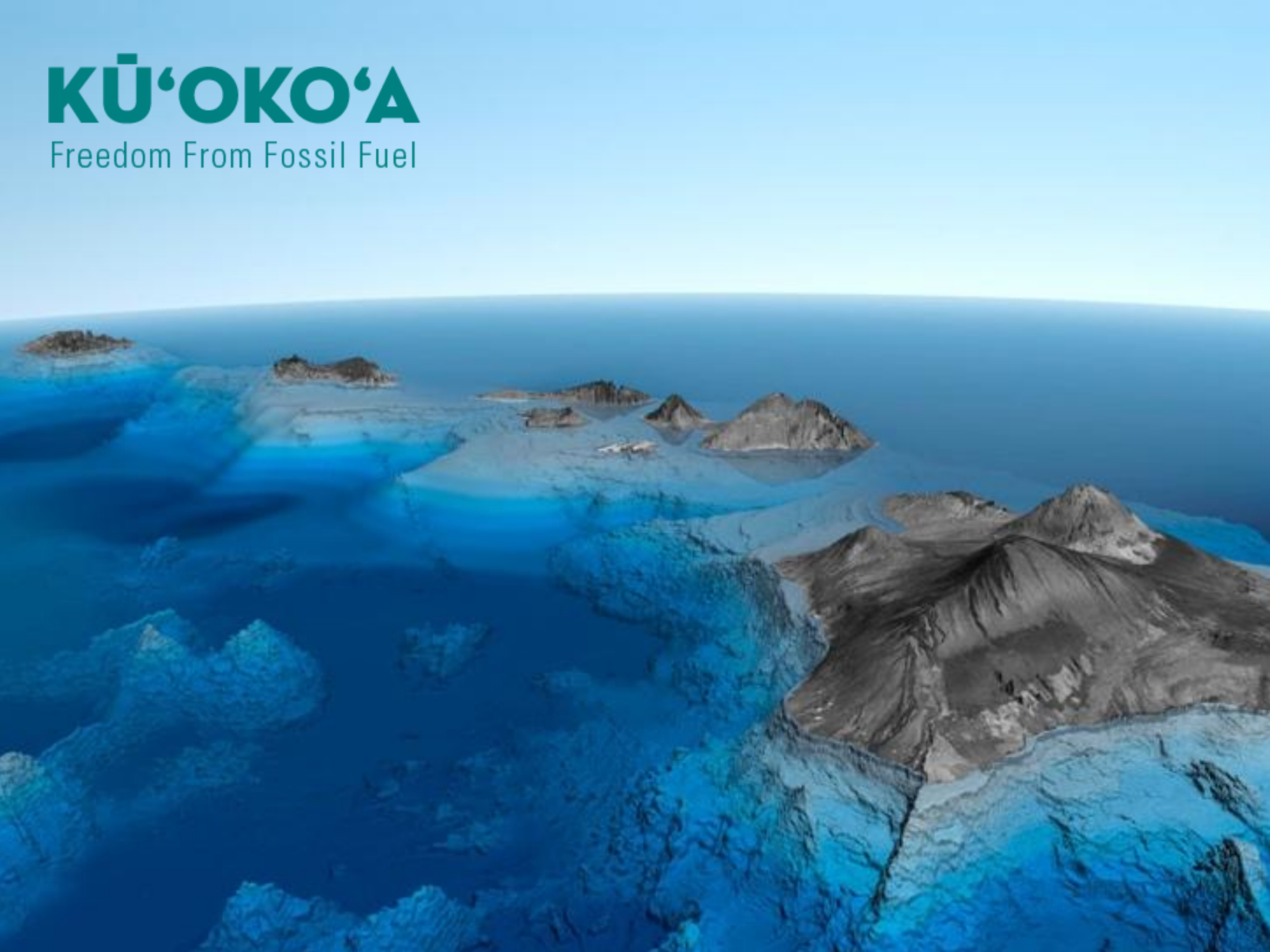
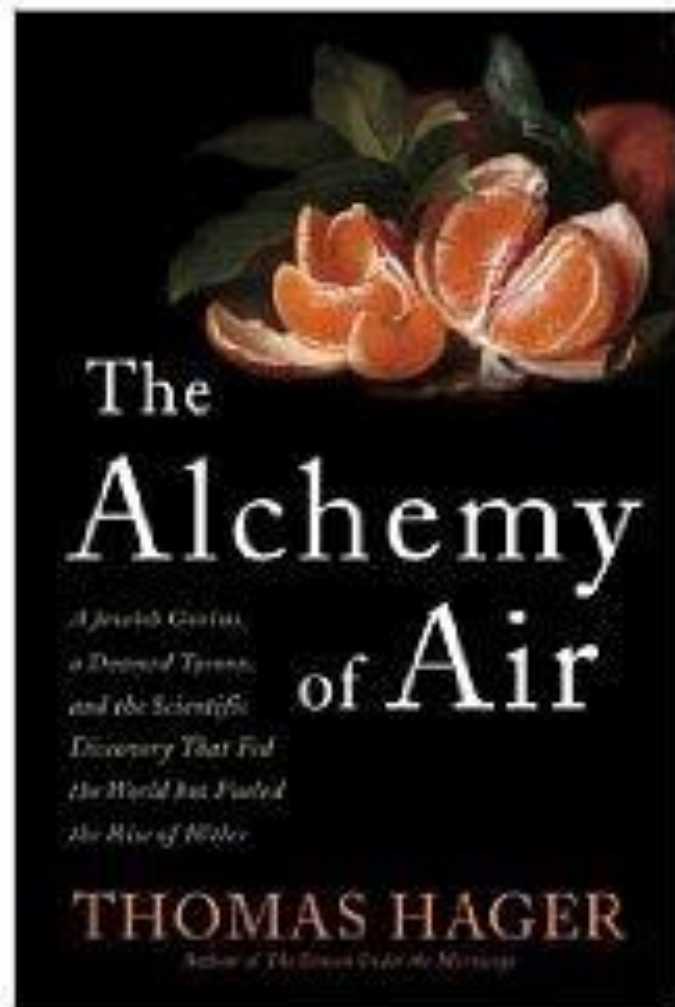


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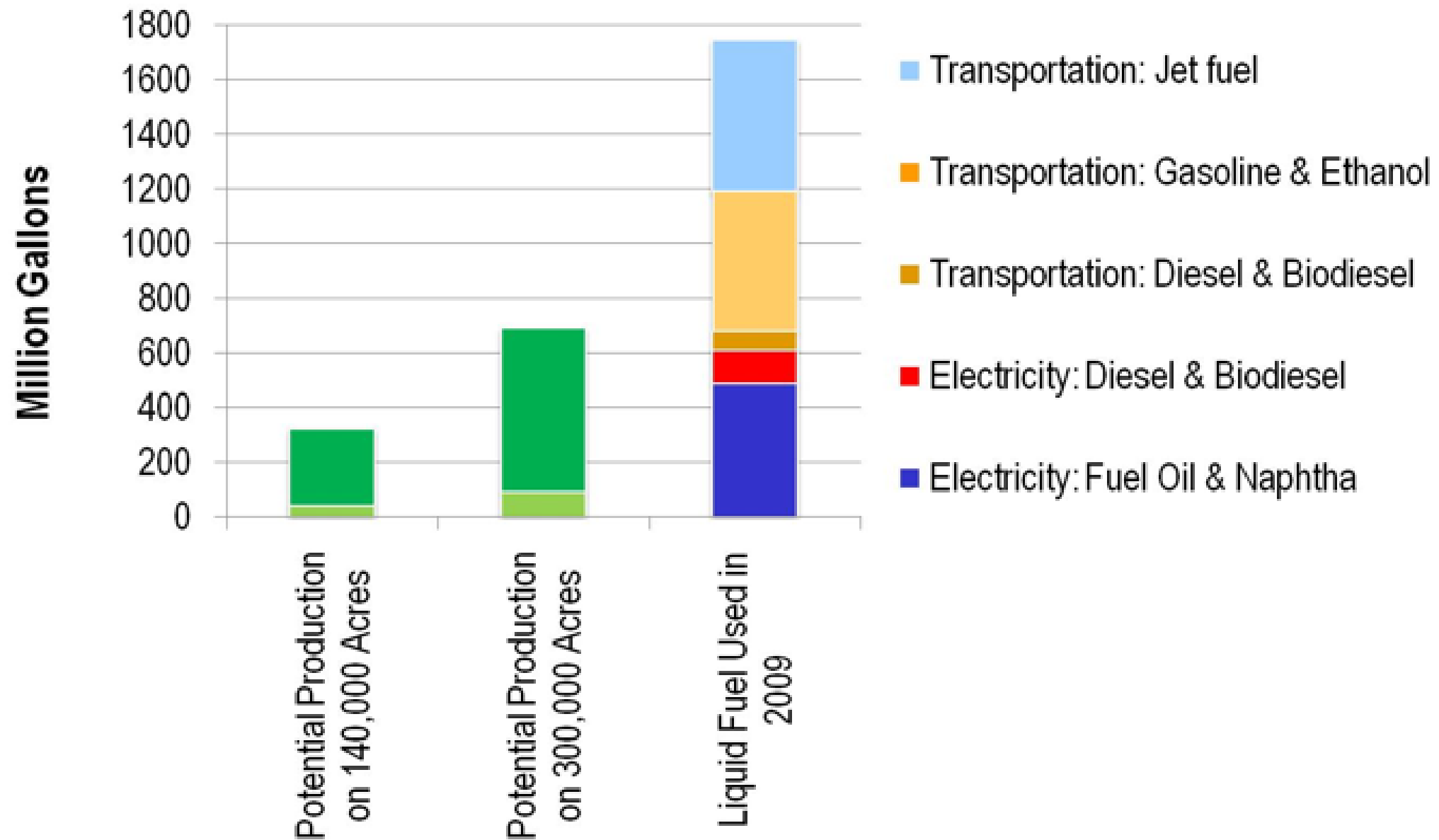


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Energy in Hawai'i

- Most isolated island chain in world
- Economy based on tourism and military
- Primarily oil-fired powerplants (1% of U.S.)
- \$7B leaves the state each year to buy oil
- Each island is an independent microgrid

Biofuels are Limited

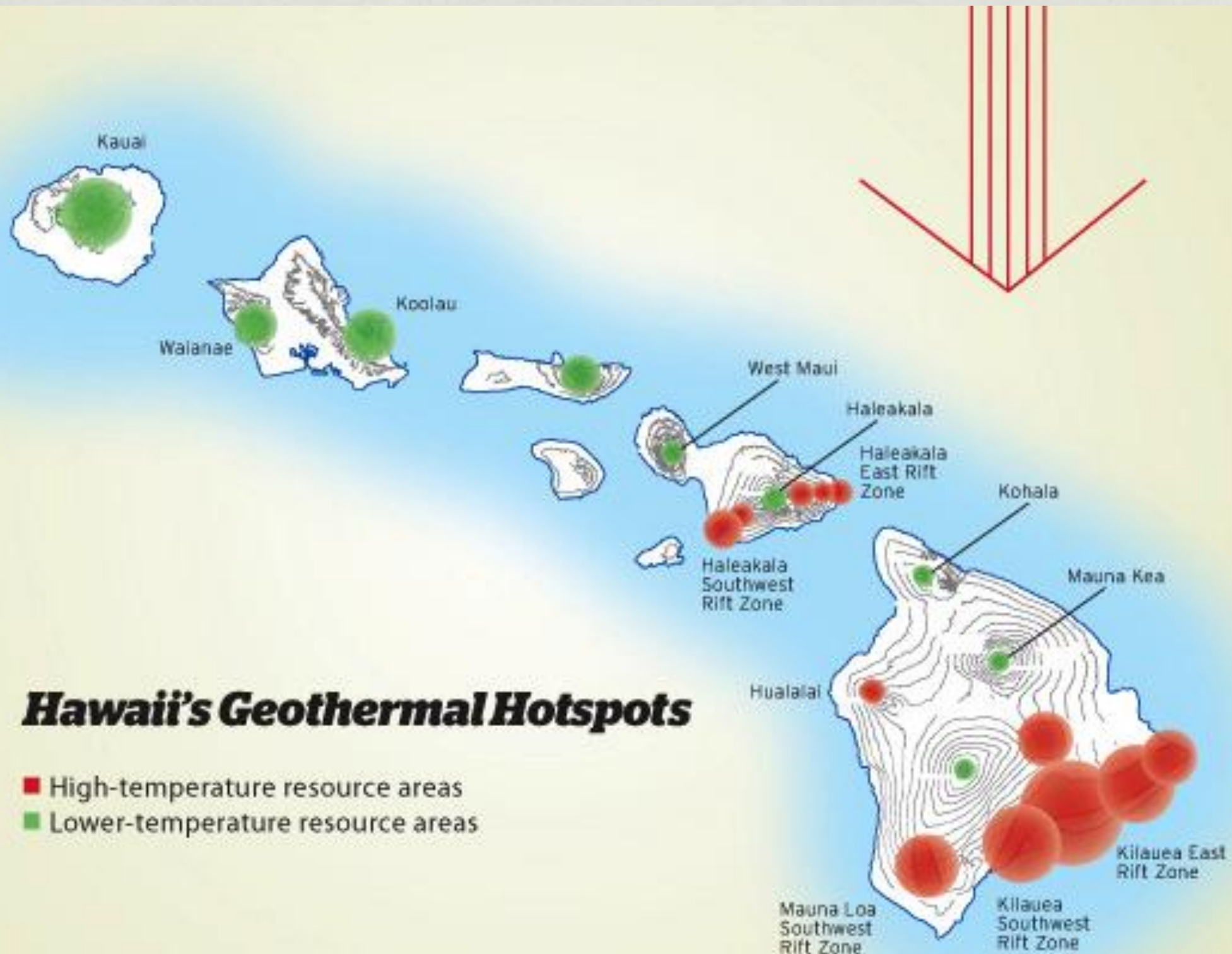


Source:
Hawai'i State Energy Office: Biofuels 101 Presentation: Hawai'i Agriculture Conference, September 24, 2010
<http://www.usda.gov/documents/05M.TomeHawaiiEnergyOffice.pdf>

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Energy in Hawai'i

- Abundant Indigenous Energy Resources
 - Solar
 - Wind
 - Marine Kinetic and OTEC
 - Geothermal



Import vs. Export Economy

- Alaska GDP/person \$65K (net energy exporter)
- Hawaii GDP/person \$49K (net energy importer)
 - \$16K per person difference
- 1.4 million people x \$16K Improvement in GDP/person = \$22 billion larger Hawai'i economy

Balance of Trade Ratios

Ten Best Foreign Trade Ratio States in 2010

1. Alaska: 2.81
2. West Virginia: 2.01
3. Nebraska: 2.00
4. South Dakota: 1.82
5. Utah: 1.76
6. Iowa: 1.55
7. Oregon: 1.31
8. Vermont: 1.30
9. Idaho: 1.25
10. Washington: 1.25

Ten Worst

1. Hawaii: 0.14 Rhode Island: 0.27 New Jersey: 0.30 Montana: 0.31 California: 0.44 Illinois: 0.46 Pennsylvania: 0.47 Georgia: 0.48 New Hampshire: 0.49 New Mexico: 0.49

*Foreign Trade Ratio for Puerto Rico: 2.15

Jobs, Jobs, Jobs

THE COLOR GREEN

States with highest and lowest percentage of green jobs:

STATE	GREEN JOBS	PERCENTAGE OF TOTAL JOBS
HIGHEST		
Alaska	16,682	4.7
Oregon	58,735	3.4
District of Columbia	22,462	3.1
Montana	14,235	3.1
Vermont	9,425	3.0
LOWEST		
Hawaii	11,113	1.7
South Dakota	6,659	1.5
Utah	18,261	1.5
Florida	102,967	1.4
Texas	144,081	1.3
Oklahoma	19,297	1.2

Source: Brookings Institution

2010							Current Rate (¢/kWh)
Island	Capability (MW)	Net Peak (MW)	Total Rate- payers	Total kWh Sold (B)	Average Rate (¢/kWh)	Revenue (\$B)	
Hawai'i	292	203	80,695	1.1	33	0.37	
Maui	268	199	67,739	1.2	27	0.34	
Moloka'i	12	6	Maui	Maui	33	Maui	
Lāna'i	10	5	Maui	Maui	34	Maui	
O'ahu	1,817	1,200	296,422	7.2	23	1.65	
Kaua'i	114	78	36,116	0.4	43	0.16	
State	2,513 MW	1,691 MW	480,972	10B kWh Sold	26¢/kWh	\$2.52B	

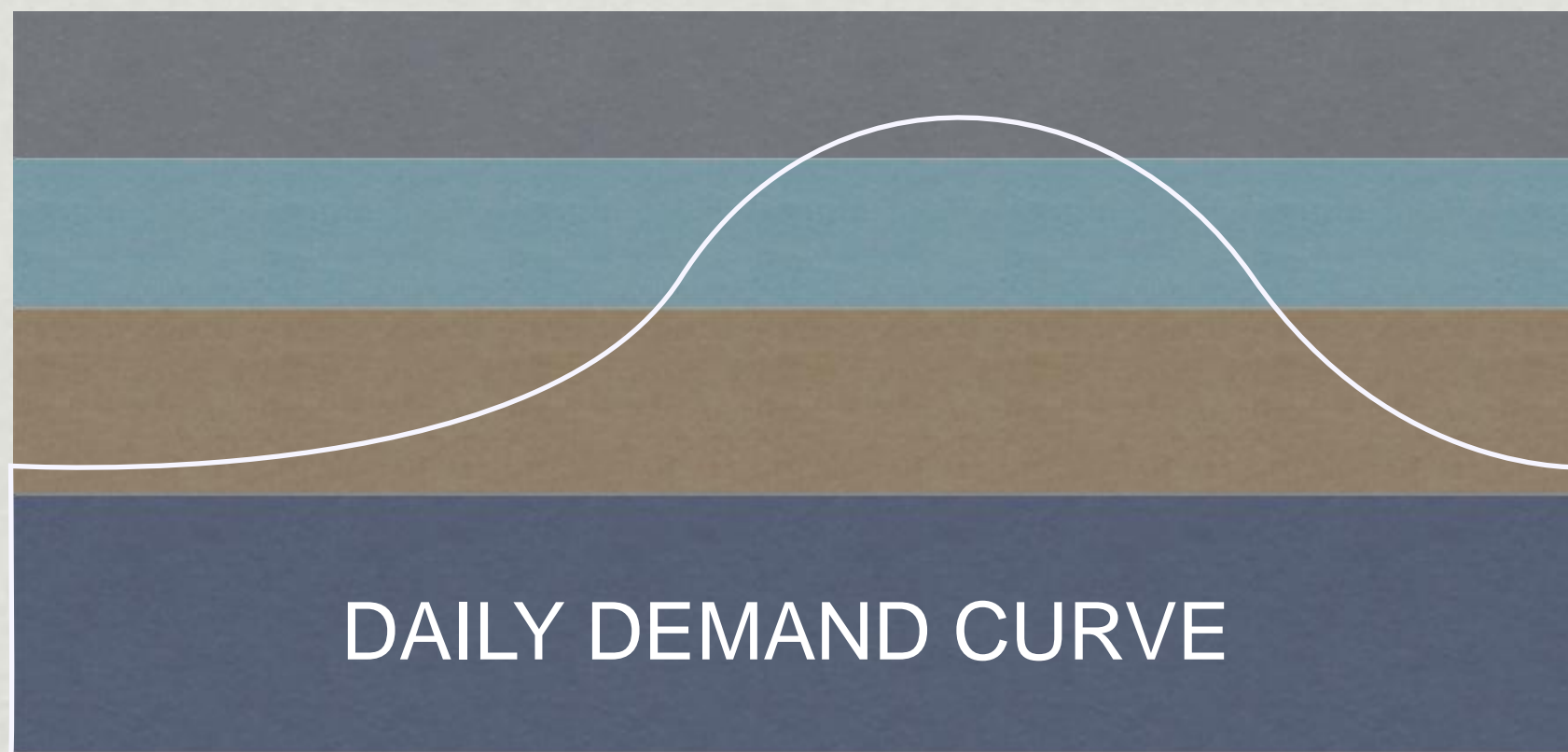
All numbers are rounded except total ratepayers.

- Generation and revenue from HECO 10K 2010 filing and 2010 Power Facts
- Peak Demand (Hawai'i, Maui, Moloka'i, Lāna'i, O'ahu) from HCEI May 2010 Build and Buy Green Presentation
- KIUC generation capability and peak from www.kiuc.coop (Rate Q&A). KIUC generation revenue from 2010 Financial Statement
- Ratepayers from HECO 10K 2010 and KIUC 2010 Financial Statement
- kWh Sold for Hawai'i, Maui, O'ahu estimated; based on 2009 distribution and a total of 9.58B kWh in 2010 (HECO 10K 2010 filing)
- Average rates from HECO and KIUC websites based on residential customer rates

The Kū'oko'a Plan

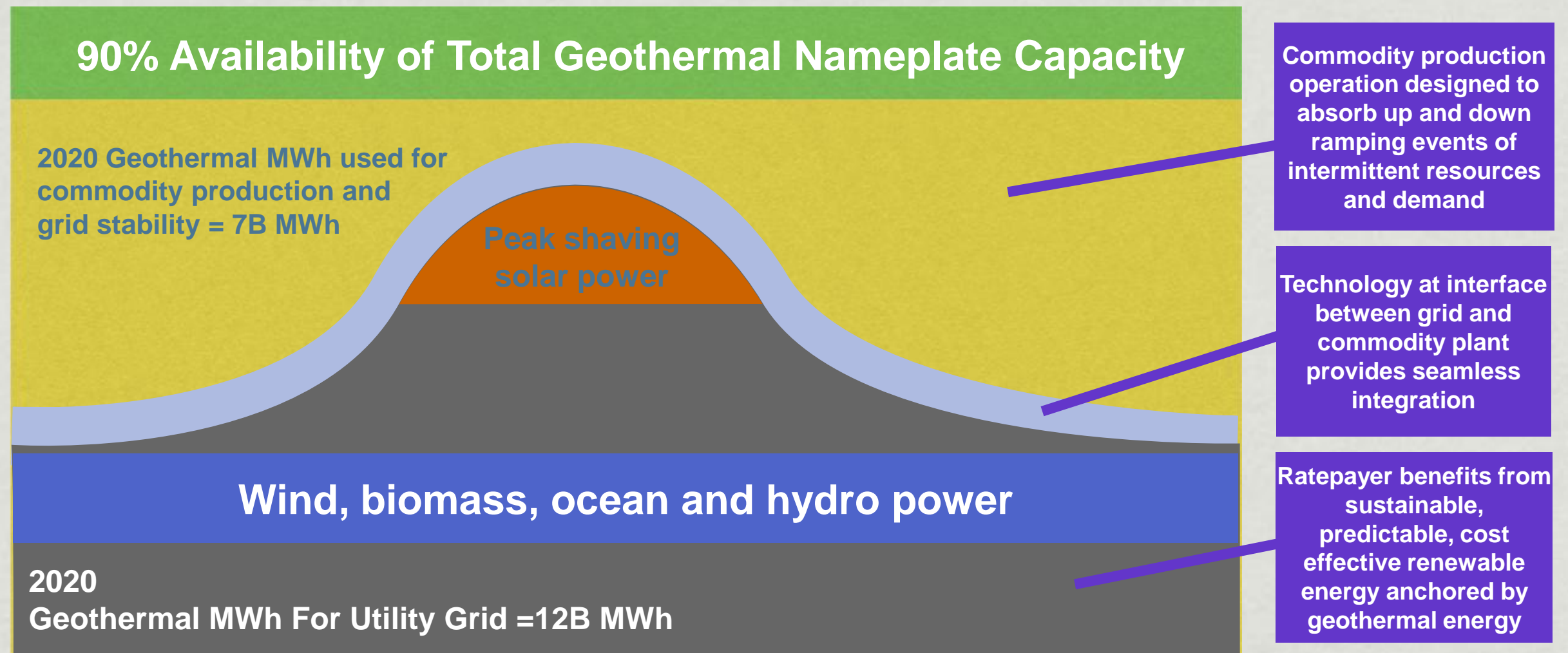
- 100% renewable generation within 10 years through a portfolio of geothermal, wind, solar, ocean technology, energy efficiency and distributed generation
- Inter-island smart and secure grid
- One statewide kWh rate: tied to inflation instead of oil
- Clean transportation infrastructure: EVs, H2, NH3
- Free, secure, ubiquitous high-speed Wi-Fi
- Cleantech jobs and energy exports

Old Utility Model



- Peaker
- Responsive
- Intermediate
- Baseload

New Utility Model



Stage 1

- Formation of core group
- Business plan development and refinement
- Investor negotiation and financing structure
- Full community engagement

Stage 2

- Acquire the utility and begin transformation
- Obtain regulatory support
- Continue community participation and engagement

Stage 3

- Initial geothermal on Hawai'i and Maui to displace fossil generation
- Engineering and environmental work to support inter-island grid and geothermal
- Drive broad acceptance of EVs, make Hawai'i deployment market of preference
- Initial NH₃ facility for export
- Acceleration of smart grid services, broader renewables and cleantech investments
- Continual community participation and engagement

Stage 4

- Capitalization, buildout and commissioning of inter-island grid
- Geothermal and NH₃ buildout for statewide energy needs
- Continued EV incentives and market growth
- Acceleration of smart grid services, broader renewables and cleantech investments
- Ongoing community participation and engagement

Stage 5

- Cable redundancy build-out
- Final phase-out of fossil fuel statewide
- Continued EV market growth, smart grid services development, investments in new renewable energy technologies and community engagement

Geothermal Development

- World-class resource
- Baseload renewable
- Small footprint
- Multiple developers

Connecting the Islands

- Three dozen similar cables already operational
- Other planned cables are more ambitious
- Low environmental impact; easily quantifiable

EV Infrastructure

- Hawai'i is leading the nation in EV adoption
- EVs represent a significant revenue stream for the utility while saving consumers money





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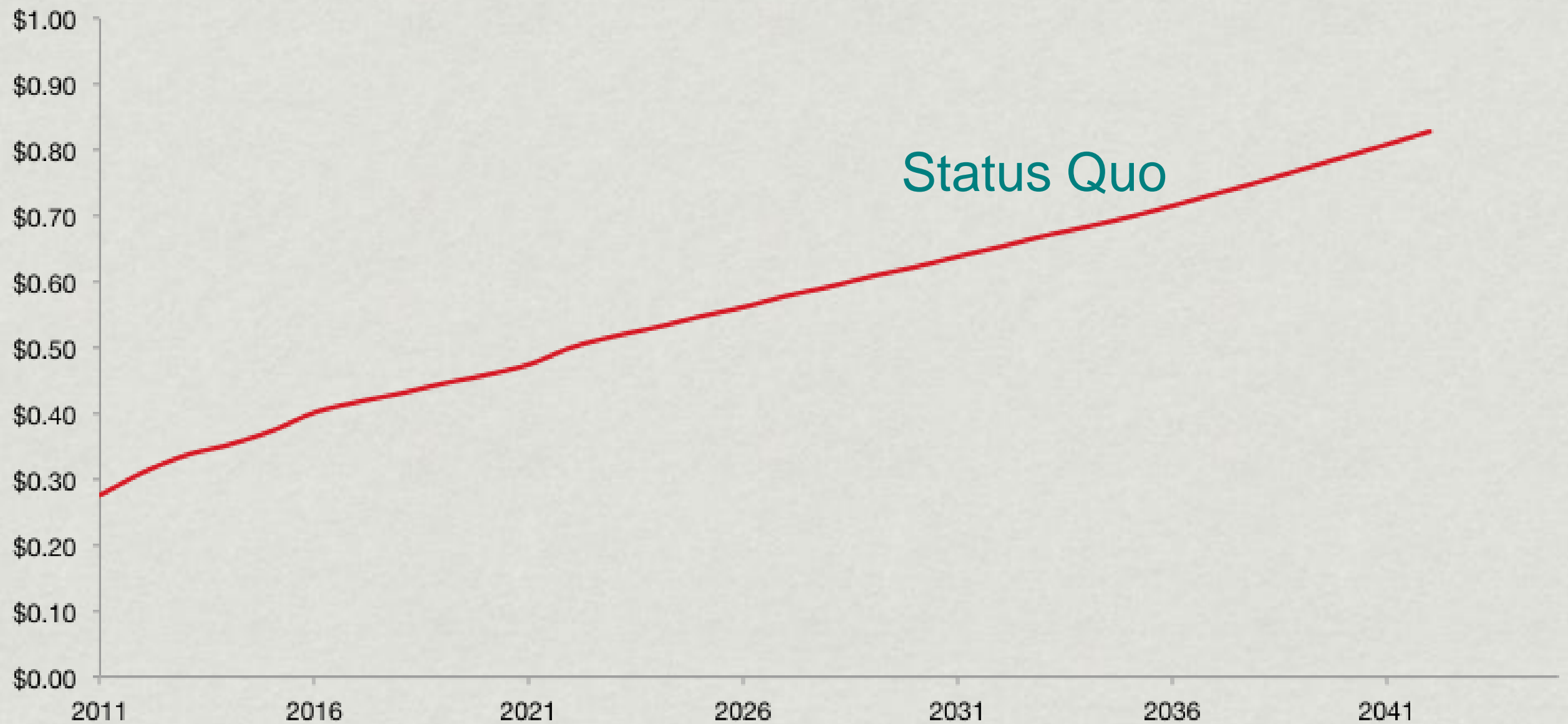
Exports Serve Hawai'i

Source	Current Revenue	Potential Revenue
HECO	\$2.4B	\$3.0B
KIUC	\$0.2B	\$0.2B
EV "Fuel"	N/A	\$1.0B
Smart Grid	N/A	\$0.5B
H ₂ , NH ₃ , H ₂ O	N/A	\$3.0B
Clean Tech	N/A	\$2.3B
Total	\$2.6B	\$10.0B

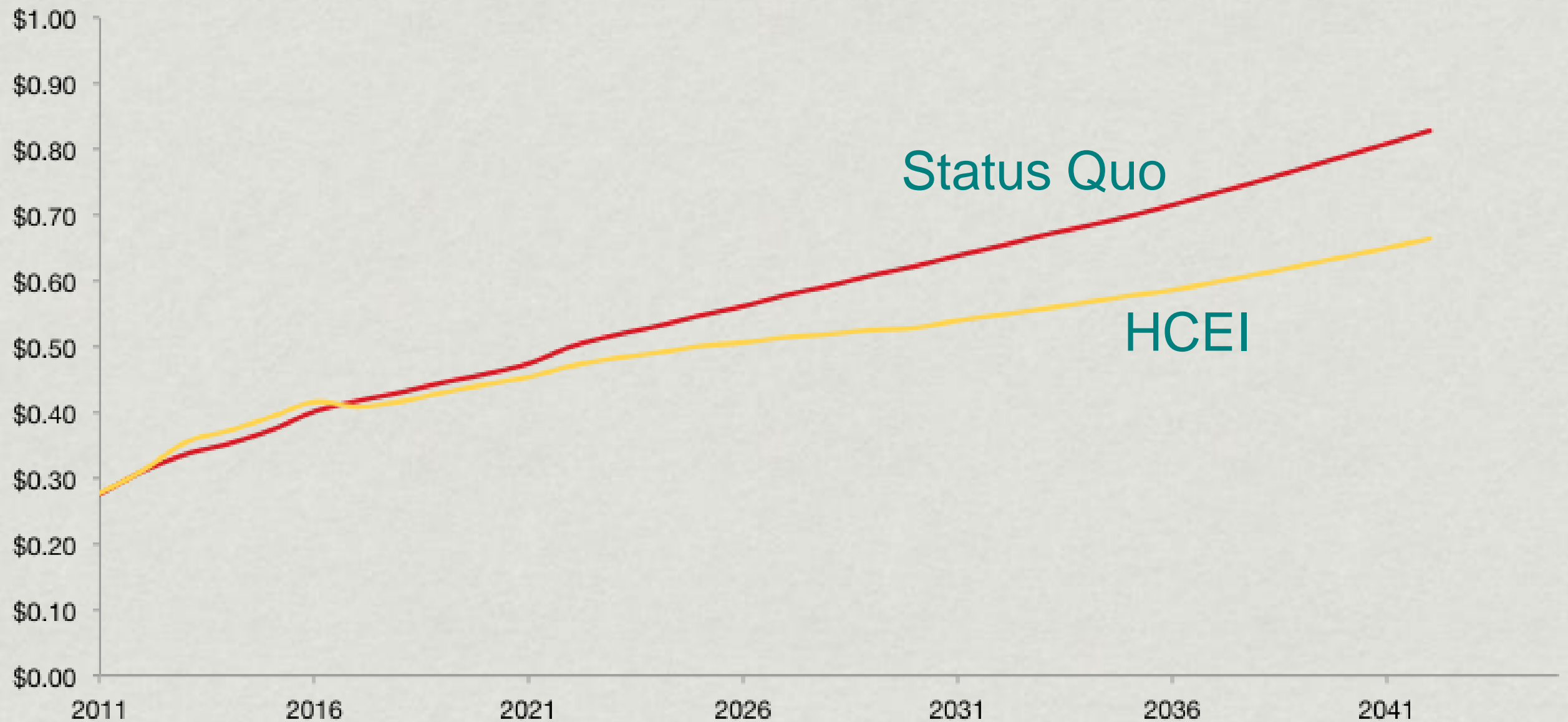
Financial Analysis

- Retained modeling experts
- Developed initial financial models
 - Utility operating numbers
 - Geothermal plants
 - Inter-island cables
 - EV program
 - NH₃ production
- Initial results validate business model
- Continuing refinements in phasing, assets and financing

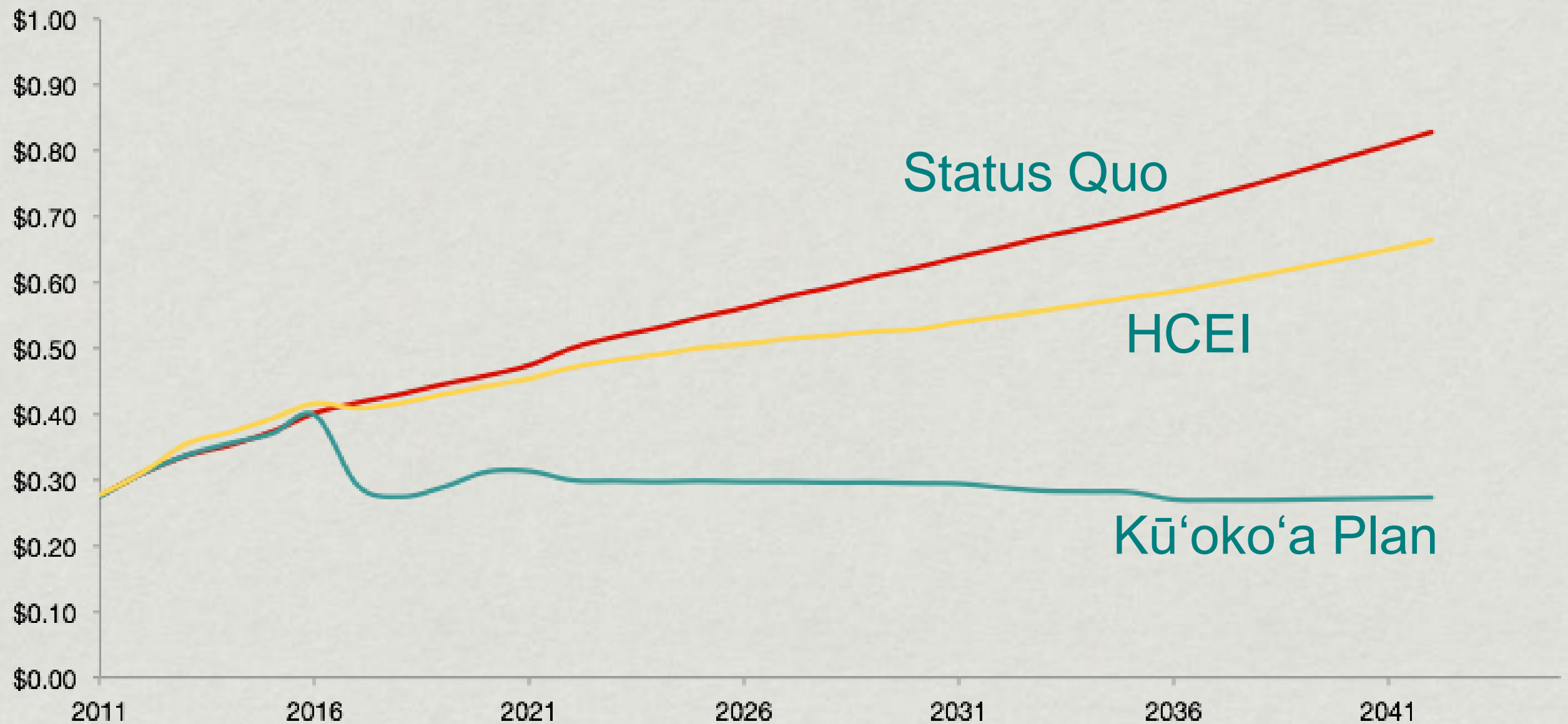
Hawai'i Cost of Electricity



Hawai'i Cost of Electricity



Hawai'i Cost of Electricity





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