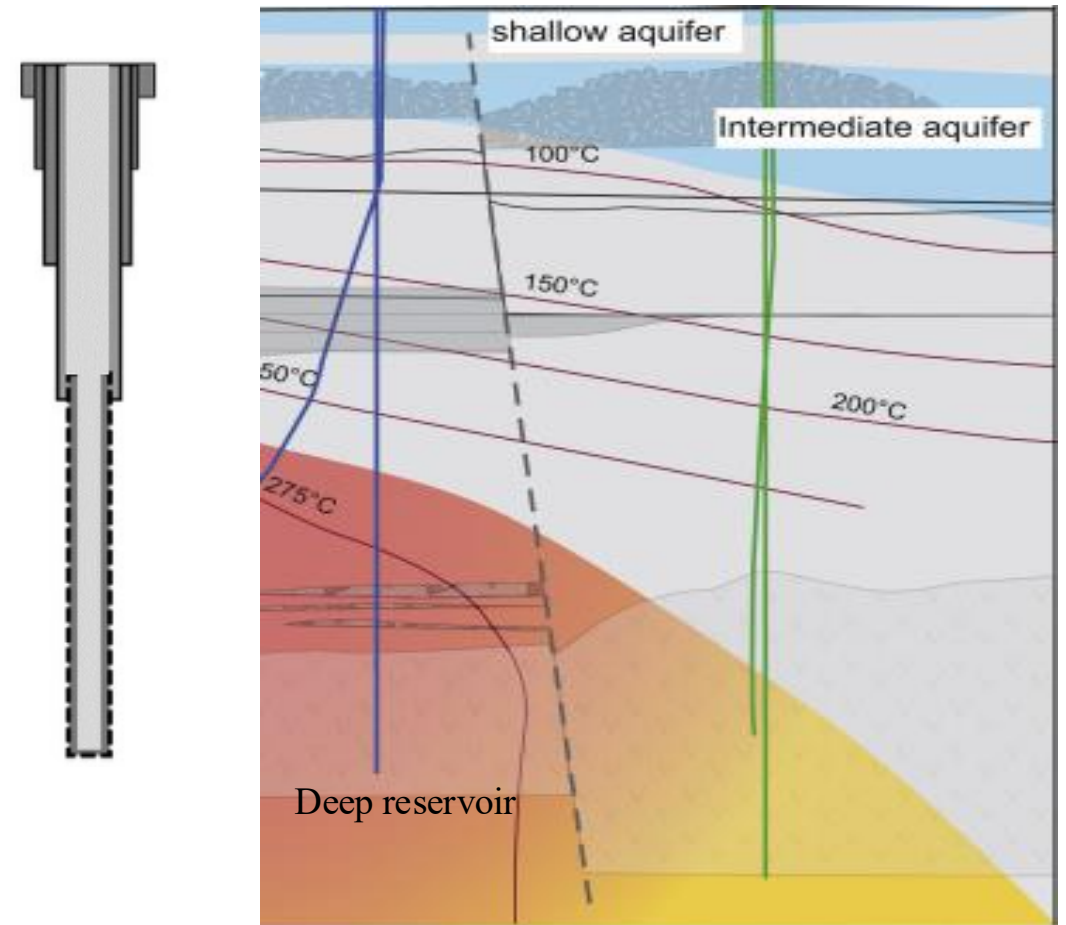
# Ecological Impacts

- Removal/Addition of Heat
- Water Discharge
- Unique Species Habitats
- Monitoring Essential to track changes



# Aquifer Disturbance

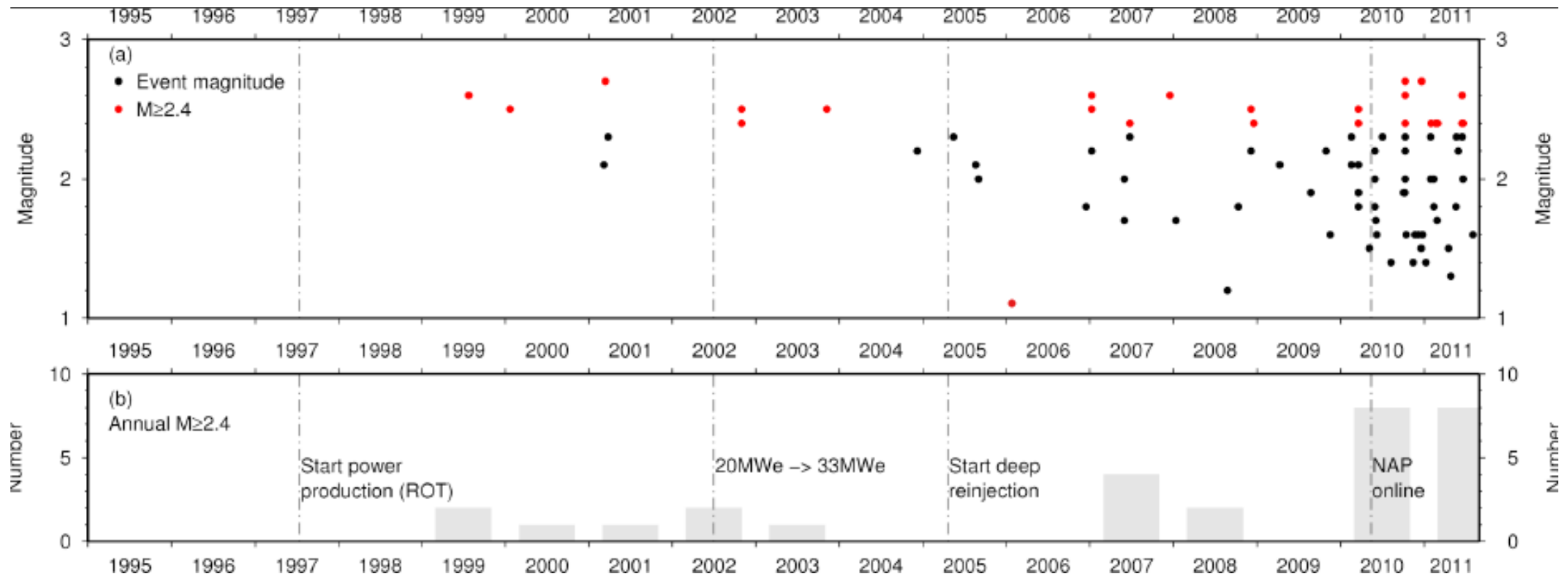
- Casing to prevent shallow aquifer interaction
- Monitoring – regular geochemical sampling
- Tracer testing



# Seismicity



- Seismicity is natural in geothermal fields, development can potentially increase it
- Can help us know where fractures are in the subsurface
- Brings additional risk to built structures at surface
- May also help reduce the risk of larger earthquakes by releasing stress

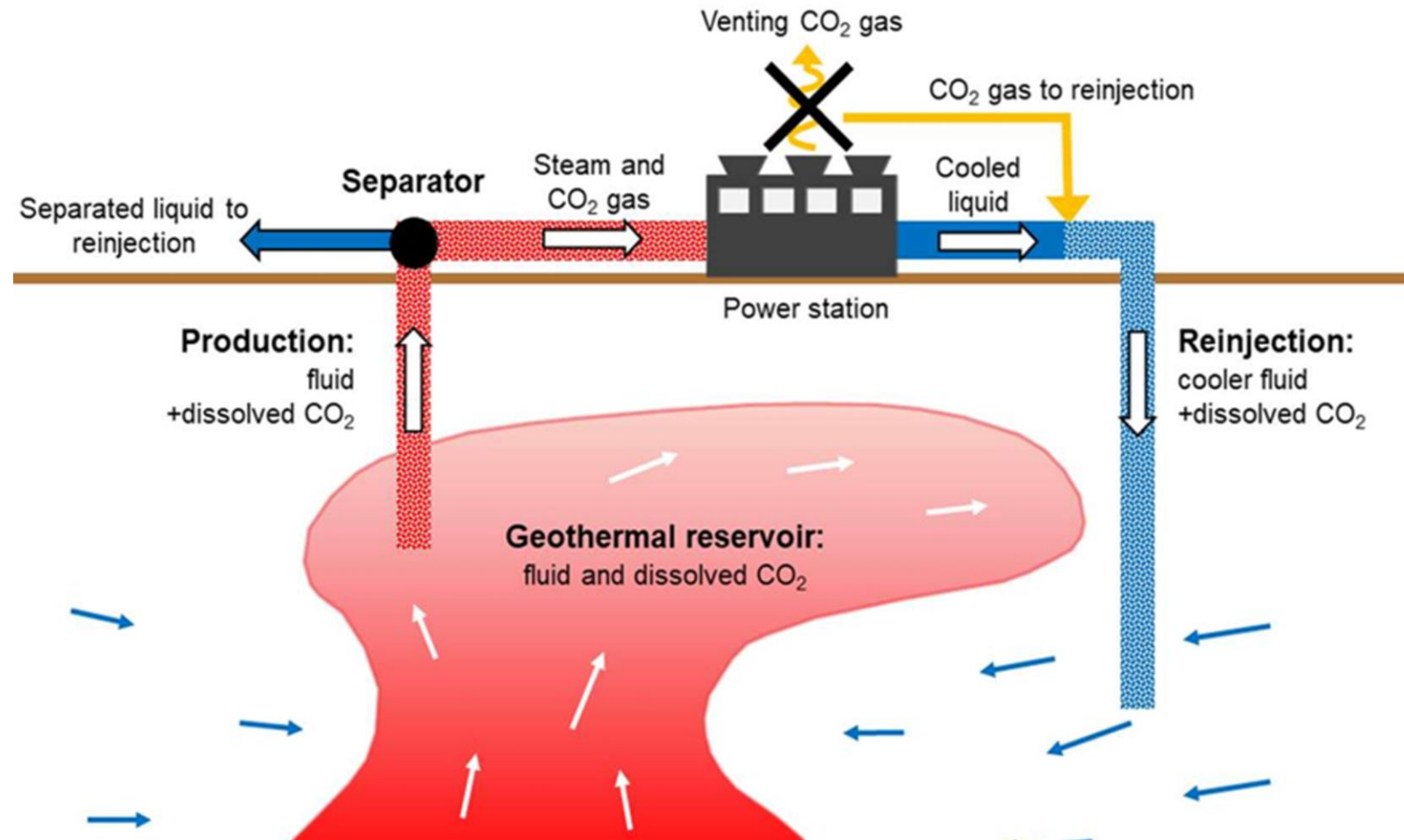




# Achieving the Balance is Key



- Find the sustainable resource use balance while adapting to changes in reservoir and surface behaviors
- Rigorous monitoring to balance adverse and beneficial effects
- Find ways to mitigate H<sub>2</sub>S and CO<sub>2</sub> emissions
- Stage developments to reduce adverse effects
- Model, monitor and mitigate





# **BENEFITS**



# Maui County

Rate Schedule	2025 Average Cents/kWh		
	Maui	Molokai	Lanai
"R" Residential	41.58	48.48	50.02
"G" Small Power Use Business	45.57	57.88	54.05
"J" Medium Power Use Business	38.15	48.42	52.05
"P" Large Power Use Business	34.80	38.38	48.48
"F" Street Lighting	37.52	45.08	48.59



# EXISTING HOMESTEADS & ESTIMATED ENERGY COSTS

Island	Existing				Estimated Annual Energy Costs*
	Homesteads	Residential	Agriculture	Pastoral	
O'ahu	5,038	4,978	60	0	\$14.5M
Kaua'i	765	719	45	1	\$2.2M
<b>Maui</b>	<b>1,602</b>	<b>1,341</b>	<b>162</b>	<b>99</b>	<b>\$4.6M</b>
Hawai'i	2,850	1,990	548	312	\$8.2M
Moloka'i	788	375	388	25	\$2.3M
Lāna'i	44	44	0	0	\$0.1M
<b>Statewide</b>	<b>11,087</b>	<b>9,447</b>	<b>1,203</b>	<b>437</b>	<b>\$32.0M</b>



# INNOVATIVE FUNDING

## Geothermal Expense and Profit Projections

Geothermal Energy Item	Estimates
Cost to Build Facility:	\$150M
Annual Gross Revenue:	\$40M
Annual Operating Expenses:	\$13.5M
Annual Profit:	\$26.5M



# Maui

Future Homesteads: 2,055

**HONOKŌWAI**

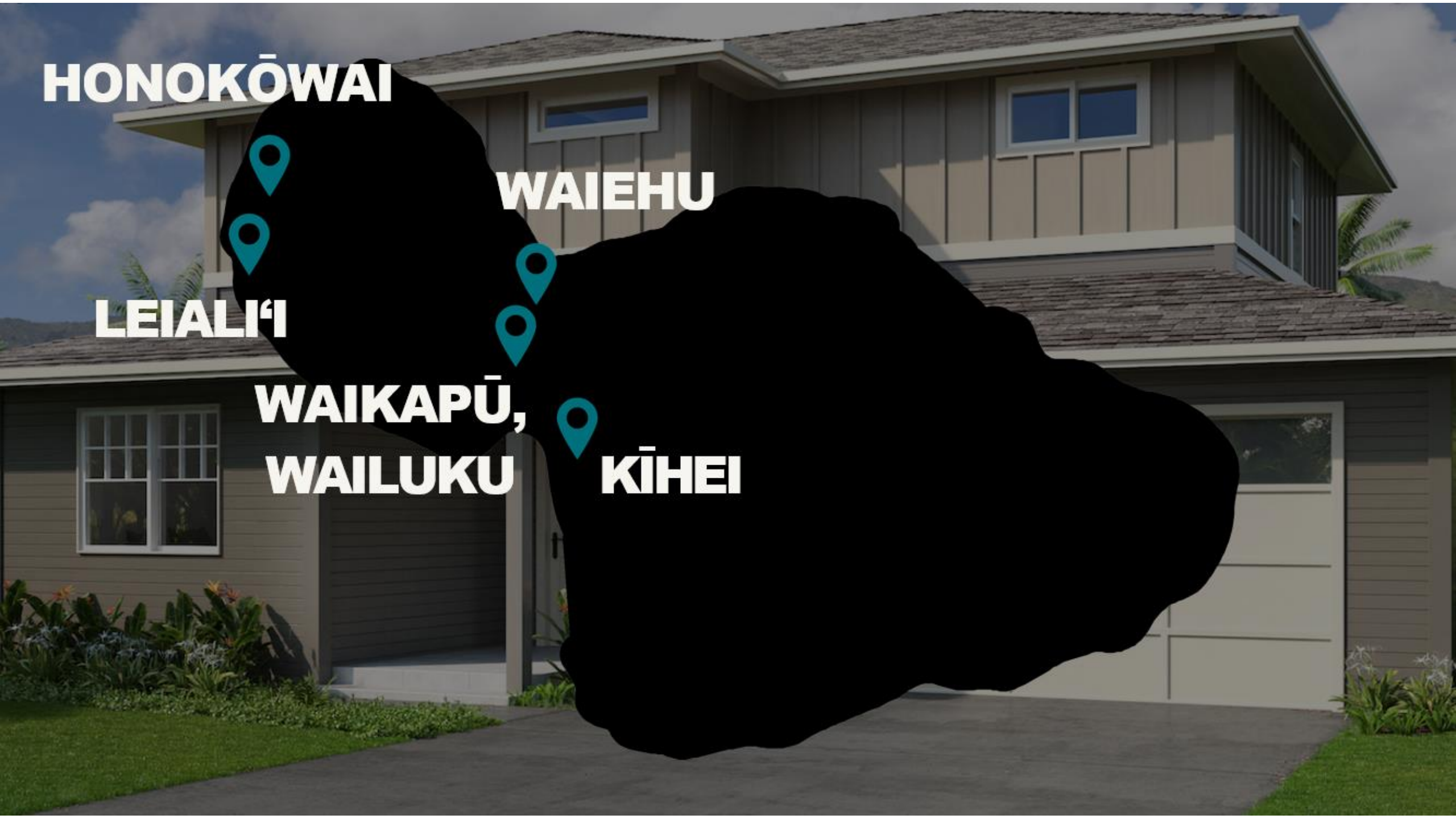
**WAIEHU**

**LEIALI‘I**

**WAIKAPŪ,**

**WAILUKU**

**KĪHEI**





# BENEFICIARY ENGAGEMENT

<b>Initial Reconnaissance</b>	<b>Exploration Drilling</b>	<b>Production Drilling</b>	<b>Power Plant Construction</b>	<b>Operation &amp; Maintenance</b>
Year 1-2	Year 2-3	Year 4-6	Year 6-8	Years 9-30+

<b>Info Briefing</b>	<b>*Possible Beneficiary Consultaion</b>	<b>Beneficiary Consultation and additional Consultation</b>
DHHL staff conducts informational sessions with beneficiaries statewide	Any long-term land disposition triggers the DHHL Beneficiary Consultation Policy (2009)	Any long-term land disposition triggers the DHHL Beneficiary Consultation Policy (2009); additional consultation is also needed for compliance with Ch. 343, HRS; Ka Pa'akai Framework Analysis; use of Federal funds triggers compliance with federal regulations like NEPA and NHPA Section 106



# NEXT STEPS

- Comment Period: **OPEN UNTIL JULY 31, 2026**

**\*\*\*Google form & email comments accepted**

**Website:** [www.dhhl.hawaii.gov/dhhl-geothermal-resources/](http://www.dhhl.hawaii.gov/dhhl-geothermal-resources/)

**Email comments to:** [dhhl.planning@hawaii.gov](mailto:dhhl.planning@hawaii.gov)

**Questions on Geothermal Resources:**

**Russell K. Kaupu**

*Property Development Agent  
Office of the Chair*

91-5420 Kapolei Parkway, Kapolei, HI 96707

Office: (808) 730-0168 [voice]

Mobile: (808) 829-2630 [text]

[russell.k.kaupu@hawaii.gov](mailto:russell.k.kaupu@hawaii.gov) | [www://dhhl.hawaii.gov](http://www://dhhl.hawaii.gov)

Scan & share mana'o:

