THE CUSTOMER OF THE 21ST CENTURY

Jay Griffin – Moderator

Chief of Policy and Research, Hawaii Public Utilities Commission

Neil "Dutch" Kuyper

CEO, Parker Ranch Inc.

Hunter Lovins

President, Natural Capitalism Solutions

Justin McCurnin

VP & General Manager, Smart Grid Solutions, Honeywell

Jon Yoshimura

Director of Policy and Electricity Markets, SolarCity







Are Your Customers Really Blind Dates?

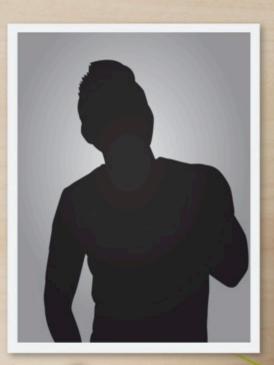
Honeywell



If Your Prosumers Are A Mystery...









It's Like Going On A Blind Date









You Need Matchmaker

Justin McCurnin

Vice President Honeywell Building Solutions General Manager Smart Grid Solutions

- 12 years in marketing energy efficiency with Honeywell for residential, commercial and retail channels
- 8 years working in ad agencies on car parts, tractor tires, kitchen cabinets, construction equipment, baseball teams, hearing aids and fireplaces

Honeywell Smart Grid Solutions

- · Serving 60 utility customers in five countries
- · Providing residential and commercial turnkey programs and technologies
- · Innovative customer-engagement solutions
- Up to 10,000 audits and 500,000 rebates each year
- More than 600,000 homes enabled with demand response

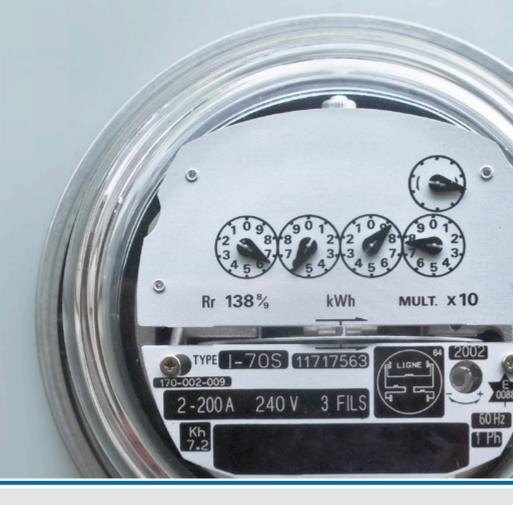




Who Is This Customer?



J Smith 1234 Sunnyside Ct Lanai City, HI 96763









Basic Demographics

- Age
- · Estimated household income
- Marital status
- Gender

Housing information

- Home value
- · Type of housing
- Year built
- · When they moved in

Hobbies and Interests Children

...You Can Better Understand And Target Buying Behaviors



Basic Demographics

- 28
- \$124K household income
- Single
- Male

Housing information

- · Rents his home
- · Work from home
- Online Traveler
- Luxury Hotels
- Working on paying off college loans

Online & On Credit "Urban Affluence" 127 in Maui or 0.3%



Lives Change



Basic Demographics

- 38
- \$154K household income
- Married

Housing information

· Owns home

Hobbies

- Enjoy travel, luxury cars
- Own a family van

Other

- Well educated
- Working on careers

Equity Builders "Family Circus" 536 in Maui or 1.1%







Basic Demographics

- 70 years of age
- \$20K household income
- Single

Housing information

· Rents home

Other

• Retired 12+ years

2,960 in Maui or 6.0%

• 43% over the age of 70 years of age

Cash & Money Orders



Segmentation Uncovers Shared Beliefs. Predictive Modeling Identifies Targets.



"The Kamas"

Busy Family Life: High home value, married, children, above average HHI



"The Wilsons"

Wealthy Singles/Couples: Very high home values, maybe married, no children, very HHI

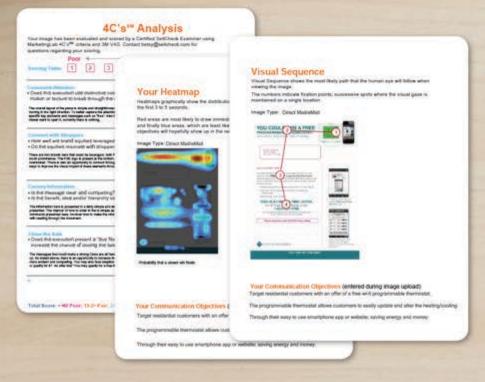
"The Elliots"

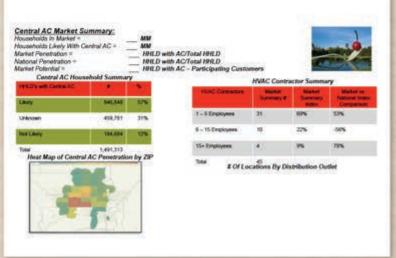
Empty Nesters: High home value, married, no children, average HHI





Recruitment Methodology





Intelligent Targeting

Intelligent Creative





Right Message. Right Customer.







"The Wilsons"
Wealthy Singles/Couples

"The Kamas"
Busy Family Life

"The Elliots"
Empty Nesters



Cost Effective Results



Generic Communication

Cost per mailer: \$0.50

Qty: 50,000

Total cost: \$25,000 Response rate: 0.5% Participants: 250

Cost per Participant: \$100



One to One Communication

Cost per mailer: \$0.75

Qty: 30,000

Total cost: \$22,500 Response rate: 2% Participants: 600

Cost per Participant: \$35







- Type of company
- Years in business
- Number of employees (3-year trend)
- Sales volume (3-year trend)
- Square footage
- Business expenses
- Public, Private, HQ, Franchise







Parker Ranch

- Headquarters
- Neil "Dutch" Kuyper
- Private

Possible SIC Codes

- Agricultural Production SIC 0291
- Museum SIC 8412





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The Customer of the 21st Century

Maui Energy Conference + Exhibition, March 25-27, 2015



Agenda

- Customer Expectations
- Legislative Report
- New Products/Strategies

Summary



Halsey Terrace, Honolulu, Hawaii

- Utility customers expect an opportunity to participate in Hawaii's transition to cleaner, less expensive energy.
- They are cognizant of the challenges claimed by utilities, but expect an honest evaluation of those claims.
- Given the history of delays and obstacles faced by those who have made the decision to invest in clean energy, customers look to policy makers and regulators for protection from arbitrary restrictions.

- Utility customers want options to high electricity costs.
- Solar customers want reasonable approval and installation timelines.



Kaneohe, Oahu



- Utilities claim technical and economic barriers to distributed generation...thus...The HECO Queue.
 - September 2013—NEM approval is a prerequisite to installation.



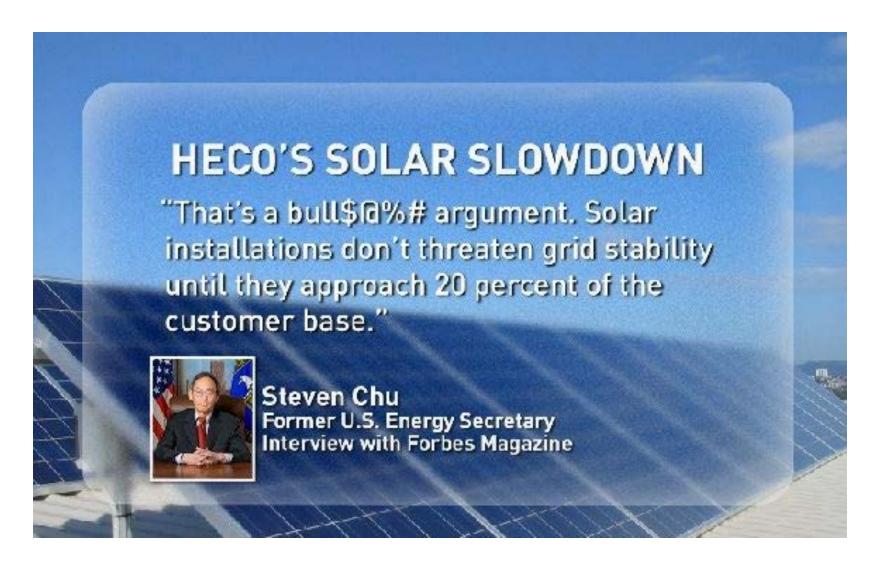


"HECO says it needs to address safety concerns in areas where there is more electricity generated by PV than is being used." Hawaii News Now, Oct. 14, 2013

"What we're doing is we are commissioning the studies right now to identify what can be done to keep adding more PV. It's not a question of are we not prepared— what we are doing here is we're pushing the envelope beyond anywhere else in the country to figure out what the solutions are." HECO VP, Joint Hawaii Senate and House briefing, Oct. 14, 2013.







March 2014

 April 2014—The PUC rejects HECO's IRP and orders it to respond with comprehensive plans within 120 days.
 Rather than emphasizing challenges posed by DG, suggests it collaborates with the solar industry to develop solutions.

NREL Research

- August 2014—SolarCity approaches HECO with NREL research proposal.
- September 2014—Testing begins at NREL facility in Golden, Colorado. First day results reveal that many inverters are capable of protecting utility circuits from over voltage events.
- October 2014—HECO announces plan to clear its queue.
- January 2015—HECO announces that it is raising its Minimum Daytime Load screen from 120% to 250%.



- The HECO Queue, continued...
 - September 2013—NEM approval is a prerequisite to installation.
 - October 2013—HECO to lawmakers, "We are working on it."
 - September 2014—NREL research.
 - October 2014—Technical fears allayed. Queue of nearly 5,000 NEM applicants to be largely cleared by April 2015.
 - December 2014—HECO/NextEra deal revealed.
 - January 2015—HECO's Transitional Distributed Generation Program.
 More DG possible, if...
 - February 2015—the Iwase-Oshima letter…
 - April 2015?





"...the HECO Companies have an affirmative duty to interconnect a potential customer...where that project does not affect circuit or system level security and reliability."



4. What is in the "best interest" of the HECO Companies customers is, in the final

analysis, determined by the commission.

Randy Iwase

Chair, Public Utilities Commission

of the State of Hawaii

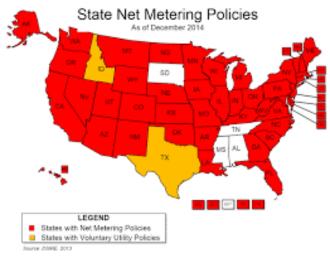
Dated: February 27, 2015

Alan Oshima

President and CEO, Hawaiian Electric Co., Inc.

- The Battle over NEM—Does NEM cost or benefit utilities?
 - HECO claims \$53 million revenue loss in 2014.
 - Many independent studies report that NEM benefits utilities.
 - We need a robust study of NEM costs and benefits in Hawaii before we do anything to fool with our NEM program.
 - As we collaborated on technical concerns at NREL, we've had unofficial discussions with HECO about doing the same on a NEM study.









INDEPENDENT STUDIES SHOW THAT...



NET METERING IS A FINANACIAL BENEFIT TO ALL RATEPAYERS

III MISSISSIPPI

NET-METERED SOLAR PROJECTS OFFER A BENEFIT TO MISSISSIPPIANS AND DECREASE OVERALL RATES.



NET METERING WILL PROVIDE \$36 MILLION IN BENEFITS TO NV RATEPAYERS.

STUDIES COMMISSIONED IN ARIZONA, CALIFORNIA, COLORADO, MAINE, NORTH CAROLINA, AND VERMONT ALSO FOUND A NET BENEFIT.

NET METERING IS THE SMART CHOICE FOR SOLAR.

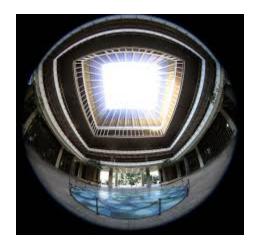


- Federal Investment Tax Credit
 - Residential scheduled to expire at the end of 2016. This is a great incentive for our state which, given our small population and high adoption of rooftop solar, has benefitted, per capita, greater than any of the other 50 states. Our federal team is working to extend the federal ITC.
- Hawaii Renewable Energy Technologies Investment Tax Credit
 - 35% or \$5,000 per system (defined as 5kW). No sunset. The local solar industry has a variety of opinions on this issue. Some favor elimination of the credit...some like the status quo...and others would like to see it evolve into an incentive for storage systems.

Legislative Report

- HB264—Establishing a process to develop microgrids
- HB?–Establishing a process to allow interconnection of storage.
- HB484—Establishing a community solar program

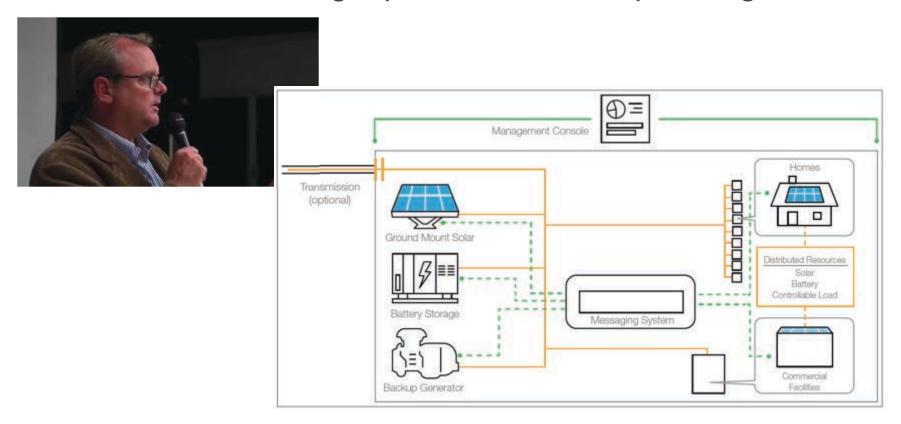






Legislative Report

HB264—Establishing a process to develop microgrids.



"The public utilities commission shall open a proceeding by July 1, 2016, to establish a process to establish integrated energy districts."

GridLogic[™]

A turnkey Microgrid-as-a-Service Solution

GridLogic

is the turnkey energy solution for communities to obtain the full benefits of traditional microgrids, yet with the simplicity of a single monthly bill that made SolarCity America's #1 full-service distributed energy provider.

GridLogic provides best-inclass technology, financing, installation and on-going services to deliver a holistic energy management solution.



Clean



Affordable



Resilient







Legislative Report

 HB?—Establishing a process to allow interconnection of storage.



"We need to encourage investment in batteries and figure out how we can get them into the grid." Gov. David Ige, Honolulu Star Advertiser, 3/11/2015.

Legislative Report

HB484—Establishing a community solar program



[&]quot;The legislature finds that it is in the public interest to promote broader participation in self-generation by Hawaii residents and businesses through the development of community-based renewable energy facilities in which participants are entitled to generate electricity and receive credit for that electricity on their utility bills."

Summary





- Utility customers expect an opportunity to participate in Hawaii's transition to cleaner, less expensive energy.
- They are cognizant of the challenges claimed by utilities, but expect an honest evaluation of those claims.
- Given the history of delays and obstacles faced by those who have made the decision to invest in clean energy, customers look to policy makers and regulators for protection from arbitrary restrictions.



Thank You

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The Games That Are Played



Dutch Kuyper, President & CEO

Parker Ranch Inc. | Paniolo Power Company LLC | Paniolo Cattle Company LLC | Maui Energy Conference – March 25, 2015

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I was struck with the rising expression of frustration with Hawaiian Electric and its apparent desire to avoid a transformational approach to replacing its oil-fired generation. "





What was the cause of slow progress in diversifying away from oil as a source of energy to generate our electricity?

Perhaps they just want certainty like the rest of us.

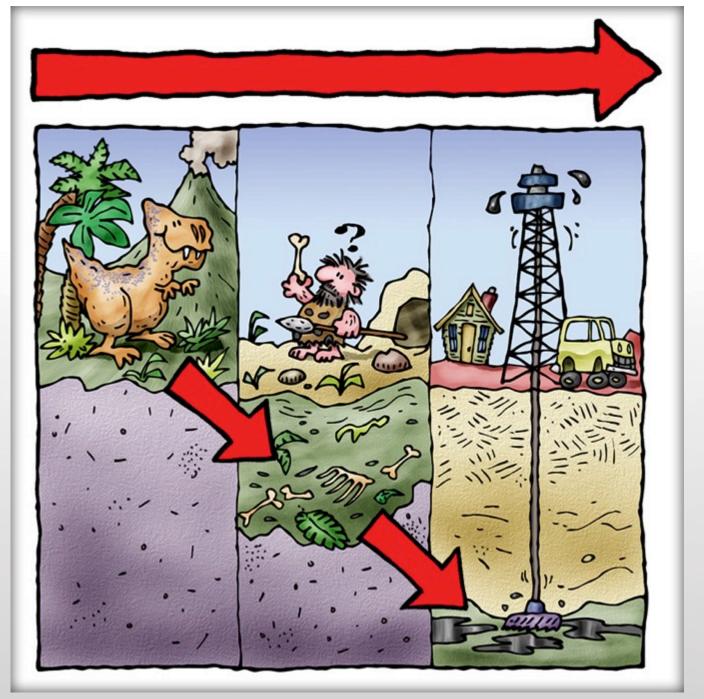




Sometimes our eyes deceive us. We cannot always trust that what we see is the truth. Sometimes the truth lies beneath what stands before us.



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Although some mergers arguably have produced dinosaurs in the past...
We don't have any oil in Hawaii, so we never had any dinosaurs in Hawaii, right?



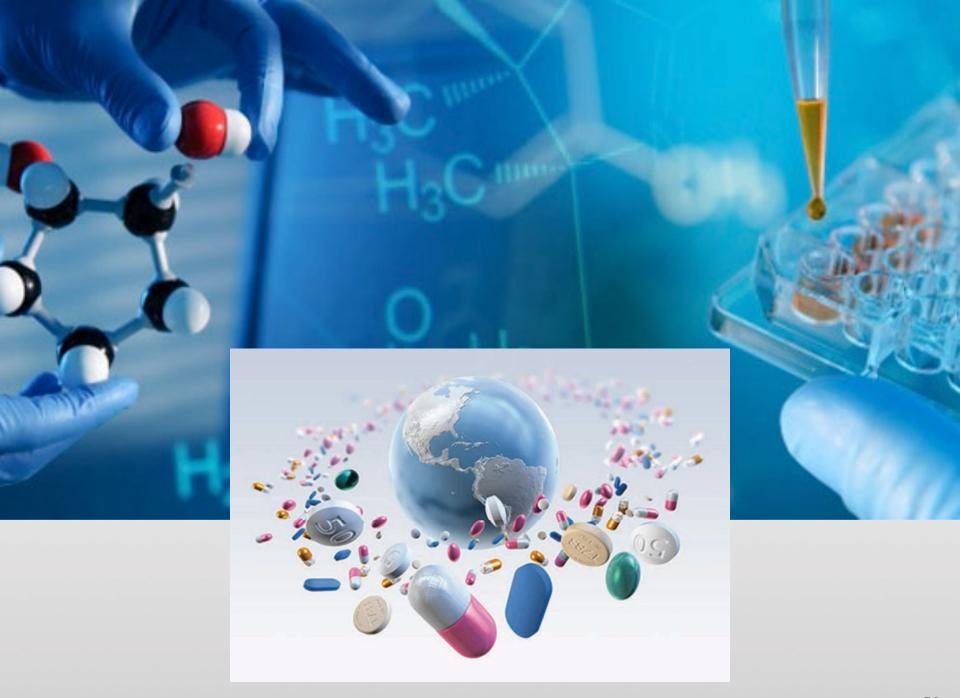


For a business to be sustainable it must offer a compelling value to its customers over the long term. Offering a compelling value proposition requires a sustained commitment to investing in the future. "





A business can underinvest for a period of time, for whatever reason, but it risks maintaining its relevance in the marketplace.







46 To remain competitive, a pharmaceutical company needs to succeed at **three things**:

First, it must have compelling drugs in the marketplace.

Second, it must have drugs **nearing** commercialization.

Third, the R&D pipeline must be deep and robust.

If a company lacks any one of these three, it is vulnerable to competition and eventually is likely to become a takeover target. To achieve all three of these attributes requires an enormous

tributes requires an enormous commitment of capital and investment in R&D.





LE A failure to diversify can be costly... **55**







Largest Company by Revenue in Each State



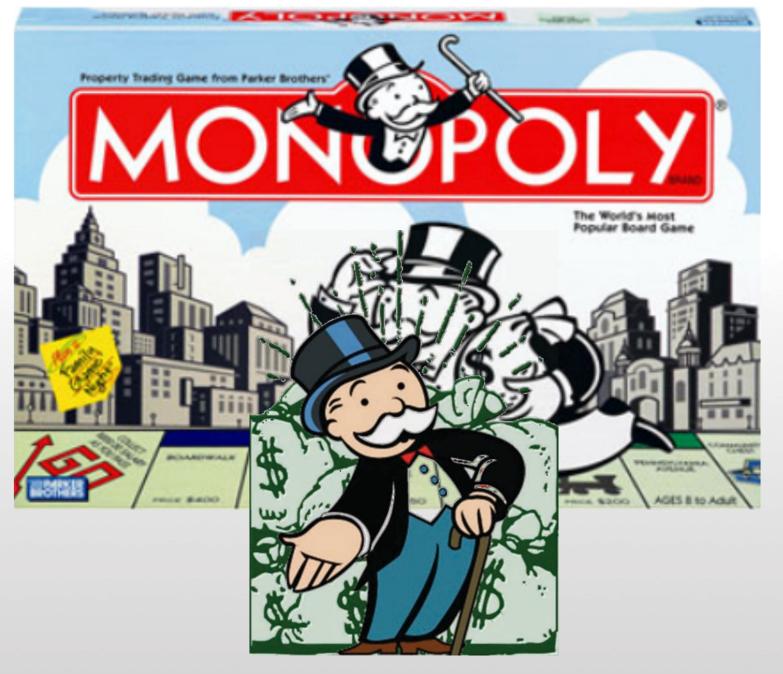
Hawaiian Electric's
Monopoly is the State's
Largest Company by
Revenues (\$3 Billion/yr.)

Source: Broadview Networks, Hoover's Dun & Bradstreet company database, Hawaiian Electric Industries,

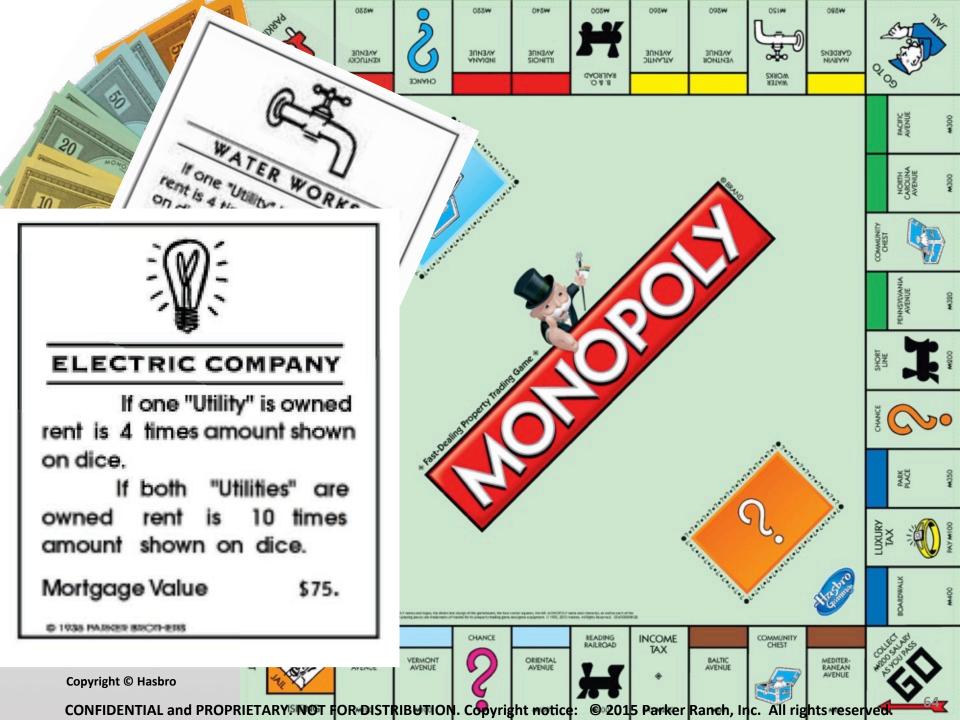
Inc. Form 10-Ks







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The attributes of monopolies are fairly intuitive:

- Not price competitive
- No investment in innovation
- Slow to change
- Significant potential for opportunity costs and customer losses
- Lack of transparency
- Vulnerable to technological change
- Actively seek ways to snuff out competition







Has the monopoly been good for Hawaii?





We think that this question comes down to a simple paradigm: "Shareholder Value versus Customer Value"



Exhibit A

The IRP Action Plan appeared to be, in part, a series of unrelated capital projects without strategic focus on the clear issues facing the utility, and did not indicate further progress towards a sustainable business model. More recently, the HECO Companies' proposed 2014 capital expenditure program also appeared to be comprised of unrelated capital projects without strategic focus and of questionable long-term customer value.





We have sought to be an innovator in the marketplace of ideas.



Parker Ranch closed four collaborations in the last year:



1.Google[x] with the agreement to use Parker Ranch as a test site for Makani



2.NextEra Energy Resources to serve as the developer of our world-class wind resource



GAS 3. Hawaii Gas to evaluate high penetration of renewable generation portfolios

SIEMENS 4.Siemens to evaluate the merits of a community microgrid and alternative strategies for the Big Island

Electricity Rate Differentials Across the State Parker Range Big Island Has Highest Rates among HECO Companies

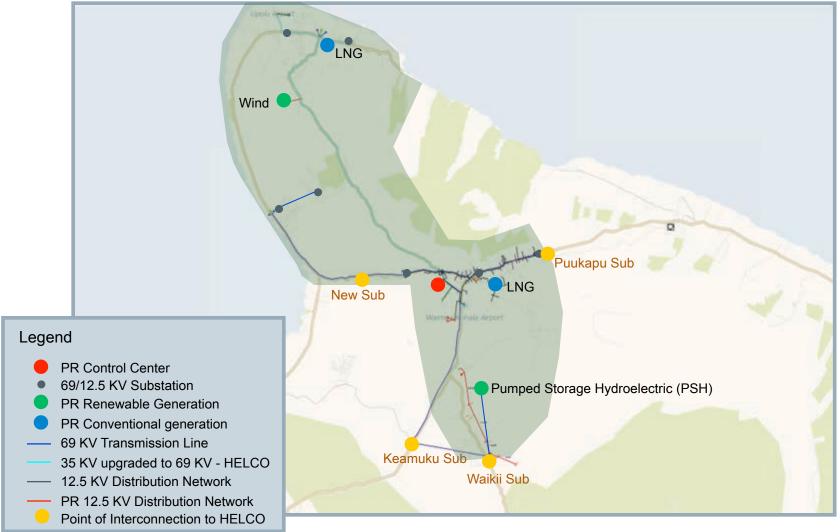
Residential Electricity Use, Rates and Average Bill, February 2014				
	Hawaii	Oahu	Maui	State
Average Use (kWh/month)	499	544	584	533
Average Cost per kWh	\$0.42	\$0.35	\$0.37	\$0.37
Average monthly bill	\$210.12	\$187.75	\$214.44	\$194.89

Because rates are the highest on the Big Island, transformational investments should happen there first or breakaway strategies could prevail.

Source: State of Hawaii, Department of Business, Economic Development & Tourism (DBEDT), Research & Economic Analysis Division, Monthly Energy Trend Highlights, February 2014



Grid Connected, Sustainable Mixed Generation Portfolio – Defines the Alternative Strategy (Break-Away)



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We were told by the utility that wouldn't work because there would be winners and losers. This argument just simply isn't true. Rates are so high that the benefits to society of alternative plans would absorb the fixed costs 3-4 times over by our estimates.





This winners and losers argument is fascinating to me. It has led me to believe that the planning at the utility is incomplete and insufficient. It lacks a view on the benefit to the ratepayer. The benefit to the ratepayer is massive – do they not see it?





GThe projected net economic benefit (in dollar terms) is missing from the HECO plans.





Their focus had been previously on renewables percentages and not customer value. This was abundantly clear during the IRP process in 2012-2014.





We believe that their PSIPs are also suboptimal because the transition is too long. We believe that this transition should take place over less than 10 years.



PSIP Shortcomings



The major shortcomings of HECO's Plans can be seen in the lack of measures in assessing long-term customer value:

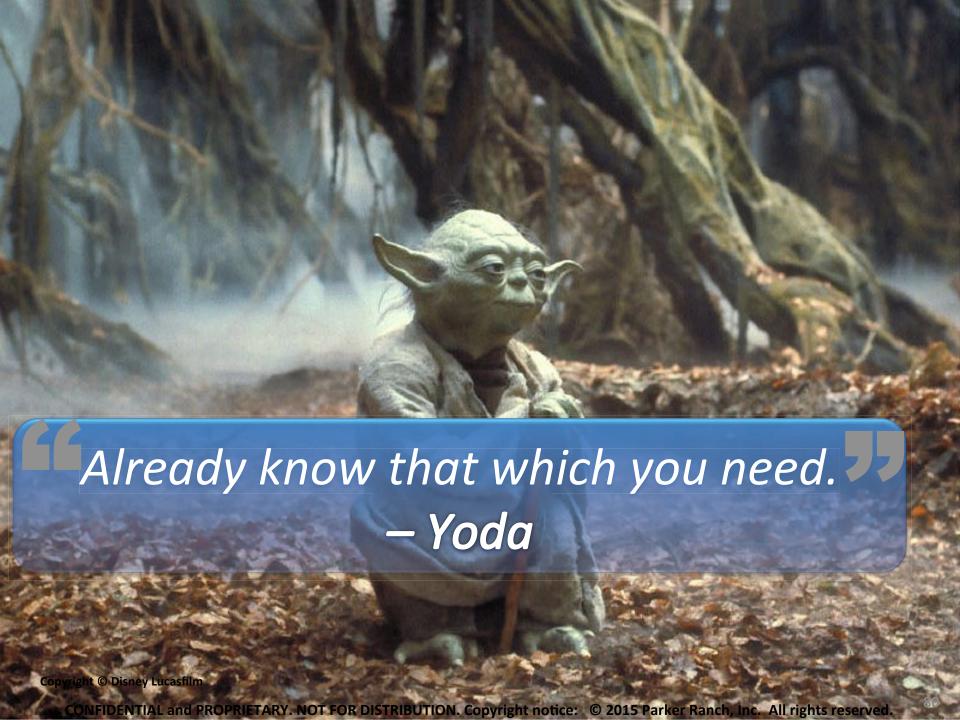
- 1. Value of avoided fossil fuel purchases over time horizon of plan
- 2. Value of fossil fuel generation fleet at the time of replacement
- 3. Value of guaranteed capacity payments to IPPs
- 4. Value of reduction in curtailed renewable energy
- **5. Comparative analysis of plans** accounting for the factor of time and the realization of ratepayer benefits
- 6. Multiplier of economic benefits island by island
- 7. Comparison of net economic benefits island by island
- 8. Lowest cost scenarios given current state of technology
- 9. Renewables percentages achieved under lowest cost scenarios
- **10.Break-even point on the ratepayer benefit** versus decommissioning costs and value of stranded assets



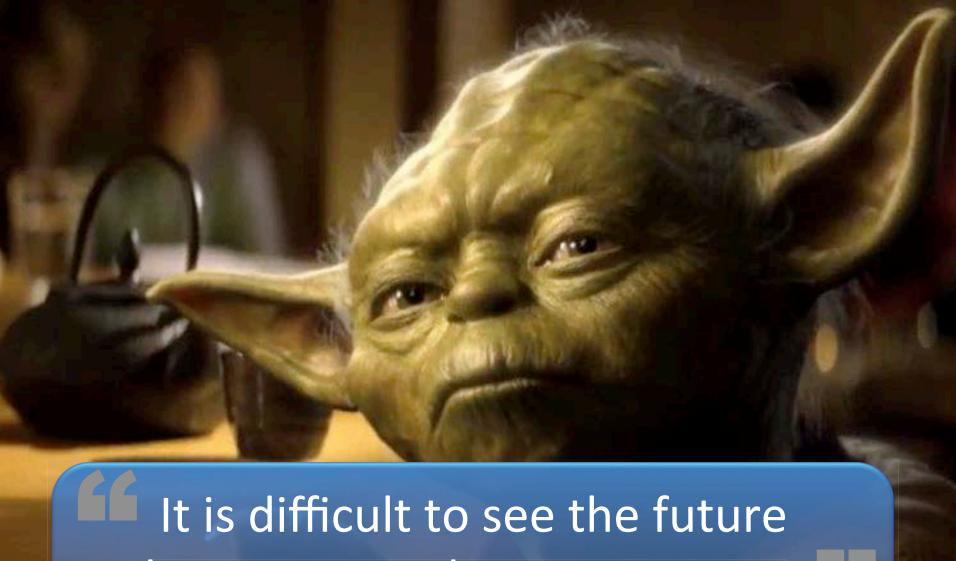




This open question of customer value raised by the PUC in Exhibit A was intriguing to us because the PSIPs also fail to measure customer value. It took us several months to realize that Exhibit A was a glimpse at the truth.







because it is always in motion.

- Yoda





However, this should not paralyze us or it will cause the current condition of excessive reliance on fossil fuels to persist. Clear thinking is most important.





- We support DBEDT's three principles of:
 - 1. "Diversifying our energy portfolio;"
 - 2. "Balancing technical, economic, environmental, and cultural considerations; and"
 - 3. "Using market-based principles and price structures." **55**





E These principles represent clear thinking to us. We would add that a time horizon should be another objective. We should pursue this transformation with the goal of completing it in 10 years or less. This would mean accelerating the plans.





We believe the best way to measure customer value is to calculate the net present value of lower rates as compared to the status quo or the original IRPs.





The PSIPS are incomplete. The PSIPS failed to measure customer value.





Robust and effective business and capital planning is essential for a company to sustain itself. We think HECO's planning framework is subpar and incomplete. It seems to avoid the necessary reconciliation of shareholder value and customer value.





Perhaps their planning focused solely on shareholder value instead of customer value.





Has the monopoly been good for Hawaii?





Has the planning been at the expense of ratepayers?





Should ratepayers absorb all of the remaining yet-to-be-recovered costs associated with their fossil fuel generation or should some of those costs be absorbed by shareholders?





Should the monopoly continue? 55



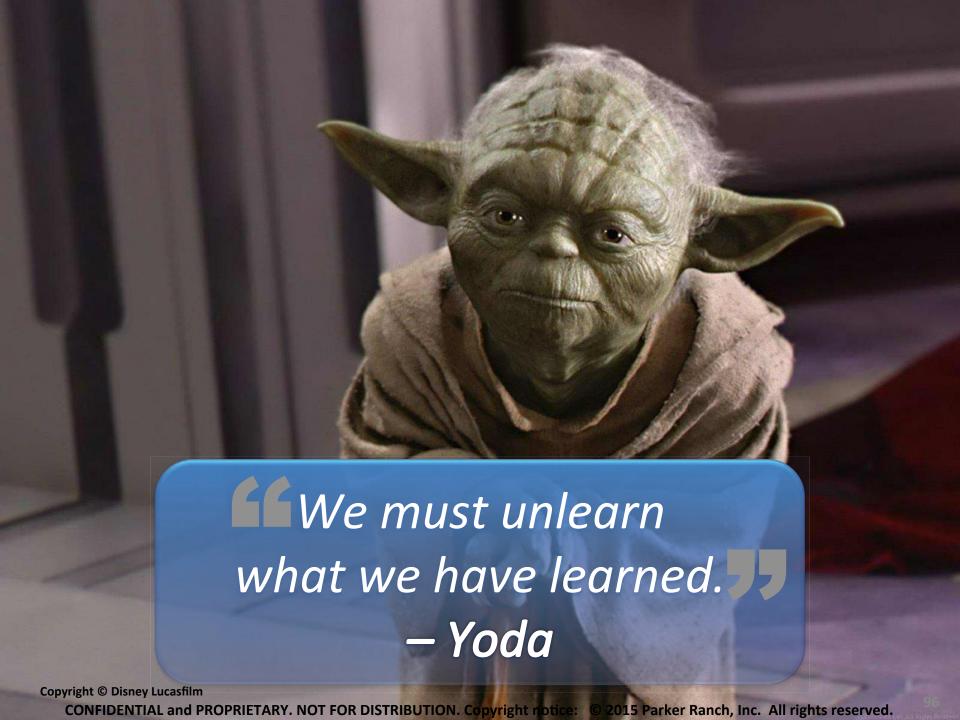


Are there safeguards that can be designed to sufficiently protect ratepayers from the monopoly?





Maybe the monopoly should be allowed to persist under a specific set of conditions and an agreement to absorb some of the costs of their legacy generation assets?







The utility has persuaded us that their way is the only way.

This **is not** the case.

The utility has taught us to believe that the monopoly has been good for Hawaii.

This <u>may not be</u> the case.





We must focus our collective energies on what is in the best interest of all of us.





The idea of an undersea cable is intriguing but seems to be more relevant in the near term to Maui than the Big Island. We think the cable should be considered only after more aggressive plans are well underway to lower rates and increase renewable generation on each island.





We also think Big Island transformational plans and investments should be prioritized because our rates are higher and our per capita natural resource endowment is much greater so the potential to lower rates is incomparable.





GG By focusing on measuring customer value, we think a more optimal set of priorities will be easier to see and comprehend.





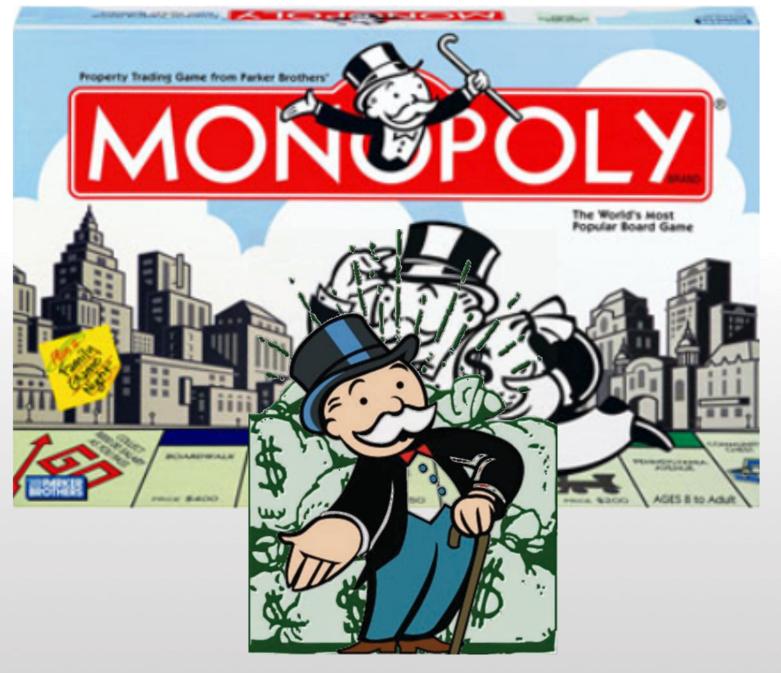
LE The truth is that massive amounts of value can and will be created. The question is whether all of the estimated \$800 million to \$1 billion of capital tied up in the legacy generation should be borne by ratepayers or not.



We should know what we want as ratepayers.

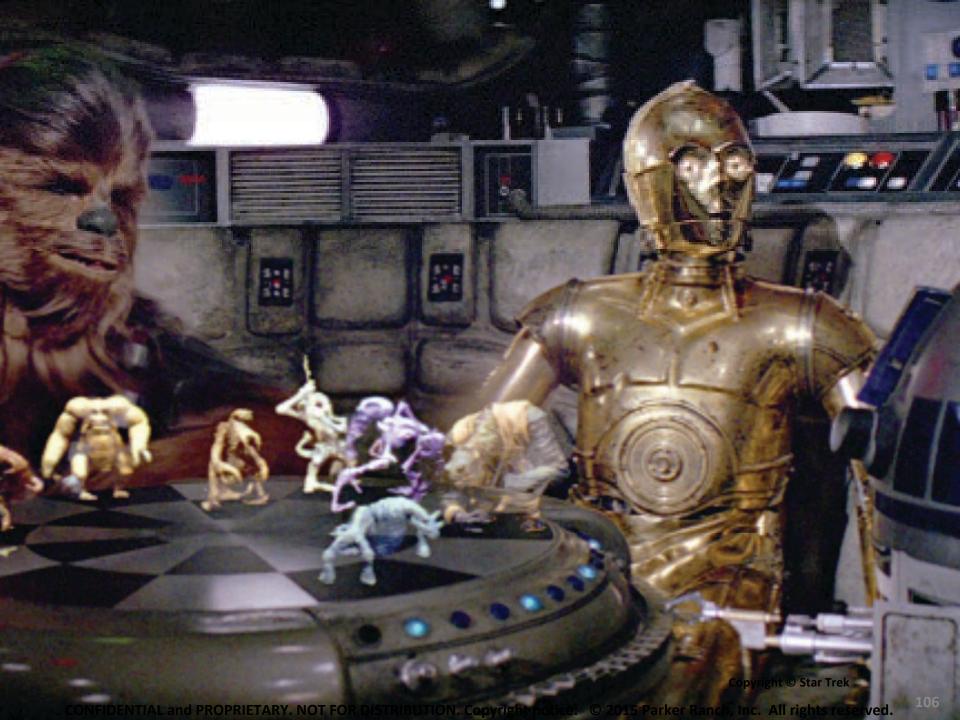
Only then can we strike...

...strike the deal we want, that is.



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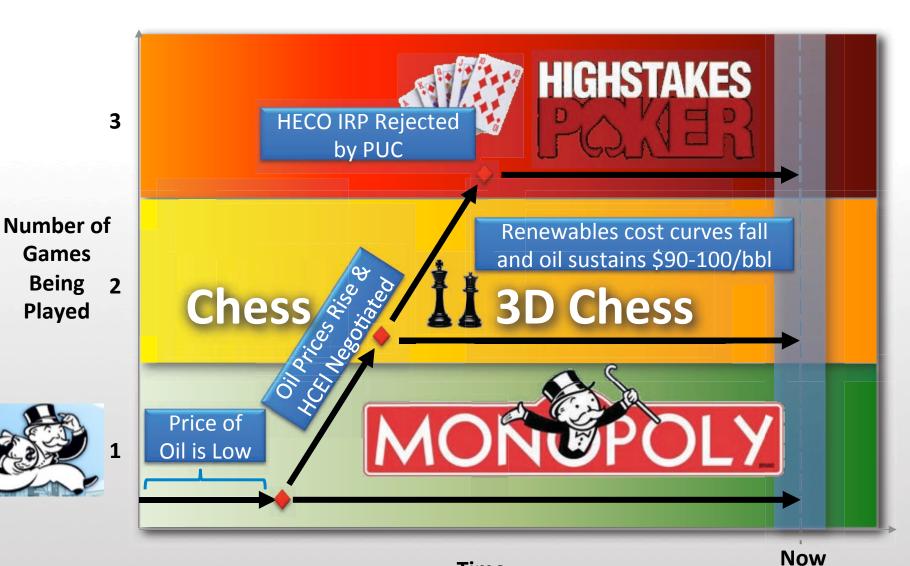
Games

Being

Played

The Games Being Played





Time



Many of the truths that we and others cling to depend greatly on the point of view.

- Yoda





The competing views are often narrowly focused which clouds everything so it is difficult to see the future.

Reciprocity and Fairness for Ratepayers







Why should NEM be reformed overnight instead of over a reasonable period of time?





Perhaps a better answer would be to compromise: transition NEM from residential to wholesale rates over 7-8 years and accelerate the PSIPs from 15+ years to 7-8 years.







I am confident that the process will produce a shared outcome.







Many of these ideas are competitive, but some of them could be highly complementary.





The shareholders and ratepayers are two main players in this game. The State of Hawaii is the third player.





We are convinced increasingly that what is in the best interests of Hawaii, will be in the best interests of Parker Ranch.





Will there be winners and losers? I am betting there will be winners, winners and more winners. The State, in fact, could be the big winner as a destination for new ideas and transformational capital.





With all of these games being played at the same time, I only have one piece of advice for Hawaiian Electric...

Tylenol Works!!!



