B Cao

A Vision for a Thriving City of Honolulu

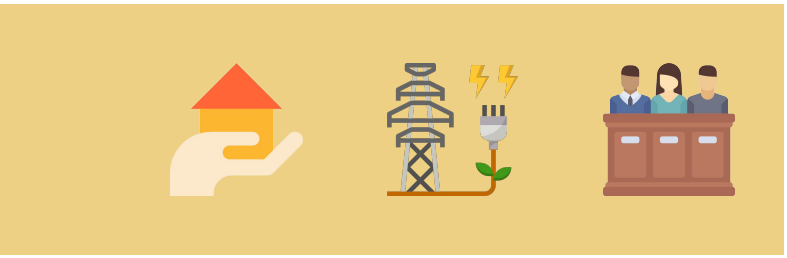
Disclaimer: I am not an indigenous Hawaiian so please take any analysis in here with a grain of salt! This document is really just a result of research online with an emphasis on trying to put Hawaiian voices first.

However, as this started out as a school essay, I did not have time to reach out to the indigenous community. I do not claim to be an expert on Hawaiian values and this booklet is more of a fun pet project based on a few sources than really any real recommendation or even a reflection of ideal policy.

Contents

introduction

HONOLULU is the capital city of Hawaii, the largest by population, and arguably the most important in the state. Blessed with rich resources and culture, the island of Oahu is well positioned to become the best version of itself and yet there are still large obstacles.



Housing, energy, and indigenous equity are three pressing issues

The current general plan acknowledges this, with regards to the physical built as well as the natural environment as well as the wellbeing of the people. There are issues with managing the limited resources and unique constraints of being on a remote island, and city planning is a central element of this.

For example, there is a lot of demand for housing as there is limited space and the natural beauty of the island makes it desirable for many people to move in. To add onto this, there is a lot of issues with homelessness and displacement as a result of this housing crunch.

Another problem unique to Honolulu is the issue of energy. On one hand, there was a lot of problems with the carbon dioxide and emissions. However, because of the cost of fuels such as natural gas and coal being shipped to Hawaii, this energy is incredibly expensive, prompting people to install solar on their roofs. However, the intermittency also provides a lot of challenges.

Lastly, and most importantly is the issue of justice for indigenous people and the valuing of ideas from native culture in city planning can benefit society as a whole. The need for equity is important for Hawaiian society. The historical subjugation of native Hawaiians by colonial powers as well as the influence that those very same powers have on Hawaii today continue to create issues for the people of Honolulu.

This document seeks to:

First, analyze two cases in the status quo and critique how colonial powers have wronged and continue to harm Honolulu

Second, create a vision where indigenous ideas solve for the major issues outlined above.

housing as it stands...

Currently, Honolulu has a 15 year general plan, addressing eleven overarching themes, including the population, environment, and culture/recreation. However, it does not explicitly mention social justice and equity as one of these goals. Instead, it insists that social justice and equity is an “element of sustainability.” It does reference social equity and native Hawaiian values but fails to understand the gravity of the issue and its potential to solve the problems that western colonial values have created

For example, one can look to the issue of housing. Hawaii currently faces seemingly insurmountable challenges housing its citizens. Both the fact that the island naturally limits sprawl and the desirability of living on the island contribute to stress when matching the housing supply with those who need it.

For example, for the housing goal, the tagline reads “*decent, reasonably priced homes.”* However, this completely misses the point of housing as a basic need rather than evaluating homes on the basis of their capitalistic western market value. The reality is that native Hawaiians face massively higher rates of housing insecurity. 42 percent of 7,921 homeless individuals in Hawaii identified as Native Hawaiian or Other Pacific Islander despite the fact that they make up only 10% of the general population.

4x more

Representation of native Hawaiians in the homeless population

A better vision for Honolulu would have subgoals that meaningfully and explicitly work towards achieving their supposed theme of social equity. For example, in a housing goal, reducing homelessness through a housing guarantee would be a better subgoal than to create reasonably priced homes.The neoliberal practice of private interests involved in the fight for public good has created issues for Hawaiians, and Honolulu ought to create a plan that alleviates these harms.

Not only are the goals flawed but how housing is structured too. The current zoning laws as well as how houses are built are a flawed approach to how housing in accordance to practical Hawaiian values would rather them be.

energy in the city

Another key issue is Hawaii's energy use. Hawaii is another unique case from the rest of the US. Hawaii faces unique pressure to become more sustainable in its isolation. In fact, Hawaii is one of the cities farthest from any other city when the threshold to being a city is a population of 100k. Although other goods face this limitation as well, fuels for fossil fuel power plants are inflated from costs of shipping. In addition to distance, Hawaii also faces the consequences of the Jones Act, which prohibits cheaper foreign ships from bringing goods between US ports. This significantly increases the cost of much of its petroleum energy from Alaska.

This act is arguably a tax on the US' outlying territories, which are proportionally much less wealthy and white. Some see it as a continuation of the US imposing its power as a colonial force.

These forces mean that there is a large amount of solar installed on single family/townhouses- almost 1 in 5. For comparison, New York is at 1% and San Francisco at 6% solar penetration rates.

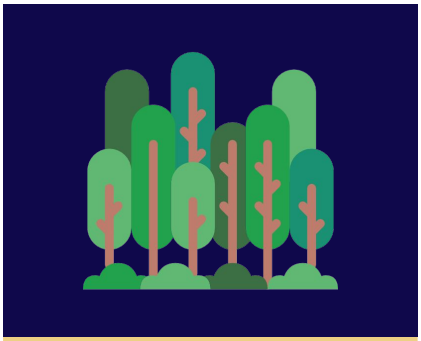
The downside of this is that solar friendly policies are no longer favored as the balancing the grid with the intermittency of solar has become too expensive. Marco Mangelsdorf, president and founder of Hawaii PV Coalition offers the following explanation:

> ***"There are no villains in this drama. Hawaii has an unprecedented amount of DG. PV feeding into our isolated island grids. There are limits to what today's grids can accommodate"***

There are a variety of ways to align indigenous ideas of stewardship of the environment that Honolulu can implement that also are equitable for all parties involved. Currently, many of the schemes do not consider the less wealthy when it comes to sustainability.

For example, those renting vs owning their homes are not able to take advantage of rooftop solar, creating split incentives. These split incentives disproportionately affect natives as they're more likely to rent. Census data shows that places such as East Honolulu where native hawaiians only make up 5% have owner-occupation rates of around 80% while urban Honolulu, where native hawaiians are 10% of the population, have owner occupation rates of only 60%.

cultured solutions



Build sustainably using lumber with *Kapu* in mind

Creating modular housing suitable for an *Ohana*

Guarantee housing for all to reduce inequality

Although western values have damaged the livelihood of Honolulu, there are a lot of opportunities for rejuvenation. This document focuses on two areas of focus: housing and energy. In order to create just and effective solutions, Honolulu must actually consider the needs of all of its citizens, not just those of the wealthy elite.

There are a few native ideas that can inspire effective solutions for housing. First is the commitment to being a steward to the environment. Within the values system is the idea of *Kapu*, which is a strict set of rules enforced to maintain the social order of pre-contact Hawaiian society. Many of these *Kapu* were strict limits on harvesting natural resources in order to maintain the health of the land.

These limitations on taking from the environment are incredibly relevant today. Western methods heavily incentivize as much resource extraction as possible with little regard for the future.

The better model would be to emphasize materials that leave less of a mark on the environment. Although it may seem counterintuitive, one such material could be timber. Traditional materials such as concrete and steel are 5x and 24x more energy intensive respectively.

for new housing

24x

More energy needed to make steel vs timber

Higher rate of households with 4+ members vs others

3x

30%

Proportion of people over 65 in Hawaii by 2030

How housing is created and its fundamental structure has been massively influenced by colonial and western values as well. The failures of the plan are even Typically western/US housing is organized into units meant for individuals, couples, or nuclear families. However, this fails to family units.

In the *Ohana* system, the idea of family extends beyond the traditional nuclear family in what many would consider radical.

They consist of *moʻopuna*, *keiki* (children up to 10), *ʻōpio* (ages 10–24), *mākua* (parents, usually ages 24–54), and *kūpuna* (elders). The concept of uncles, aunts, and cousins are de emphasized and almost non existent. Your uncles and aunts. were considered on a similar footing as your biological parents, cousins were similar to siblings. Although these ideas are not as rigid as they were, pre-contact, native Hawaiians still see

significantly larger family sizes. Around 52% of Hawaiians had household sizes of 4 or more while only around 16% of others did. Only 14.6% of Hawaiians were in single person households versus 56.1% for non Hawaiians.

A typical native Hawaiian household is more than twice the size of others. And to add onto this, Hawaiians are aging and *mākua* must fulfill familial obligations to support *kūpuna* somehow.

better public housing

To solve the issue of housing equity, a robust public housing system must be implemented. There are a variety of considerations for a better public housing system of the future. Firstly, public housing must be designed for sustainable use in Honolulu. Honolulans waste 58 hours waiting in traffic every year- the worst in the US. Any new public housing must be put in locations that are convenient to walk to amenities such as supermarkets and schools. To achieve this, Honolulu must upzone much of its existing R1-R5 zones to allow for apartments.

The buildings themselves should favor sustainable wooden materials with mid to high rise timber frame constructions. Creating higher density allows for the preservation of more land as well as more convenient transportation. Public housing must also suit the needs of the people. Larger apartments with more bedrooms should not be seen as a luxury but rather a necessity given the demographics of the island. However, instead of creating a rigid system of housing, more flexible units can be created.

First of all, creating more modular and configurable spaces to begin with would be better suited to the needs of public housing. Being able to convert a space from smaller to larger units and back would allow Honolulu to cater to its largely varying family sizes.

Another possibility is to create more co-housing spaces. Creating more large units with one kitchen and living room area but many bedrooms can allow for more flexibility of units. When there is demand for housing from larger family sizes, allocate an entire unit to a family. However, it is also possible to give individual rooms to people who only need one bedroom.

Keeping families together also partially solves for the elder care crisis. The parent *mākua* generation can take advantage of both the *Kūpuna* Caregiver Assistance Program which subsidizes home care and also conveniently take care of their elders when unable to pay for professional caregivers.

Imagine a neighborhood where families live together and draw strength from each other. A place where sustainable and local timber mid to high rises mean that *mo‘opuna*, *keiki,* and *‘ōpio* can walk to school and help take care of their *Kūpuna*. A place where public housing grows with the family, not limits it. That is a true Hawaiian future, and it’s what Honolulu must strive for.


MAP OF THE LOWER PART
OF THE
CITY OF HONOLULU,
AND THE
HARBOR FRONT.
Compiled from Official Maps by
A.B. LOEBENSTEIN
1895
Scale 1:2400

a grid for everybody?

Although housing is incredibly important, quality of living would be lower without reliable and affordable energy. There are many issues with the way energy is currently sold in Hawaii. Hawaii's utilities face some of the most unique and pressing issues. Hawaii has the highest rates of residential solar penetration in the nation, and yet it lags behind many states in terms of utility scale production of renewables.

This presents a big problem when it comes to equity. Hawaii is the state with the most expensive energy by far. It's almost 4x more expensive than the cheapest state and almost twice as expensive as Alaska, the next most expensive state. Because of the relatively high costs of utility owned energy, residential solar becomes a very financially viable alternative. However, the issue is that these benefits are

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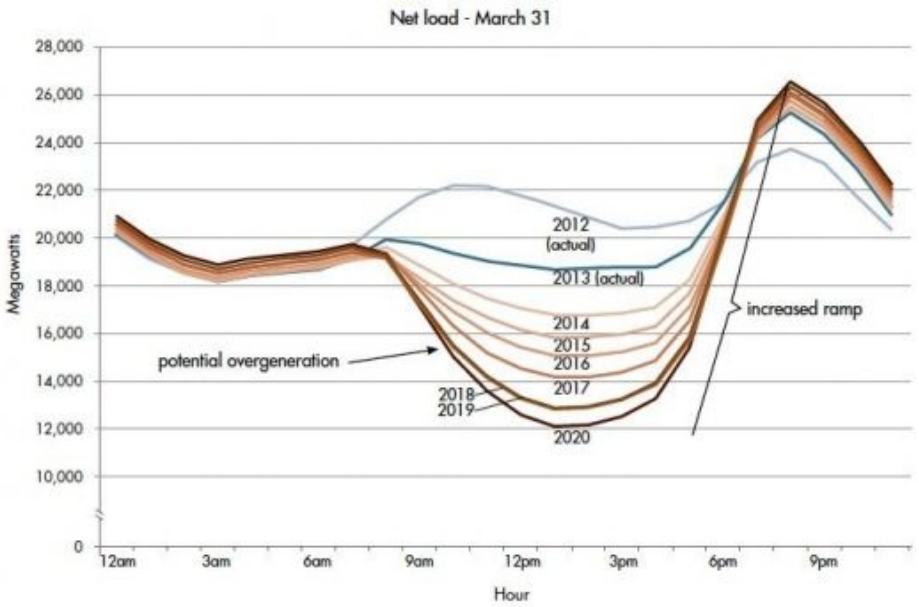
not available to everyone. Those who own are able to freely put solar onto their homes and reap the benefits of reduced costs of energy. However, those who rent and pay their own utilities are not incentivized to do this as they will not see the benefits of the large capital costs of installing solar if they choose to rent elsewhere. If they put thousands into installing solar and suddenly find themselves having to move elsewhere,

they essentially gifted those thousands of dollars to their landlords. That is if they even have the money to pay up front for installation. Native Hawaiians disproportionately rent and therefore face this dilemma.



graph of demand for electricity from a utility over time on a typical day

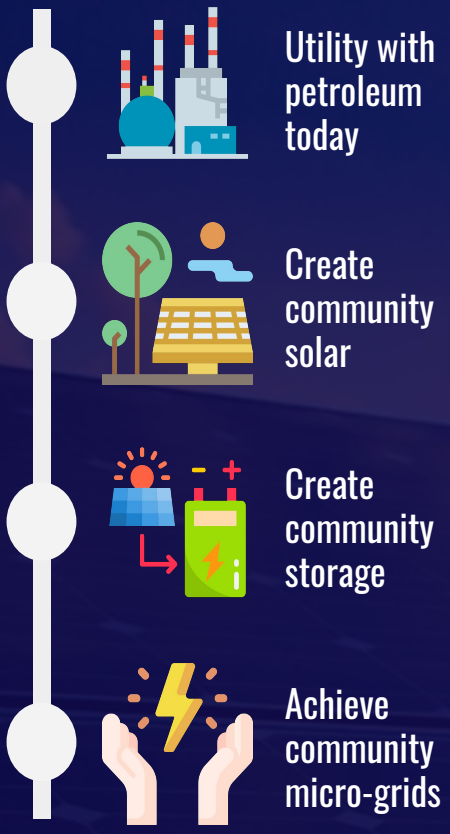
However, not only are renters missing out on cost savings, but they are taking on the burden of those who own by essentially subsidizing their energy. When an energy grid is maintained, there must be a balance between the demand and supply of energy. There must be enough energy in the grid for people to use, but there cannot be too much or the grid will break down.

Conventionally, this is not a big issue as the utility has complete information of both supply and demand. However, residential solar messes this mix up, lowering demand during the day when the sun is up. More importantly, it also creates a rapid ramp up for demand as the sun sets, solar supply decreases, and people go home from work and turn on appliances increasing demand. Around this time, supply from residential solar rapidly drops and demand rapidly increases, meaning the utility must suddenly increase supply on their end. This rapid changes makes what is called the duck curve.

This expensive process makes up a significant portion of the expenses of the utility. However, this process as well as the physical infrastructure and other non-marginal costs can only be baked into the cost of electricity. Thus, people who consume more electricity from the utility, those who rent and are unable to draw power from residential solar, disproportionately pay for these costs that are actually incurred by the wealthy homeowners installing residential solar.

This system where costs of maintaining the grid and expensive mainland petroleum generated energy being disproportionately burdened on less wealthy native Hawaiians must end.

equitable energy



If the grid right now is not equitable, what does a better one look like? Again we look to Hawaiian values of emphasized community ownership and organization of resources. Honolulu can look to more microgrids belonging to smaller communities implemented in two stages. First, neighborhoods can build *community solar* and infrastructure such as *community storage* before committing to a fully independent microgrid.

Immediately, it is feasible to begin the creation of community solar. Community solar is the creation of a local smaller version of a utility scale solar photovoltaic plant. For example, local community centers, schools, or even empty fields can be outfitted with solar. Upon construction, members of the community are able to buy and sell stakes of this local community solar regardless of their living situation. For example, an owner of a 5% stake in a community solar plant will receive 5% of the energy generated.

This community solar solves for a couple vital issues of the status quo. First of all, the split incentives are no longer an issue. Those who own, rent, or even live in public or subsidized housing can buy into this scheme alike. There is no decades long commitment or any upfront capital costs preventing lower income folks with no lines of credit from accessing the boon of cheap solar. Lower income people no longer have to completely on expensive Alaskan petroleum for their energy or be disproportionately burdened with infrastructure costs. Secondly, this scheme lowers costs even further. In the long term, residential solar is twice as expensive as solar at scale. Community solar creates a balance between the benefits of distributed energy and resilience and economies of scale of larger plants.

However, the issue of the duck curve persists with community solar. To solve for this, distributed community

storage is the solution. This would work in the same way that community solar would except it would be batteries instead of solar panels. Now, excess energy generated from solar can be stored in a community member's stake in their community storage that can then be used at night.

Eventually at scale, this would provide a system where each community member has its own means to completely rely on local renewable energy. At some point local communities can purchase the utility lines and generation and put them in control of the local communities that already own the generation and storage. Now local communities can levy taxes and essentially independently operate their own grid that can operate completely independently. If one plant goes down, it will not affect the entire island.

This new microgrid solution is inspired by the *lōkahi* or the strength of unity of the people together rather than stratified. Through the community ownership of the generation of energy instead of incentivizing the wealthy to take advantage of technology unavailable to the masses, everyone is actually better off. The relationships between people become balanced and just rather than exploitative.

Honolulu 2070

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