MAUI ENERGY
Conference + Exhibition

100% Renewable Energy in Hawaii:
It's No Longer A Matter of When

March 16 - 18, 2016 | Maui Arts & Cultural Center

Presented By:

MAYOR'S OFFICE OF ECONOMIC DEVELOPMENT MAUI COUNTY

INVESTING IN HAWAII

Director Luis Salaveria – *Moderator*
Department of Business, Economic Development & Tourism, State of Hawaii

Lorraine Akiba
Commissioner, Hawaii Public Utilities Commission

Boris von Bormann
Chief Executive Officer, sonnen, Inc.

Murray Clay
Managing Partner, Ulupono Initiative

Josh Teigiser
Senior Project Developer for Renewables,
Sempra U.S. Gas & Power

Most Have Insurance…

Fuel Cost Risk

Ratepayer

R.E. Breakeven Points for "Free" Insurance

...or what is a fair price for renewable energy?

Dec. 2014 ~14¢/kWh vs. LNG

Sep. 2015 ~9.5¢/kWh vs. LNG

~10.5¢/kWh vs. LNG

~20.5¢/kWh vs. Oil/Diesel

“Breakeven Point” - Probability

More Upside Than Downside to Renewable Energy: "Breakeven Point" - Magnitude

10.5¢ Breakeven vs. LNG $

600 kWh bill

Very High LNG $$

10%

Very Low LNG $$

$3,282*

$1,138*

*Over a 15-year period using LNG while roughly doubling renewables

Is Hawai‘i a Good Place to Invest?

Policy

- LNG – Yes or No?
- 100% Renewable Energy – But are we serious?
- Is State procurement process/criteria out of alignment?

Regulation

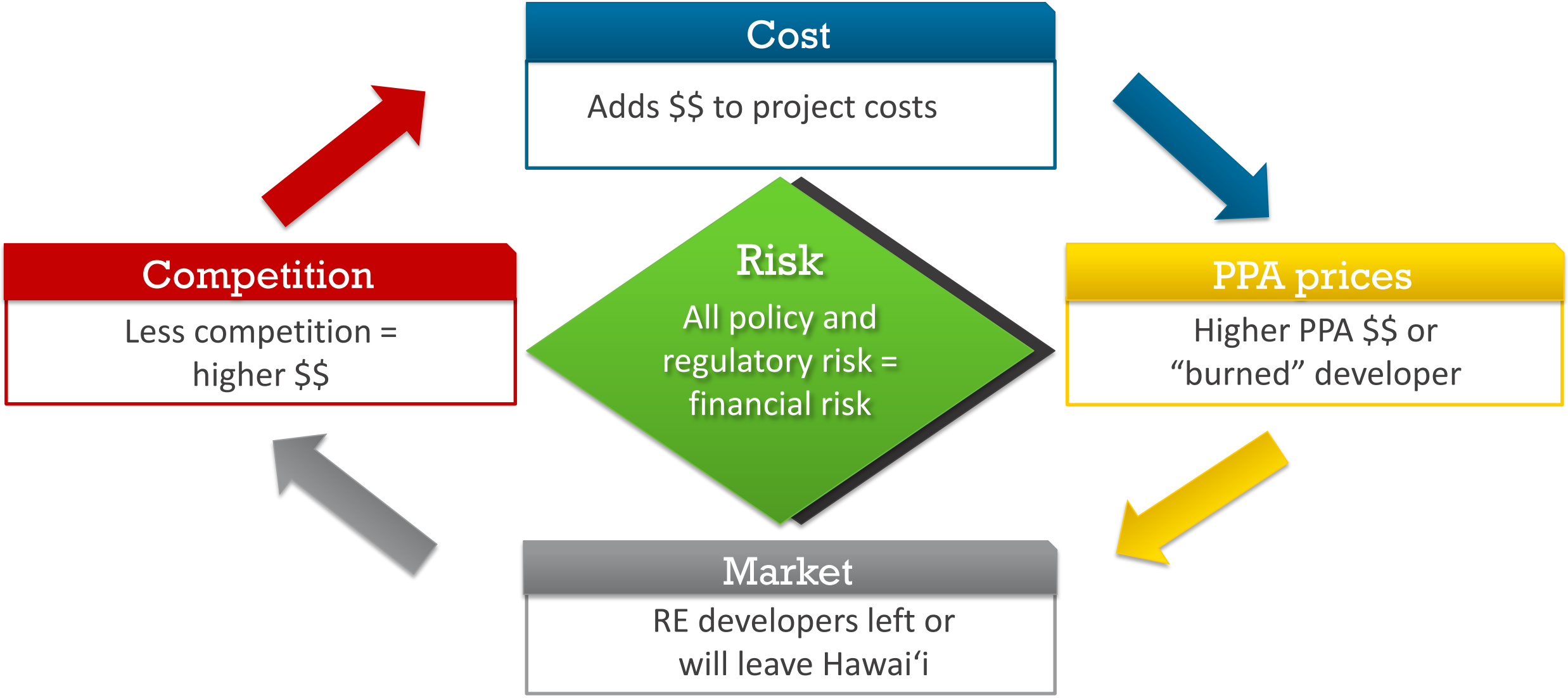
- Regulation and/or market mechanisms not well developed
- RFP to PPA to PUC approval: 8 months – 6+ years vs. 8-10 months
- Permits and entitlements take several years vs. only a few months in other states

Hawai‘i vs. California

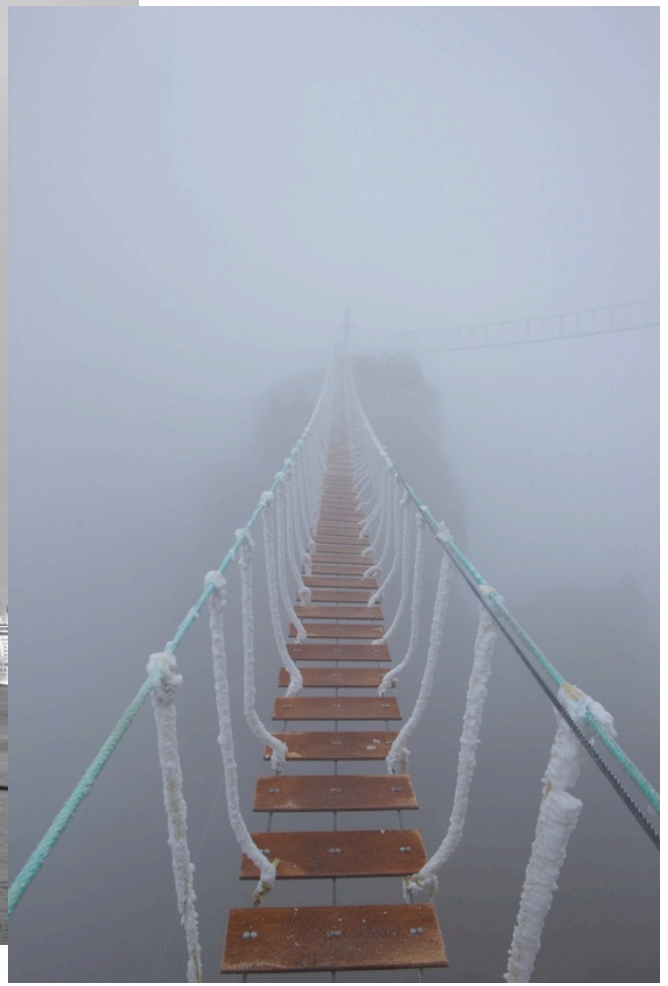
Renewable Project Timeline

	Hawai‘i	California
RFP Submission → Decision	1 month - 2 years	2 - 3 months
Beginning of negotiations w/utility → Signing of PPA	4 months - 3 years	3 months
Approval by PUC	3 - 13 months	3 - 4 months
Entitlements	6 months - 6 years	3 - 4 months
Total	14 months - 12+ years	11 - 14 months

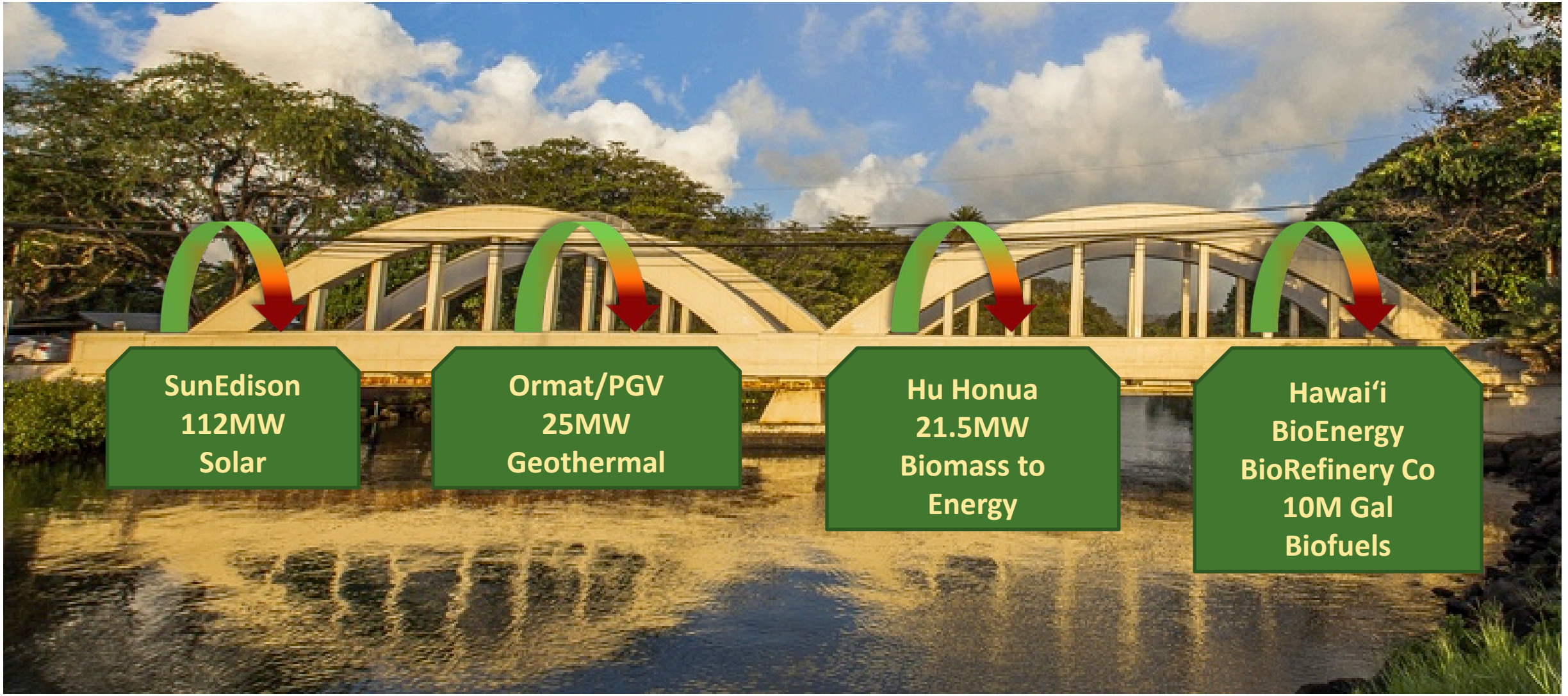
Is Hawai‘i a Good Place to Invest?



So, Is Hawai‘i a Good Place to Invest?



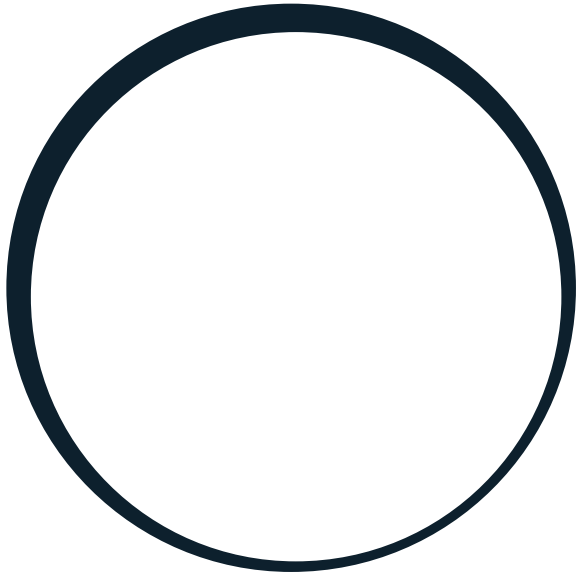
So, Is Hawai‘i a Good Place to Invest?



Mahalo!

For more information visit www.ulupono.com

ulupono INITIATIVE



sonnen

energy is yours

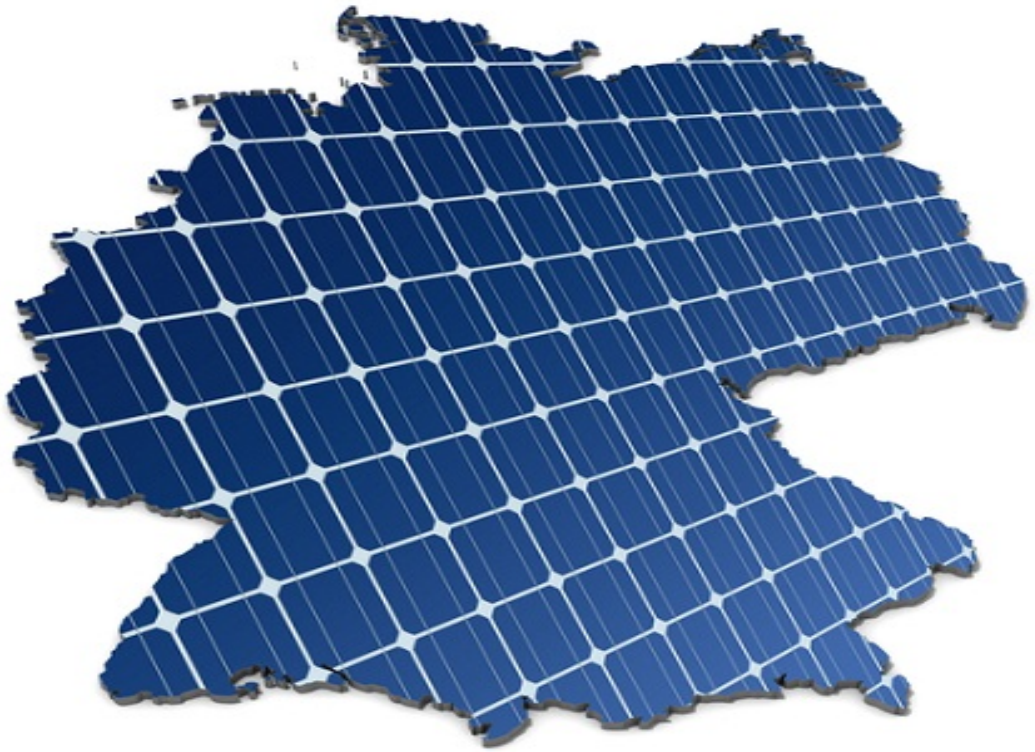
Investing in Hawaii
sonnen | Energy Storage

Presented by Boris von Bormann, CEO, sonnen, Inc.

Challenges/Opportunities in Hawaii

- Hawaii is innovating and implementing new models
- Processes and programs are in development
- Lack of clarity on tariffs and processes slows investment
- Pathway to aggregating DERs is unclear
- Opportunity for utility/ provider partnerships to meet common goals
- Many stakeholders that are involved

The Growth of Solar + Storage in Germany



- Goals to increase renewable energy led to feed in tariff
- 100% renewable energy goal
- Tariff structure incentivized overabundance of solar
- Increase in on-grid renewables created need for mitigated solutions
- FIT changes increased value of self-consumption
- Storing excess low cost solar created new energy supply
- Demand for lower cost energy created opportunity
- Trading platform increased economic value of storage

sonnen

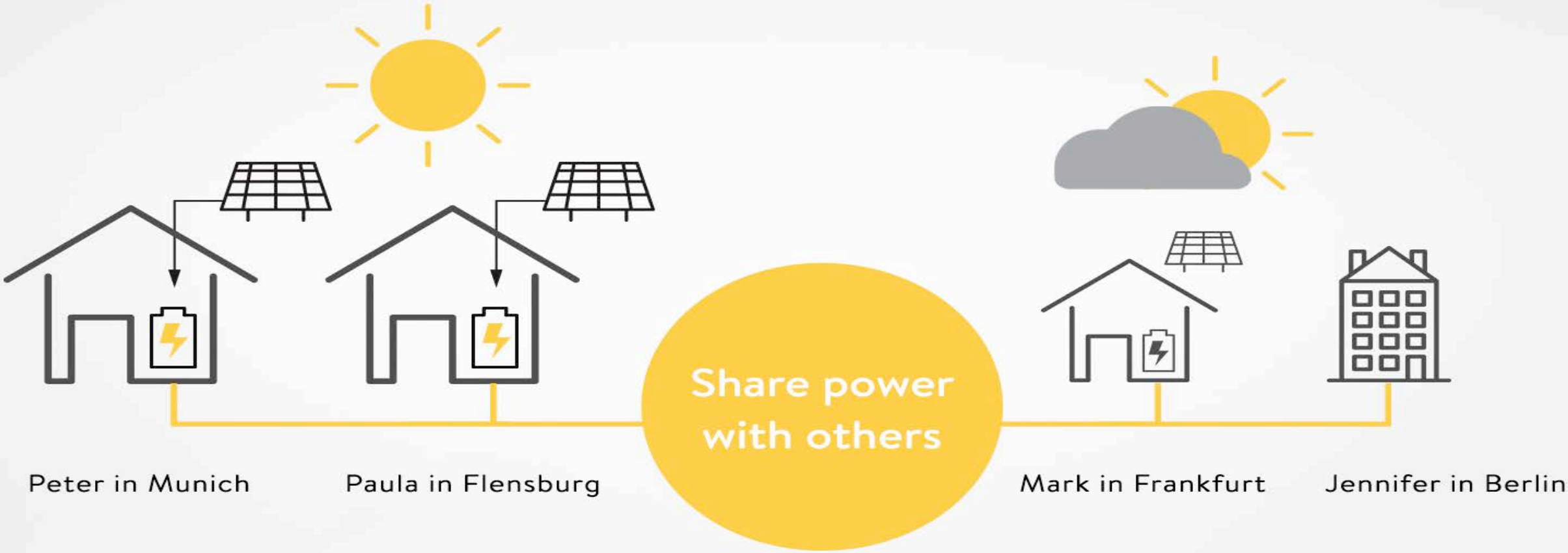
energy is yours

Our Mission:

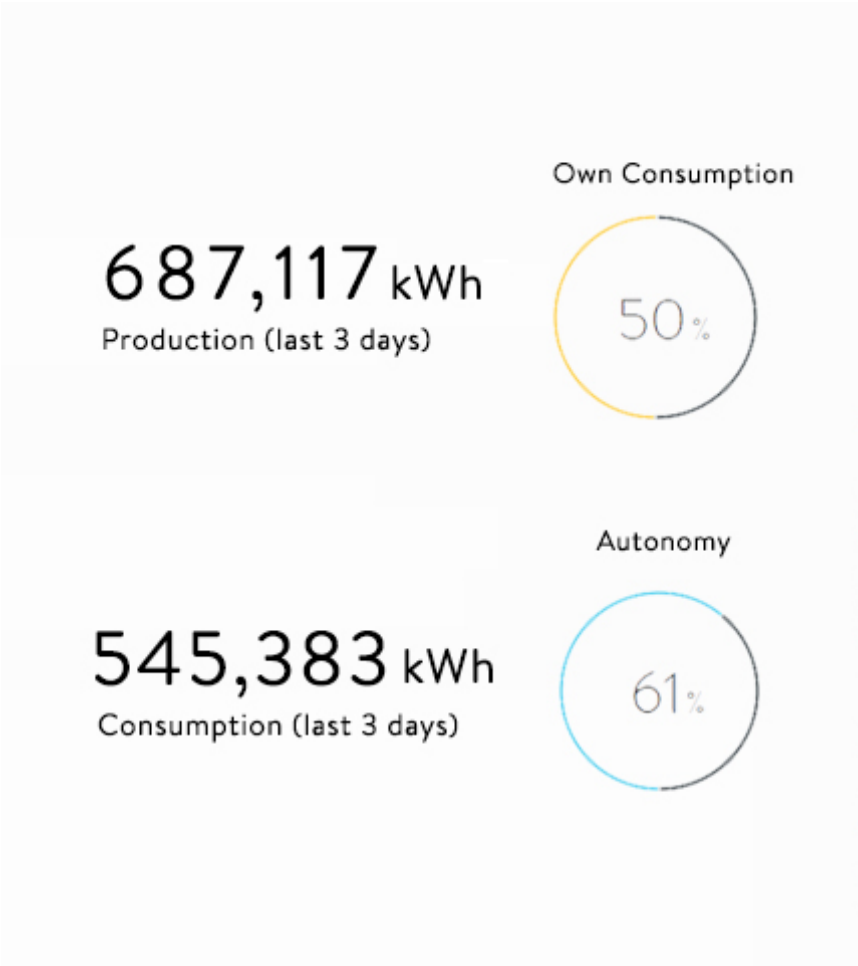
Clean and affordable energy for all.

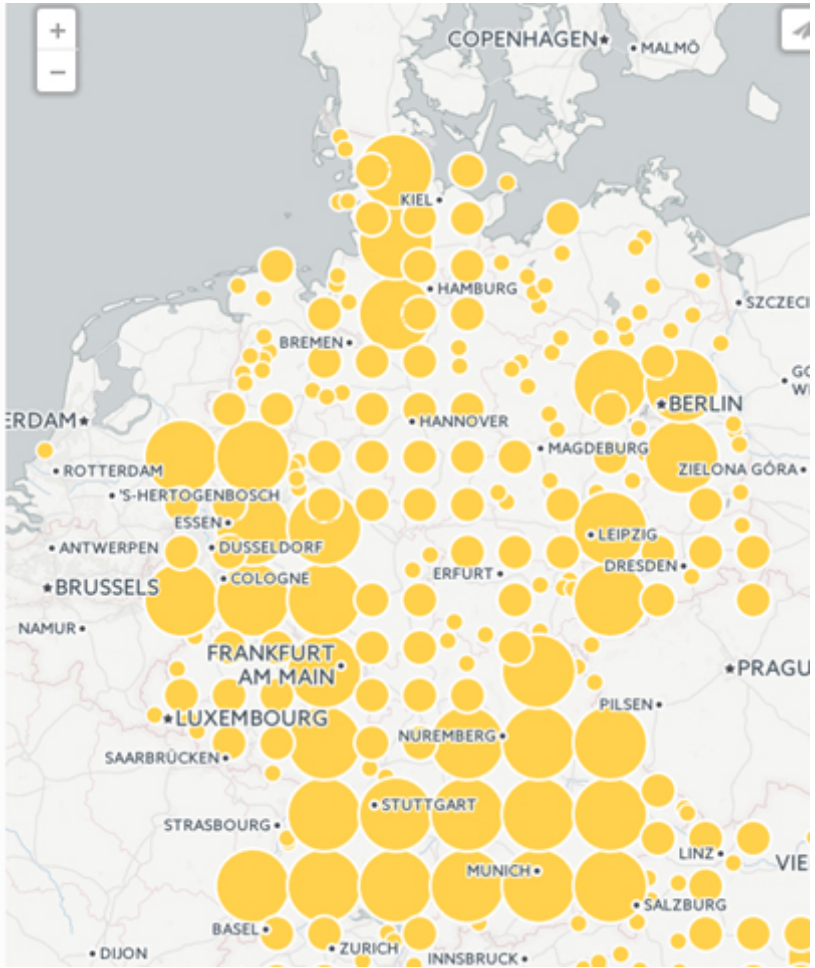

Phase 3
Phase 2
Phase 1
YOU
WE
ALL

the sonnenCommunity.



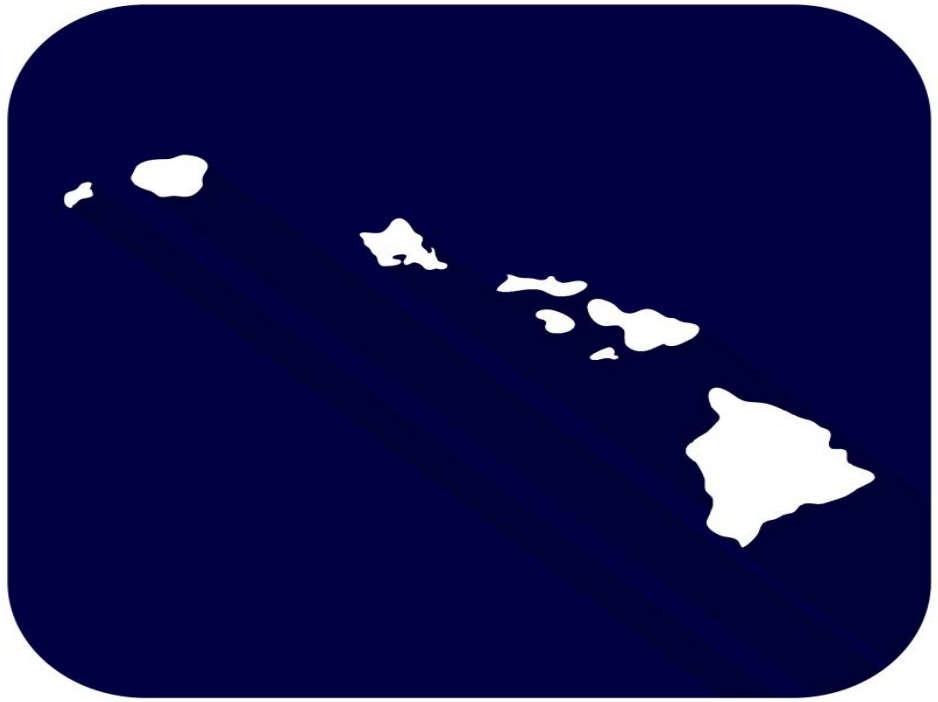
The sonnenCommunity provides energy for all in Germany. (almost)





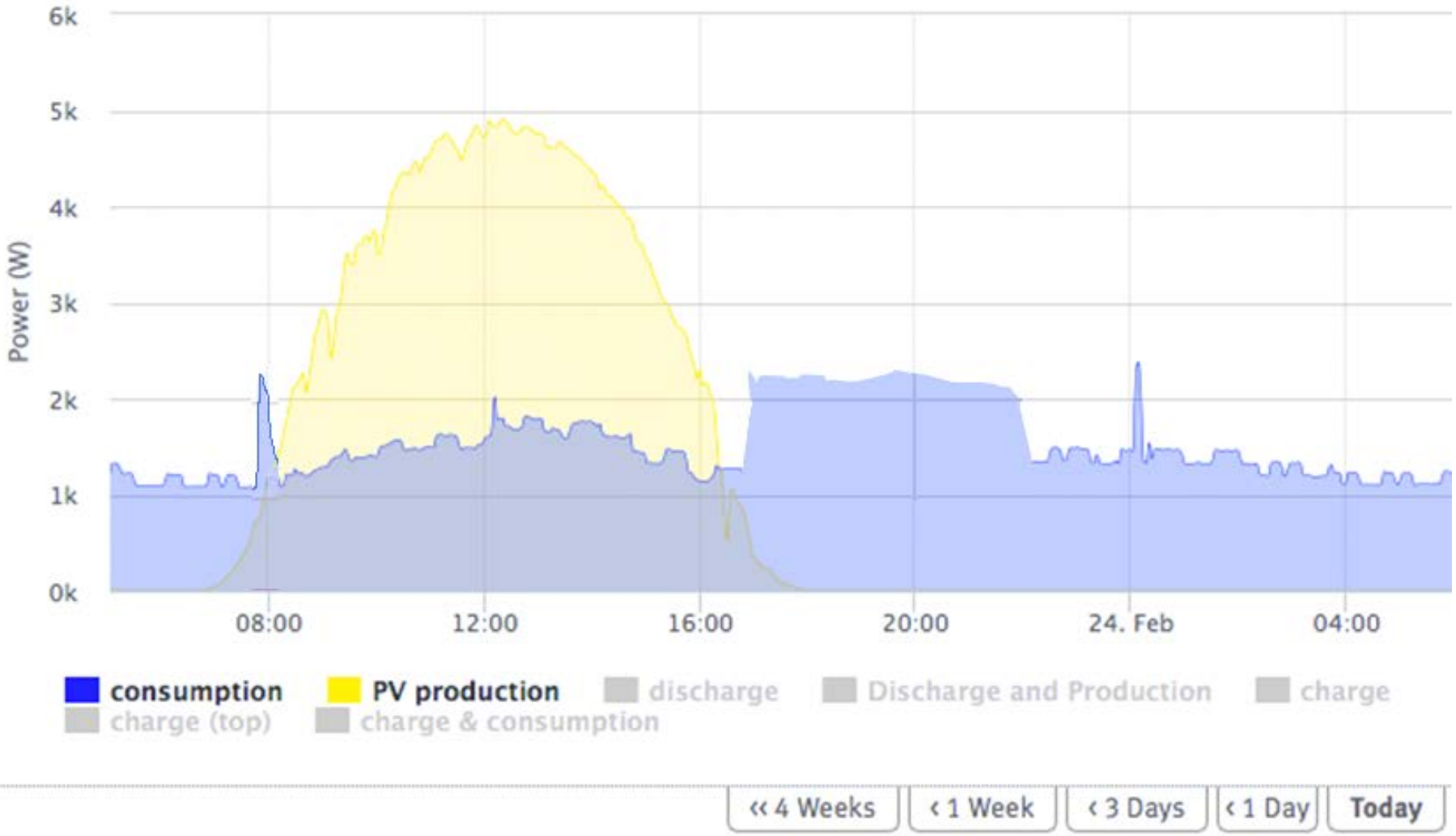
https://sonnenbatterie.de/en/sonnenCommunity

Hawaii - A Similar Market for Storage

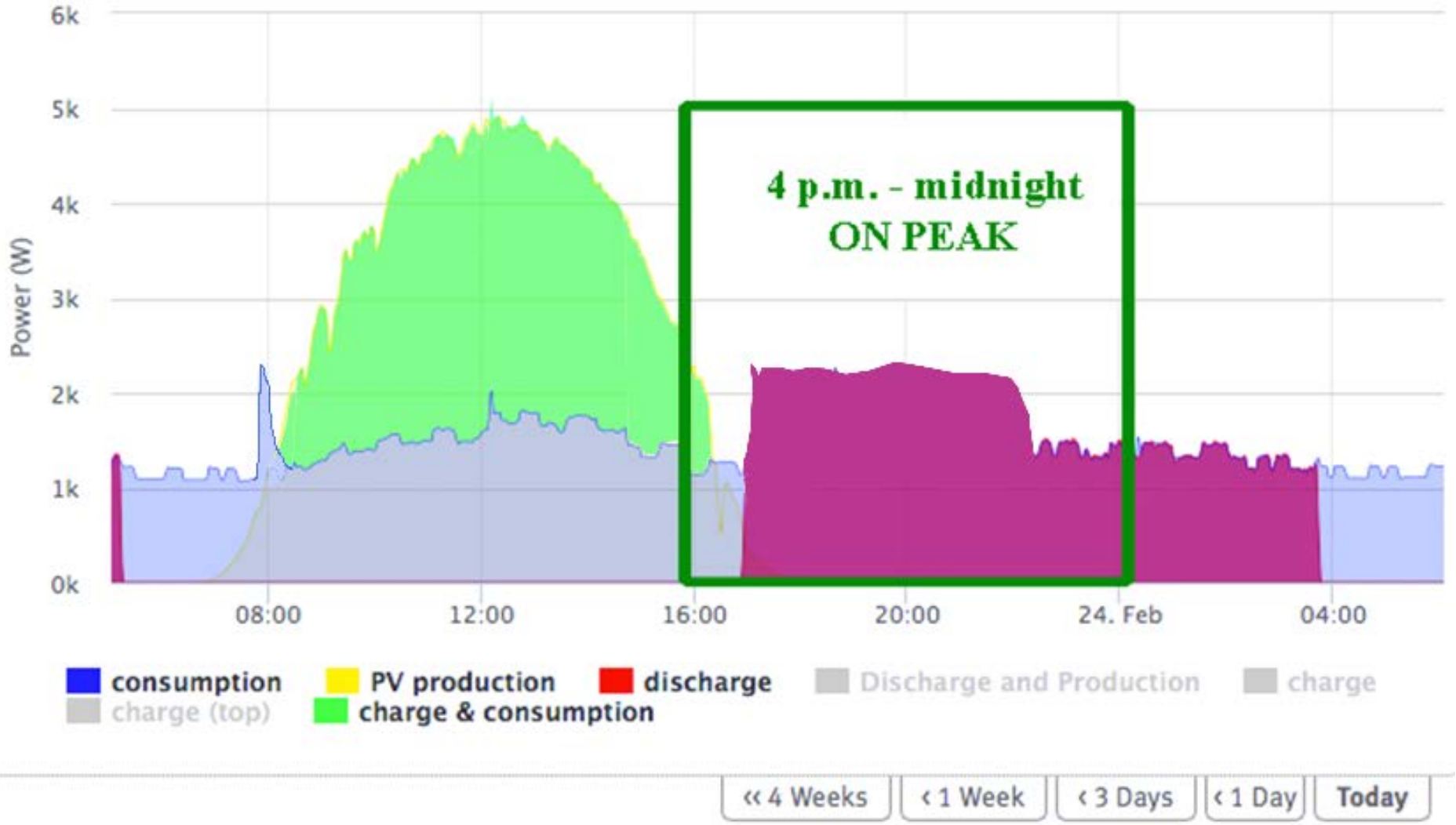


- Overabundance of solar
- Implementation of proactive utility tariff structures
- High retail electricity rates
- 100% renewable energy goal
- Need for grid stability and resilience – aggregated DERs
- Opportunity to increase solar self-consumption
- New revenue model for local solar businesses

In Hawaii, solar alone is unable to match customer demand.



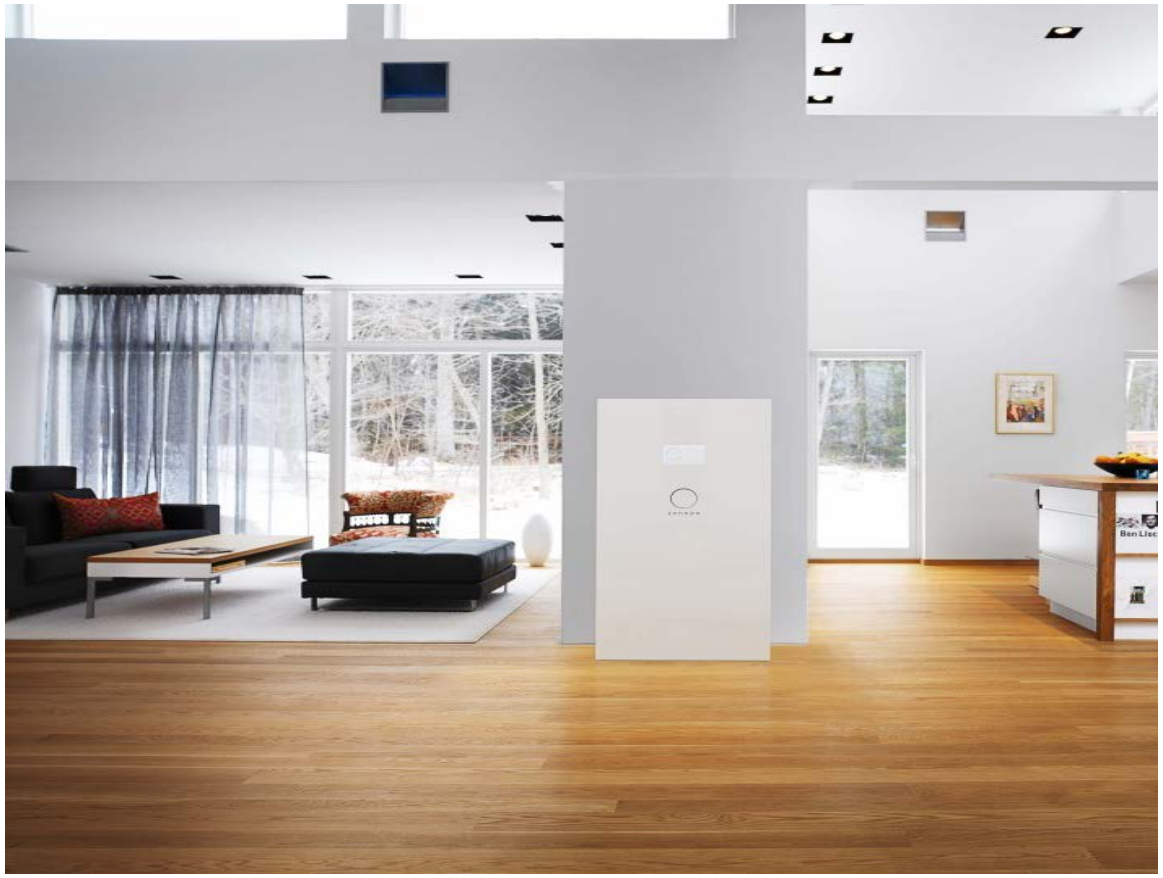
Storage increases the lifespan and flexibility of Hawaii's solar supply.



sonnenBatterie – mitigating the challenges

- Proven technology
- Zero export capability
- Applications
  - Solar self-consumption
  - Backup power
  - Off-grid capability
  - Time of use arbitrage
- Quiet, safe, and secure
- Software upgrades enable new storage applications
- Shipping already & available in Hawaii

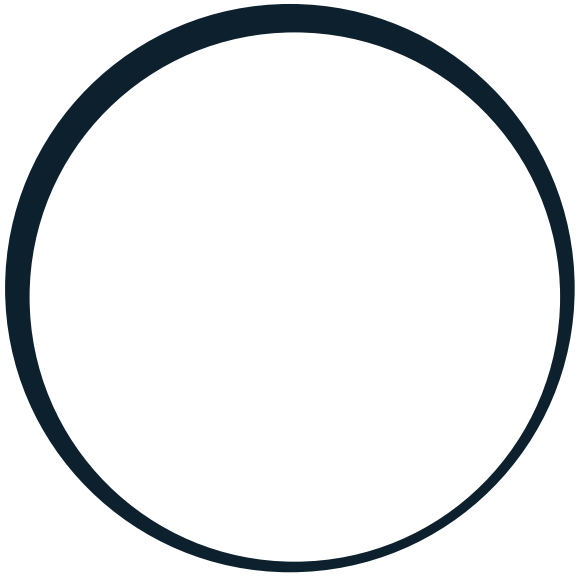
Path Forward in Hawaii



- Provide clear guidelines and processes
- Tariff stability
- Open communication channels for ideas and new product channels
- Remove regulatory roadblocks
- Create open pilot projects for new technology
- Educate business and end-users on new technologies and changes

Energy storage provides the means to future-proof Hawaii’s renewable energy supply.

sonnen



sonnen

energy is yours

Boris von Bormann, CEO
boris.vb@sonnen-batterie.com
(310) 853-2404
www.sonnen-batterie.com

Sempra®
U.S. Gas & Power

Investment Solutions for Hawaii's 100% Renewable Energy Future

Is Hawaii a Good Investment?

Josh Teigiser

March 17, 2016

Solar. Wind. Natural Gas.

Who We Are

Sempra U.S. Gas & Power is a leading developer of clean energy solutions in markets throughout the U.S.

As a subsidiary of Sempra Energy, you can count on us to be there for the long term and to deliver on our promises

Sempra Energy®

- Fortune 500 company
- 2014 revenues of more than $11 B
- 17,000 employees worldwide
- 32 million customers served worldwide

San Diego Gas & Electric

- 3.4 million customers
- 4,100 square mile service territory

Southern California Gas Co

- Largest U.S. gas utility
- More than 20 million customers
- 20,000 square mile service territory

Sempra International

- Gas / power utilities in Latin America
- Gas pipelines in Mexico
- LNG

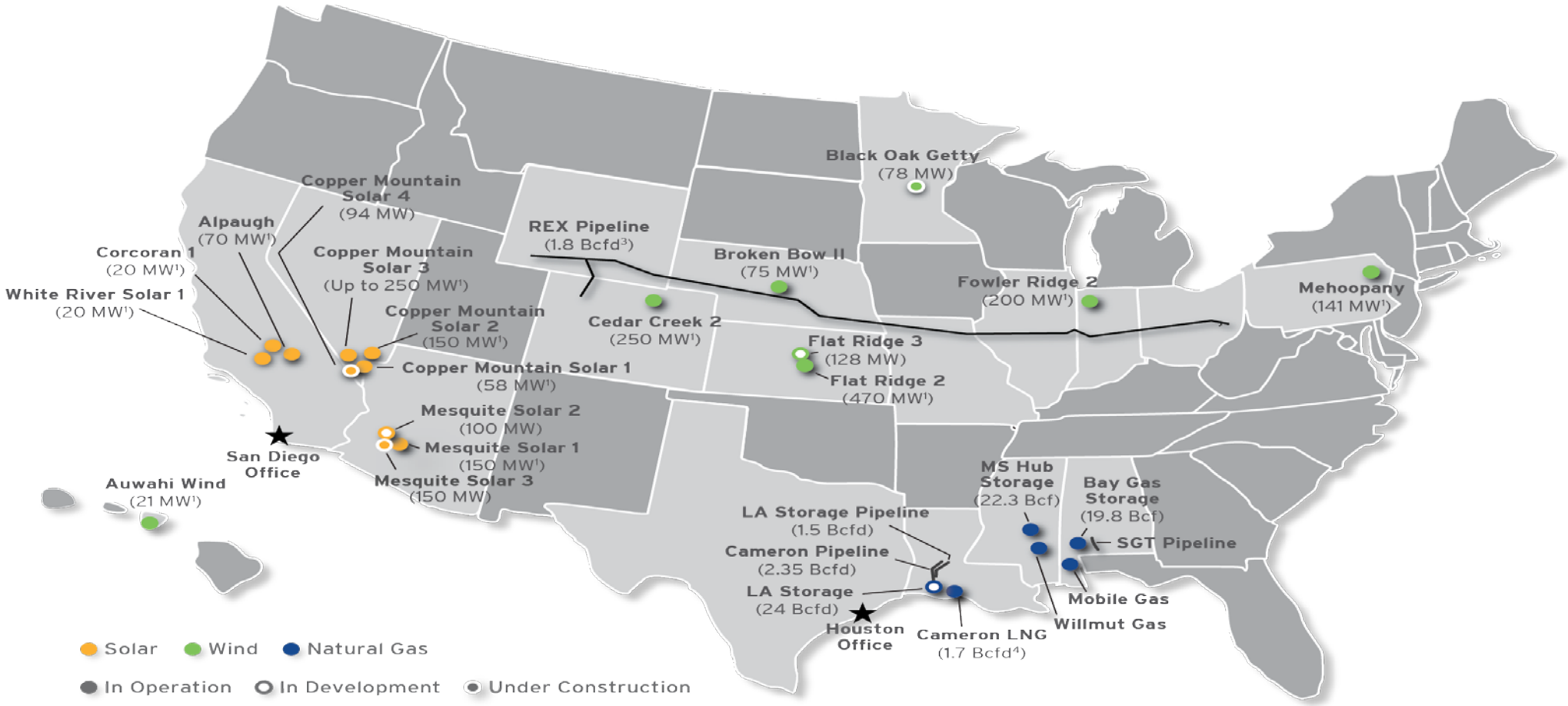
Sempra U.S. Gas & Power

- U.S. natural gas infrastructure
- Renewable energy generation
- Southeast gas distribution assets

What We Do

Sempra® U.S. Gas & Power

We own and operate over 2,000 megawatts (MW) of generating capacity*, fueled by the sun, the wind and low-emission natural gas that generate power for nearly 600,000 homes and businesses



(1) Sempra's ownership interest is 50%.
(2) Reflects total capacity of solar project(s) at full buildout.
(3) Sempra's ownership interest is 25%.
(4) Cameron LNG regasification facility is currently in development phase for conversion to a liquefaction facility.
* Includes jointly-owned projects

Solar. Wind. Natural Gas.

Auwahi Wind & Energy Storage

Sempra U.S. Gas & Power

The Auwahi Wind facility has been operational since 2012

- Eight 3.0MW turbines
- 11MW / 4.4MWh (ramp control battery)
- 20-year PPA with MECO

Who we are

Sempra U.S. Gas & Power has a strong balance sheet and is actively looking to deploy capital in renewable and natural gas projects both domestically and internationally

- Three main investments focus areas:
  1. Greenfield
  2. Expansion
  3. M&A

Investing in Hawaii

Sempra U.S. Gas & Power

Hawaii is an attractive energy market for Sempra U.S. Gas & Power

Major factors include:

- Expanding Auwahi Wind will allow for a competitive price
- 100% renewable energy target
  - Requires a substantial amount of “outside” investment to achieve – if the HPUC desires to have reduced cost
- World class wind resource, in particular on South Maui
- Strong, established relationships in Hawaii – including underlying landowner
- Knowledge and understanding of the regulatory environment and associated timing
- Comfort with HECO/HPUC approved PPA terms and conditions
- Experience with the environmental and permitting requirements
- Strong commitment to community outreach and involvement - critical

Appealing Investment Alternatives to HI

Sempra U.S. Gas & Power has a competitive advantage in markets with current projects

Expansion of existing projects is a priority:

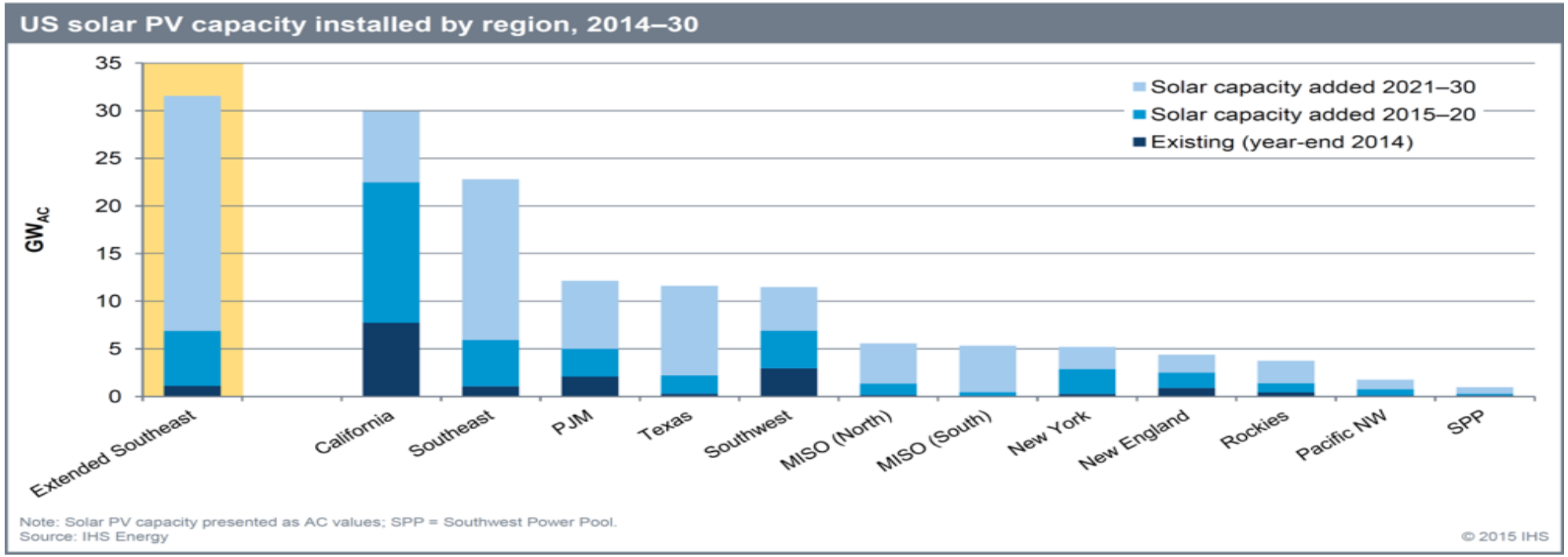
- Solar – Southwest: Arizona & Nevada
- Wind – Midwest: Nebraska & Kansas
- Each of these markets have the same attributes:
    1. World class renewable resources
    2. Large established facilities with capacity for expansion
    3. Extensive knowledge of PPA off-takers

** Copper Mountain Solar 1, 2 & 3 – Boulder City, NV*

Appealing Investment Alternatives (cont.)

Sempra U.S. Gas & Power

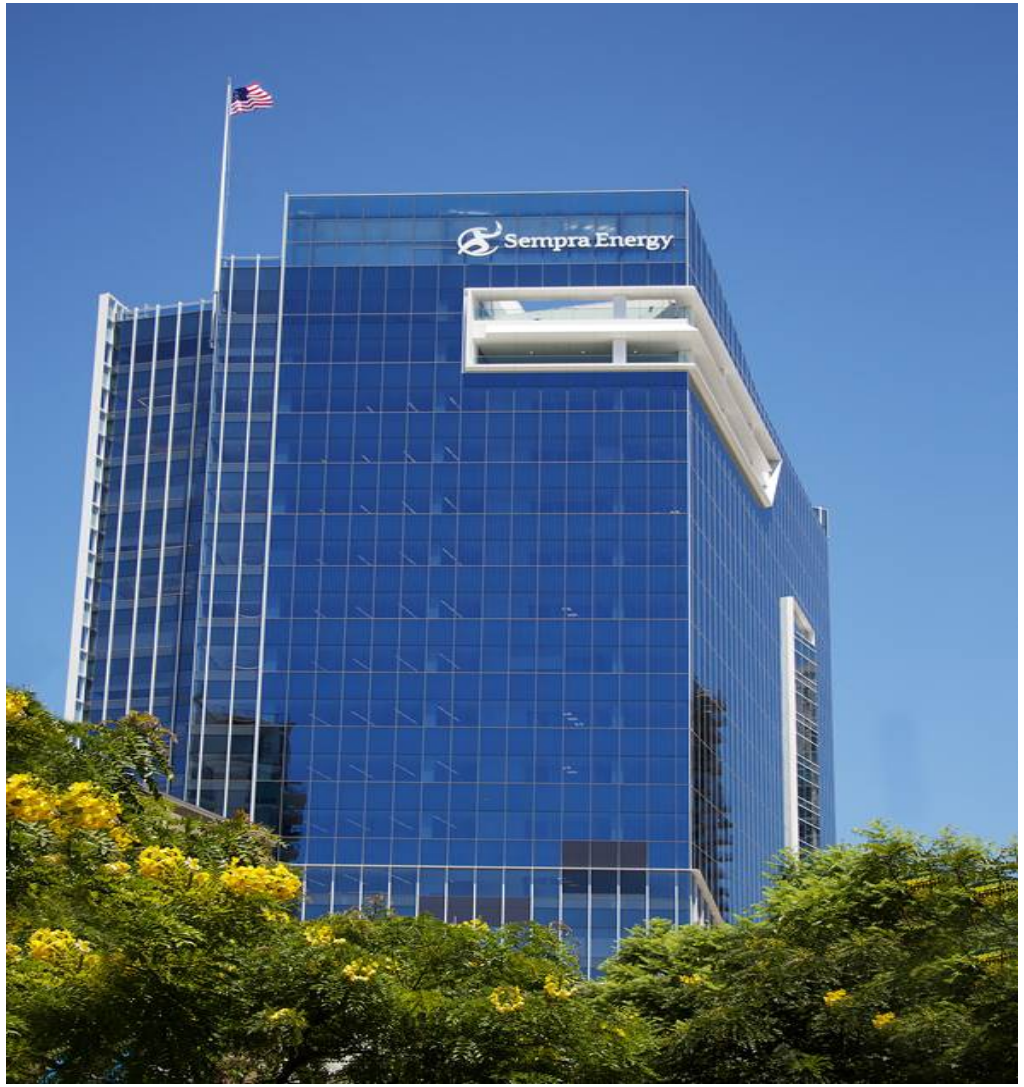
- Southeast
  - Growing renewables market – with our without the CPP
  - Known regulatory process and accelerated timing
    - Georgia Power Advanced Solar Initiative
  - Natural gas presence in the region



Appealing Investment Alternatives (cont.)

Sempra U.S. Gas & Power

- California
  - Headquartered in San Diego
  - Existing assets in California and several projects in development
  - Focus is on SCE, PG&E, LADWP and others

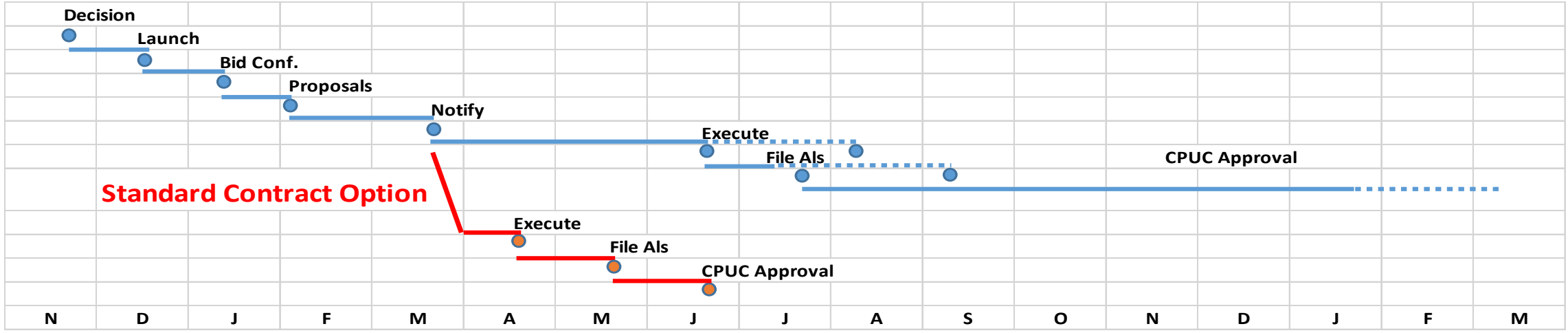


Challenges / Risks in Hawaii

Sempra U.S. Gas & Power

Reducing known challenges and investment risk. In Hawaii some of these include:

- Ensure that there is a fixed regulatory process – policy, regulatory and legislative
- Clarity on what portion of future energy generation infrastructure projects HECO, MECO, etc., are looking to self-perform
- Improved certainty for approval timing – defined timeframes with known milestones
  - Time is money and lengthy schedules are costly/unappealing



** Southern California Edison, 2015 Request for Proposals from Eligible Renewable Energy Resource Suppliers for Renewable Products*

Summary

- Competition is a good thing for reducing PPA prices and ultimately the electric rates for Hawaii

- Analyze the regulatory environment in Hawaii and see what can realistically be done to make the perceived and/or actual risk of investing in Hawaii more acceptable

- Hawaii is a good investment for Sempra U.S. Gas & Power. We are here; we're not only committed to remaining an active part of the Maui community, but we're continually looking to expand.

Mahalo For Your Time!

With El Nino giving San Diego an average 70+ degree February – and no rain, its refreshing to see some snow…look hard at the snowcap of Mauna Kea!!