

Hawaii Clean Energy Initiative

Energy Efficiency Charrette Report

Introduction

On May 8 and 9, 2017, the Hawaii Clean Energy Initiative (HCEI) and the Hawaii State Energy Office (HSEO) hosted a [charrette](#) in Honolulu. The topic was energy efficiency. The program drew many who frequently participate in discussions of energy efficiency in Hawaii, as well as many who have interest in the topic but are not part of the routine meetings that occur. Over 65 people participated. The list of organizations and number of attendees from each organization appears as Appendix 1.

There were several purposes:

- The HCEI has been guiding energy activity in Hawaii since 2008, including the subsequent creation of Hawaii Energy—since then, there has not been a public look at energy efficiency (with all respect to the Technical Advisory Group and its guidance of Hawaii Energy).
- There is value after some significant time for implementation to engage a wider group of people interested in energy efficiency in Hawaii to:
 - Provision them with essentials of energy efficiency history, and
 - Introduce this wider group to each other so as to communicate interests, priorities, and aspirations.
- Energy efficiency is a fundamental resource needed to meet HCEI goals.
- Realizing the potential of energy efficiency in Hawaii involves considering new ideas, new practices, new perspectives, and new needs.
 - Recognize complementary roles for the building code, consumer-funded programs, and other activities.

The Regulatory Assistance Project (RAP) worked with HSEO staff to organize this charrette and prepared this report.

After this introduction, the report recounts what happened at the charrette and offers suggestions for how the interest generated there can be put to good use in the future.

The Agenda

The agenda, which is attached here in Appendix 2, was constructed in order to:

- Introduce over five dozen people interested in energy efficiency to each other. Especially appreciated was the participation of:
 - Neighbor islands

- The office of U.S. Representative Tulsi Gabbard, whose staff member took an active role
- Provide a background on energy efficiency in Hawaii, notably the progress of Hawaii Energy and the state building code (this was primarily provided by Jim Flanagan, former Public Utilities Commission (PUC) contractor responsible for Hawaii Energy oversight; and Howard Wiig, building code specialist from the Hawaii State Energy Office).
- Provide insights about leading edge energy efficiency practices, such as Strategic Energy Management and Zero Net Energy building design, across the U.S. (this was provided by Rich Sedano of RAP, and augmented by discussion with charrette participants).
- Provide a view into how Hawaiian Electric is thinking about energy as a resource (this was provided by Jim Alberts).
- Enable Leidos, the PUC contractor for Hawaii Energy, to discuss its priorities (this was provided primarily by Brian Kealoha).
- Give participants a chance to discuss their preferences and priorities.
- To show participants how the entire group prioritizes current qualities for how energy efficiency is delivered in Hawaii and how that can be improved.
- Identify more that the energy efficiency community in Hawaii can do together, including at subsequent charrettes.

PowerPoint presentations were prepared by Jim Flanagan, Howard Wiig, Rich Sedano, Jim Alberts and Brian Kealoha. These have been distributed to meeting participants and are available from the Hawaii Clean Energy Initiative Energy Efficiency Charrette [website](#).

The meeting was facilitated by Rich Sedano. Over the course of the 1 ½–day session, the meeting transitioned from participants responding to presentations to participants interacting and deciding the direction of the discussion, taking on the characteristics of a charrette. The charrette remained in plenary with no breakout groups so everyone could hear all remarks.

Findings and Insights

Participants responded to several questions on sticky notes, which helped to guide the subsequent discussions. Some responses to those questions are summarized here.

Why come to this charrette?

The primary reasons participants reported for attending included:

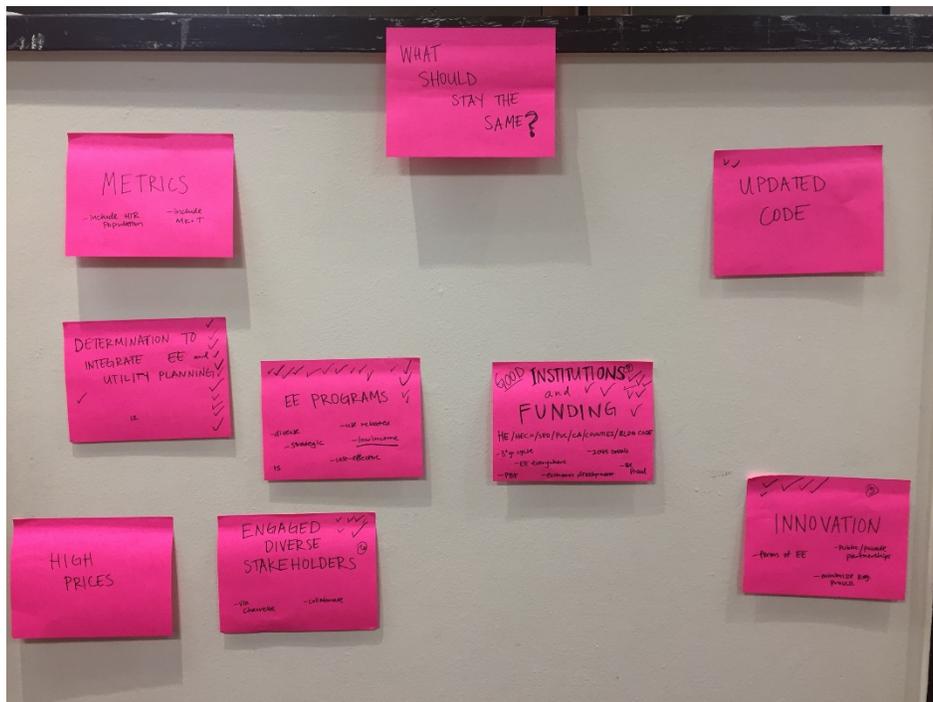
- Learning who makes up the energy efficiency community in Hawaii, including many relatively new on the scene;
- Reinforcing the role of energy efficiency as an inexpensive energy resource that contributes to HCEI goals in many ways;
- Displaying for examination and discussion the range of ways to secure cost-effective energy efficiency;

- Recognizing improvements in technology that make energy efficiency more attractive and position energy efficiency as a resource that can be integrated effectively and beneficially with other new and improved technologies;
- Learning from history; and
- Considering process approaches including opportunities for collaboration.

What is working with energy efficiency in Hawaii?

Participants expressed satisfaction with some foundational elements of energy efficiency as they are, though they seek to employ continuous improvement where useful. These areas included:

- Continue to grow interest in energy efficiency;
- Continue to rely on state building codes, while updating the code in the state and counties;
- Continue focus on strategic customer programs that support long-term state goals and that engage market actors;
- Continue to prioritize low-income access to energy efficiency;
- Maintain the 2045 energy goals, including 100% renewable energy;
- Continue to collaborate and challenge respectfully in the interest of understanding and progress; and
- Continue to pursue the goal of inclusiveness of stakeholders.

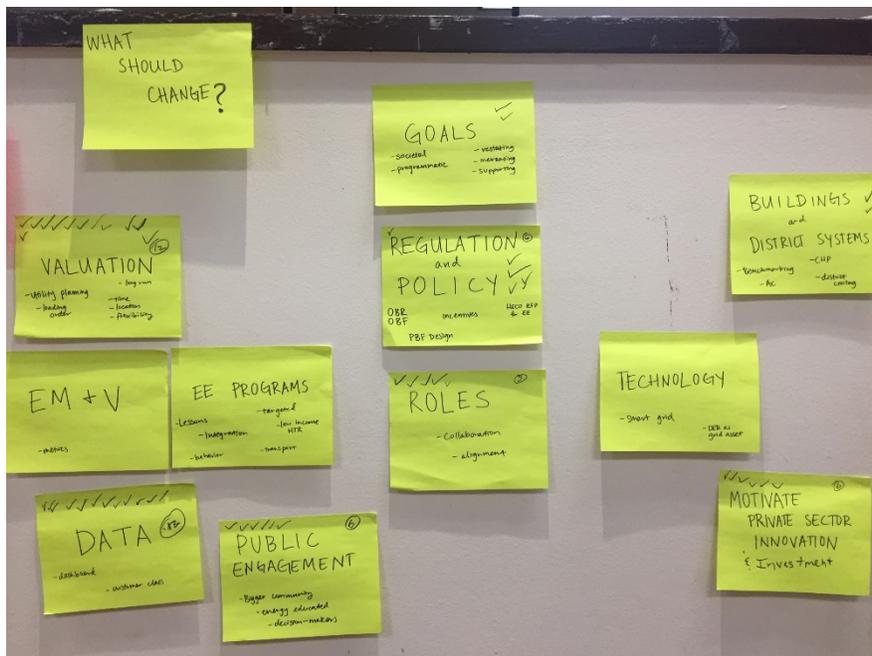


Picture 1: What should stay the same? Answers to this question indicated satisfaction with the overall structure for how energy efficiency is done in Hawaii.

What should be improved?

Responses to this question indicated much room for improvement in energy efficiency in Hawaii, including:

- Create clearer and shared policy goals with sufficient financial support to achieve them;
- Draw clearer lines of responsibility among Hawaii Energy, Hawaiian Electric and others with opportunities to coordinate;
- Develop market-based programs allowing for longer-term investments;
- Bring the customer perspective increasingly into policy conversations and improve inclusiveness;
- Promote innovation and entrepreneurial behavior;
 - Consider enabling such scaled programs as energy efficiency/renewable energy integration, integration of technology and data applications, combined heat and power, and district air chilling using sea water.
- Fully value energy efficiency, especially for its locational value, and deploy it first before generation; and
- Be more creative in supporting energy efficiency access in buildings that tend to be occupied by low-income households.



Picture 2: What should change? Answers to this question indicated a view across all participants of significant room for improvement in the structure of energy efficiency delivery in Hawaii.

Deeper Inquiry into Areas of Improvement

After distilling priorities among the participants, the charrette allowed space to dig deeper into the priorities for change that garnered the most interest. These included:

- How energy efficiency is valued.

- How data is used to support energy efficiency throughout the value chain.
- Process improvements including new forms of collaboration.
- How energy efficiency is seen compared with other resources.

What follows is a summary of these conversations.

Valuing Energy Efficiency

Energy efficiency is valued based on a standardized benefit/cost approach. Participants perceive that this approach:

- Overlooks any special value energy efficiency may provide to specific locations of the grid, especially where traditional utility investment might ordinarily be called for, and which may be more expensive in the long run than a course of consistent energy efficiency investments valued to recognize the avoidable utility investment.
- Overlooks the varied temporal value of energy efficiency particularly in helping to integrate large quantities of solar PV.
- Lacks recognition of risk reduction or value across a full range of possible scenario futures.
- Further mutes value if prices to consumers (regulated rates) do not reflect some temporal value.
 - Demand response, which could be integrated with energy efficiency programs, is even more intensely affected by the state of utility rates.
 - As a side note, the group noted the divided responsibility between Hawaii Energy for energy efficiency and Hawaiian Electric for demand response as a probable source of present lost opportunities and an area for improved customer-focused coordination of offerings.
- Insufficiently reflects increasingly active and empowered customers making more informed end use investment and operating choices.
- May not sufficiently coordinate energy savings programs to drive value for low-income communities.
- May not use data effectively as possible, which feeds into the next area of inquiry.

Using Data

The theme in this discussion was unmet potential. For this theme, Ben Sullivan from Kauai County government deserves notice for his creative and diverse contributions to the conversation, including a brief demonstration of how he uses Tableau software to visualize energy use at Kauai government buildings. One of his key points, echoed by many, is the value of data and the need for openness or transparency to realize that value, with due consideration to anonymize data to protect privacy and commercial interests of individual customers. Among other points that emerged in this conversation were these:

- People involved with energy efficiency should know more about how data can improve what they are trying to accomplish, and the purposes of enhanced data collection.

- Because data is collected in different ways by different entities and can be used for different purposes by diverse users, understanding functional relationships associated with data flow is important.
- While consumers do not need, nor do they probably want, a lot more data, a little more—especially at key times, perhaps when making a significant energy-related investment—can be welcome. Thoughtfulness about assisting the customer to access useful data is likely to bring value to individuals and the state.
- Energy data controlled by government should be accessible in availability and format.
- Government (especially the state and counties) can be early adopters in demonstrating the use of data for operations and investment, but agencies without energy management expertise will need help setting up data collection programs.
- Energy efficiency trade allies in competitive milieus can use increasingly available data to better serve their markets.
- Clarifying who owns data and other roles and responsibilities associated with data management and analysis can help to use it better.
- Some want to protect data associated with their energy use, and this concern should be respected.

Public Engagement, Collaboration, Coordination

The group also addressed the process of progress. The Hawaii Clean Energy Initiative brought with it the idea that the institutions managing energy policy in the state would benefit from collaboration and inclusion. Generally, with management of government and private organizations focusing on their own missions and objectives, opportunities for coordination can be overlooked, though in a small state it may be easier to overcome this inertia. The group discussed ways to coordinate better and engage those not involved routinely with PUC or HSEO activities.

Efficiency First

The group discussed whether it would be useful to elevate energy efficiency as an electric grid resource in a more purposeful way due to its many virtues (cost, risk management, diversity). Factors that emerged during this discussion were:

- Policy could accomplish this direction to prioritize energy efficiency.
 - With Hawaii Energy and the building code, Hawaii has a good start and can apply lessons from other states to be even more successful.
- Knowing and acting on the locational and temporal value of energy efficiency would be important.
- Private markets would help realize this objective, and would need consideration from regulation to have the data and market platform to realize potential.
- There has been emphasis on renewable energy development in Hawaii in recent years, and consumers may need help clarifying how to think about energy efficiency and renewable energy together as they consider their buildings.
- Attention to the long term is important for realizing the potential value of energy efficiency.

What Next?

The Charrette closed with a group discussion about what should happen next. Energy data access and use, process, and the role of the state and markets to nurture and promote energy efficiency and access to clean energy services for low income groups were featured topics.

The potential for better use of data was a prominent topic. Discussants were interested in making data available in useful formats and for time periods that would reveal the value to customers and the system of energy efficiency and potentially other customer resources. The group also voiced the idea that data on key grid outcomes could form the basis for system performance metrics. More specific attention to this topic is an appropriate future action step. One suggestion from the group would explore for parallels and lessons how the Hawaii Department of Health manages and stores data for use in health care. Another suggestion urged the state to consider lessons available from other states that have made more progress on data.

Many participants expressed appreciation for this program and urged that more attention to the energy efficiency community would lead to more inclusion and more interest-specific and sector-specific conversations. Some participants urged more aggressive championing of energy efficiency by the state, beyond support for the new building code.

While many argued for more government attention to energy efficiency, there was equal support for considering more effective use of market forces including market transforming energy efficiency program designs. Some supported considering time-varying rates to convey a more accurate value of peak time consumption (noting that the daily net load shape is changing due to solar deployment, so the peak time may change and any change to rates should teach this to customers). While customer focus groups might yield insight quickly, these are expensive so there was acceptance that other ways to gain experience may be sensible.

Many opportunities for progress will need attention from the Public Utilities Commission. Staff from the PUC encouraged participation, and called attention to a proceeding on demand response as an opportunity to follow up on integrating energy efficiency with other customer resources.

Participants also recognized the opportunity for non-government organizations to contribute to engagement, to drive progress and to avoid rehashing conversations.

Some participants want to see low income populations targeted with integrated clean energy services to produce grid value while improving the conditions of people in this category.

Throughout this discussion, many participants voiced a sense of urgency for the state to support energy efficiency deployment to the extent it is economic for its benefits to Hawaii and its people, including reducing the long term cost of achieving the goal of 100% renewable

energy by 2045. Generally, participants agree that much more investment in energy efficiency than is currently planned would be cost effective.

Conclusions and Closing Observations

A number of topics emerged from the discussion as ripe for further exploration by the wider group, as well as for deeper analysis by a subset of stakeholders. There was genuine enthusiasm for continuing the conversation in a future charrette hosted by HCEI and HSEO and getting traction on the key topics between meetings such that stakeholders can make incremental progress with each meeting. Urgency animated the remarks of many participants. The topics of valuing energy efficiency and better data collection and use were top priorities for this group, but the group acknowledged and discussed a wide range of other issues that could be the focus of future meetings.

Acknowledgements

This charrette was the inspiration of Carilyn Shon, Hawaii State Energy Office. She was present at the beginning of the Hawaii Clean Energy Initiative and noted that energy efficiency performance in 2017 and beyond would benefit from renewed attention from the community interested in it. She was supported in this belief by leaders in the Department of Business, Economic Development and Tourism, notably Terry Surles, Interim Energy Program Administrator, and Luis Salaveria, Director, and by Hawaii State Energy Office staff who handled the many details of the sessions.

The staff from the Public Utilities Commission, including the Hawaii Energy contract administrator, were valuable advisors during the planning of the charrette.

The speakers were all prepared with contributions that moved the conversation and told useful stories.

Participants brought their passion for Hawaii and their enthusiasm and experience with energy efficiency and shared these generously.

Appendix 1



Energy Efficiency in Hawaii: Exploring Improvements through a Community Charrette May 8-9, 2017 Attendee List

*The number in parentheses () represents the number of employees who attended the charrette.

2050 Partners, Inc. (2)
Adon Renewables (1)
Amber Kinetics (1)
Associa (1)
Blue Planet Foundation (1)
County of Kauai (1)
County of Maui (1)
Department of Business, Economic Development, and Tourism (1)
Department of Commerce and Consumer Affairs - Division of Consumer
Advocacy (3)
Elemental Excelerator (2)
ESRI - Environmental Systems Research Institute (1)
Office of Congresswoman Tulsi Gabbard (1)
General Public (3)
GreenGoes LLA LLC (1)
Hawaii Center for Advanced Transportation Technologies (1)
Hawai'i Electric Light (1)
Hawaii Energy (6)
Hawaii Green Infrastructure Authority (1)
Hawaii State Energy Office (8)
Hawaiian Electric (3)
Honeywell Smart Grid Solutions (1)
Honolulu Star-Advertiser (1)
InSynergy Engineering, Inc. (1)
JFA (1)
Kupu (1)
Leidos Engineering (1)
Maui Economic Development Board, Inc. (1)
Oahu Economic Development Board (1)

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OpTerra Energy Services Hawai'i (1)
Public Utilities Commission (4)
The Regulatory Assistance Project (2)
Strategen Consulting (1)
Sustainable Design & Consulting LLC (1)
University of Hawai'i at Mānoa - Hawaii Natural Energy Institute (1)
Ulupono Initiative (1)
University of Hawai'i (3)
University of Hawai'i - Sea Grant College Program (1)
US Department of Energy Pacific Combined Heat and Power Technical Assistance Partnerships/Valley Consulting (1)
Vermont Energy Investment Corporation (1)
World Wide Technology (1)

Appendix 2



Energy Efficiency in Hawaii: Exploring Improvements through a Community Charrette May 8 and 9, 2017

Energy efficiency in Hawaii is a customer-driven activity. Multiple state agencies have some role in guiding customer choices in ways such as codes, programs, financing. This session will focus on clarifying the current practice and support of energy efficiency in Hawaii, and to generate and discuss ways Hawaii can get more benefit from its collective efforts. The present system, distinguished by the Hawaii Clean Energy Initiative, has been in place for nearly a decade. This session offers a chance to assess alignment of current initiatives with Hawaii's future needs. A second session later may consider further promising paths to improved outcomes.

Day One, May 8

- 9:00 – 9:20 AM **Arrivals, Welcomes, Review Agenda, Introductions**
Hosted by **Carilyn Shon**, DBEDT and **Rich Sedano**, The Regulatory Assistance Project
During this period, we will start the process of making this meeting a constructive, forward-looking one, making sure participants are clear about the agenda, and asking all in attendance for a brief introduction.
- 9:20 – 10:30 AM **Our Path to the Present State of Energy Efficiency in Hawaii**
Hosted by **Rich Sedano**, The Regulatory Assistance Project
With **Jim Flanagan**, **Ben Sullivan**, and **Howard Wiig**
A panel moderated by **Rich Sedano** with experts to discuss the **energy efficiency portfolio standard**, its origin, its performance over time, and how the portfolio standard interacts with building codes and equipment standards.
- 10:30 – 10:45 AM **Break**
- 10:45 – 11:30 AM **A survey of innovation in Energy Efficiency**
A review by **Rich Sedano** of energy efficiency innovations and practices in other states.
- 11:30 – 12:00 PM **LUNCH at the sandwich bar**

12:00 – 12:45 PM **A lunchtime conversation on the importance of Energy Efficiency for the Modern Utility**
After we return from lunch, **Rich Sedano** will talk with **Jim Alberts** about how HECO relies on energy efficiency and potential for improvements.

12:45 – 1:00PM **Break**

1:00 – 2:15 PM **The Landscape for Energy Efficiency in Hawaii Today**
Hosted by **Rich Sedano**
With **Brian Kealoha, Jim Flanagan** and **Carilyn Shon**
A panel will discuss the public benefit fund statutory requirement, PUC decisions implementing the requirement, and how this requirement as implemented converges with Hawaii Energy plans for 2017.

2:15 – 3:30 PM **Engaging the Energy Efficiency Community**
Rich Sedano will moderate a discussion with everyone in attendance. There would be a 20 minute opportunity to discuss the significant amount of information delivered to this point in the day. Then, Rich will conduct an exercise with session participants designed to generate a contribution from everyone. These contributions will be interpreted overnight and form the direction for day 2.

Adjourn at 3:30 PM

Day 2, May 9

9:00 – 9:15 AM **Welcome, check in with participants**

9:15 – 9:30 AM **Recap of Day 1 and Results of Contributions from Participants**
Rich Sedano will report.

9:30 – 10:30 AM **Looking to the Future of Energy Efficiency in Hawaii: Discussion of Key Ideas**
Rich Sedano will lead a discussion of results of day 1

10:30 – 10:45 AM **Break**

10:45 AM – 12:00 PM **Discussion Resumes, Focuses on Next Steps**
Rich Sedano will continue the discussion with an emphasis on what this community wants next and whether and if so how another session would be useful.

Adjourn at noon