## CARE Committee

**From:** Darla Palmer-Ellingson <360socialbiz@gmail.com>
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Greetings,

Here are our notes from CAAC for today's panel discussion at the CARE committee.

Darla Palmer-Ellingson
360 Social Business, LLC
808-280-0949 (cell)
360socialbiz@gmail.com

**CARE Committee GHG Reduction Panel**
**Submitted by Darla Palmer-Ellingson**
**on behalf of the Climate Action Advisory Committee**
**November 17. 2022**

Greeting Council members and guests. My name is Darla Palmer-Ellingson, and I am honored to speak with you today on 3 priorities to reduce greenhouse gas emissions, on behalf of the Climate Action Advisory Committee. CAAC members contributed to this briefing, and it includes specific recommendations.

## 1. Building Decarbonization

Building construction and operations are among the largest contributors to greenhouse gas emissions. The good news is, investing in climate mitigation solutions for the built environment is very cost-effective. Every $1 invested in efficiency saves $2 in new electricity generation and distribution costs, according to World Resources Institute. Despite their extraordinary potential, 80% of economically viable energy savings in commercial and residential buildings remain untapped.

The CAAC Built Environment subcommittee has a 10-page working document covering several elements of building decarbonization for Maui County. So I am going to jump right into recommendations.

### 2018 Energy Code

- As you know, the County will be adopting a new energy code by the end of next year. You must adopt the code by law, but each county can make amendments. This is a pivotal point to not allow anything to be "amended out" of the code, and create strong guidelines, particularly in the areas of advanced energy efficiency, renewable energy generation and building performance testing.

- Budget and personnel needs to be dedicated to code enforcement, which is currently lacking, so all contractors are operating on a level playing field, and greenhouse gas reduction goals are achieved. To help ensure standards and codes are met, some of these tasks can be delegated to Residential Energy Services Network (RESNET) contractors for things like code compliance inspections. RESNET already has a robust network in place for such service across the country.

### GHG reduction in affordable housing

Next, we want to address the false narrative we hear, that incorporating renewable energy and EV charging into affordable housing is too expensive. This is just not so.

- Immediately, and at a minimum, County supported affordable housing needs to be “net zero capable” with conduit for expanded solar and EV charging. This would add minimal cost to construction (est. $500). This would be in addition to provisions for solar hot water heating already in place, and multi-unit EV

charging. This would allow for either the homeowner or a government sponsored program to add these elements later without retrofitting.

But we are hoping Maui County can do much, much more.

Research has shown low-income residents spend a large share of their incomes on energy bills, making it more difficult for them to afford necessities such as food or to save money for the future. Using efficiency upgrades to reduce energy bills while improving the quality of low-income housing is crucial.

We recommend the council task the Affordable Housing Committee to include:

- energy-efficient and water conservation equipment;
- renewable energy, including solar panels and battery storage;
- electrification measures such as super-efficient heat pumps;
- health and safety improvements;
- resilience measures such as flood-proofing
- food security/gardening areas.

The Biden administration is looking at funding all of the above as RETROFITS on existing affordable housing to save energy costs and meet climate goals. This would be MUCH CHEAPER to accomplish with new built affordable housing than retrofitting. It is a disservice not to look at the post construction operating costs.

**Streamlining and prioritizing green building in the permitting process**

The building permit process in Maui County is difficult, and that is putting it kindly. In discussion with industry professionals, we hear that reviewing permits takes far too long to make net zero affordable housing viable. Solutions include:

- The net zero housing factory you have already approved to study.
- The planning department could also pre-approve a few plans for net zero accessory dwelling units, which would speed up the process for contractors. Los Angeles employs this type of program.

**Incentivizing those who do more**

So far, we have been talking about doing the bare minimum in trying to reach GHG reduction goals in the built environment. But we should also talk about the ideal, and how we get there. We ask that you consider providing incentives for higher green building standards including Living Building certifications, LEED certifications and using renewable building materials. We learned from research during CARE 42 that the "carrot" Maui County developers want for doing more than the minimum requirement on energy efficiency/resiliency/renewable energy is:

- Digital plan submission (acceleration of the MAPPS Program) to not have to manually walk plans from department to department.
- Green building priority permit processing
- Dedicated and trained planning department staff to work on prioritizing net zero or better buildings.
- Incentives to encourage homeowner participation, such as a tax rebate

## 2. Elimination of Fossil Fuels in Transportation

The next priority is elimination of fossil fuels in transportation.

In 2020, almost 6 million tons of CO2 equivalent emissions came from ground transportation in Hawai‘i, or 28% of all emissions generated in the state. Hawai‘i has a goal of carbon neutrality by 2045. In 2017, all of Hawai‘i's mayors committed to 100% renewable fuel sources in ground transportation by 2045 and to converting the County fleets by 2030.

Reducing greenhouse gases from transportation does not mean replacing every gasoline and diesel vehicle with an electric vehicle, it also means reducing people's need to drive individually to get things done - reducing the VMT, or vehicle miles traveled, by providing options to safely walk, bike or take public transportation some of the time.

The main obstacles to EV adoption have been the higher price of an EV over that of a vehicle with an internal combustion engine, the lack of a public charging infrastructure, lack of charging capabilities in housing, and the short driving range of early models. Prices on new EVs have come down and the number of models is exploding, while most new models have more than enough range for Hawai‘i. But charging resources are still lacking and there are no plans to meet the real needs. That is preventing most people living in multi-family housing from buying an EV, since they generally cannot charge at home, and slow adoption among moderate income homeowners.

What needs to be done in Maui County?

With the State energy saving performance contract, that should address:

- Expansion of public transportation with electric buses.
- Investment in public charging stations to complement the private networks where it is less profitable for them.
- Complete the conversion of the County vehicle fleet.

But that still leaves:

- Extending the State requirement for charging stations at public parking lots. Hawai‘i County is considering this, including scaling up the number over time
- Adding funds and personnel for enforcement of the law. Currently, many parking lots that are required to have charging stations do not.
- Requiring all new construction to be charger-ready, including affordable housing
- Charging for parking, especially in visitor areas or at peak times, to offset costs.

- Providing continuously running electric shuttles in South Maui and West Maui on the coastal roads.
- Require that hotels over some size provide electric airport shuttles.
- Evaluate requiring rental company acquisitions to phase out fossil fuel models. Lobby state to retrofit rental car center to accommodate EV fleets. Rental cars are frequently rotated out of service. Since rental cars are turned over frequently, this will create a lower cost secondary market for residents.

**3. Carbon Sequestration**

The final topic I would like to talk to you about is Carbon Capture. There is a lot of conversation about reducing output of greenhouse gasses, which is good. But there is far less about carbon sequestration, actually taking carbon dioxide out of the atmosphere. When agricultural soil is used as a carbon sink, not only is CO2 removed from the atmosphere but soil significantly increases its fertility and thereby improves food security. If 2-3% organic matter is added to agricultural soil over 2-3 years an additional 40,000 to 60,000 gallons per acre of water holding capacity is added.

Our soils are in crisis. Over 200 years of deforestation, monoculture, and poor farming practices, often over-reliant on chemical inputs, have stripped the soil of Hawaii of all its goodness, becoming less fertile each year. Meanwhile, we are trying to feed an ever-growing population. According to the UN Food and Agriculture Organization, 90% of soils worldwide may be degraded by 2050.

Many parts of Maui look like a desert unless artificially watered, but things were not always that way. Basic regenerative practices include using cover crops, reducing tilling, rotating crops, spreading the right kind of compost and moving away from synthetic fertilizers, pesticides and herbicides. Advanced regenerative farming practices integrate animals and crops, introducing more trees and other perennial crops. By planting trees in areas that have been degraded or deforested, reforestation helps the environment by accelerating the re-establishment of healthy forest structure by regrowing the forest canopy and preserving biodiversity within the ecosystem. That's as far as I can go on the description within the timeframe, but CAAC has some very knowledgeable people working in this space, and I have included some names of those and others on the printed copy of this document.

Here are some proposed solutions for Maui County for carbon sequestration.

You have already taken a big step forward by establishing a Department of Agriculture. There have also been meaningful discussions with Maui County's large scale agricultural producers. Here are specific suggestions going forward.

**For the Community**

- Build understanding and grow the next generation of regenerative farmers by providing no cost education on how to apply regenerative methods and resources to backyard farming and small-scale commercial farms
- Include free follow-up support, including access to expert resources to create better farm plans, including how to improve soil, what to plant and how to care for gardens and small farms
- Provide easily accessible and affordable purchasing resources for soil improvement, seeds, starts and tree crops

**At Scale**

- Provide incentives to kick start large producers like Mahi Pono and others in applying advanced regenerative agriculture practices for Maui County. Incentives could include property tax or sales tax reduction. Priority permit processing for any development related to regenerative agriculture.

- Develop carbon credits for Maui County large scale regenerative ag and agro forestry producers- Carbon offsets, or credits, have some pluses and minuses. The activity of creating the credit does reduce CO2 from the atmosphere, but essentially it is shifting carbon emissions from another area. Greenhouse gases are a pollutant with global consequences; therefore, the ultimate goal must be an overall reduction in emissions, and not simply to transfer the emissions to another region.

  However, carbon credits represent a potential economic benefit that could offset community program costs.

  Only microbes can sequester carbon. In order to reverse climate change we must work with soil microbial life to remove CO2 from the atmosphere and return it to the soil where it can improve soil fertility. Think of it in dollar signs. Industrial agriculture has a potential of 0.7 tons of carbon/hectare per year while regenerative ag has been shown to sequester 15 times that amount per year by working with microbes. As carbon credits increase in value this could be worth $500 per acre every year as extra income.

  The beauty of that is that as soils increase in organic matter their ability to retain water and survive drought increase, as does the overall production and resiliency.

**Summary**

We know that we must take immediate action to reduce rising CO2 levels in the atmosphere from human activity. A significant part of greenhouse gas concentration results from fossil fuel use and our built environment. We are not adequately addressing carbon sequestration. By taking steps outlined, we will reduce greenhouse gas

emissions and help meet local and state targets. At the same time, our citizens will enjoy a cleaner, healthier environment, food security and reduced energy costs.

**---------- END OF PRESENTATION ----------**

**Notes and Resources**

**Building Decarbonization / Built Environment Resources:**
CAAC Built Environment Subcommittee: Darla Palmer-Ellingson, Mark Deakos, Jason Economou.

Contributing to this CAAC subcommittee is Alex DeRoode and Makalae Ane from the COM CARS office; Axel Beers, CM King's office; John Bendon from Green Building Hawaii; David Sellers from Hawaii Off-Grid; Jennifer Chiraco from Sustainable Pacific; and, Josh Berlien, Chair of the CIM Trade Council of the Maui Chamber of Commerce

**Built Environment Research Sources:**

A Roadmap to Decarbonize California Buildings https://gridworks.org/wp-content/uploads/2019/02/BDC_Roadmap_final_online.pdf

Accelerating Building Decarbonization: Eight Attainable Policy Pathways to Net Zero Carbon Buildings For All. World Resources Institute
https://www.wri.org/research/accelerating-building-decarbonization-eight-attainable-policy-pathways-net-zero-carbon

Big Island's Climate Plan (p. 25-27):
https://www.rd.hawaiicounty.gov/home/showpublisheddocument/301933/637233445066030000

Big Island's Climate Plan references their Draft General Plan:
https://www.planning.hawaiicounty.gov/home/showpublisheddocument/301665/637204955986870000
Building Decarbonization Coalition- A Roadmap to Decarbonize California Buildings (pdf download)
https://www.buildingdecarb.org/

California Building Decarbonization
https://ww2.arb.ca.gov/our-work/programs/building-decarbonization

California Cap and Trade
https://www.edf.org/climate/how-cap-and-trade-works

California Commercial Building Retrofits (Berkeley Law)
http://www.climatepolicysolutions.org/reports/commercial-building-retrofits/

California's landmark AB-32 and links to other CA climate legislation
https://ww2.arb.ca.gov/resources/fact-sheets/ab-32-global-warming-solutions-act-2006

California Low Income, High Efficiency: Policies to Expand Low-Income Multifamily Energy Savings Retrofits (Berkeley Law)
https://www.law.berkeley.edu/research/clee/research/climate/energy-efficiency/limf-energy-savings-retrofits/

California overall climate action resource page with links (Berkeley Law)
https://www.law.berkeley.edu/research/clee/research/climate/climate-policy-dashboard/

Commercial buildings- "Why You Should Use Renewable Energy to Power Multi-Story Buildings"
https://www.phoenixenergygroup.com/blog/why-you-should-use-renewable-energy-to-power-multi-story-buildings

Hawaii State Energy Office: Hawaii Energy Facts and Figures
http://energy.hawaii.gov/wp-content/uploads/2018/06/HSEO_2018_EnergyFactsFigures.pdf

Hawaiian Electric hits nearly 35% renewable energy, exceeding state mandate
https://www.hawaiianelectric.com/hawaiian-electric-hits-nearly-35-percent-renewable-energy-exceeding-state-mandate

Living Building Challenge
https://living-future.org/lbc/

Living Future Research Library
https://living-future.org/research/

Maui County Municipal Code
https://library.municode.com/hi/county_of_maui/codes/code_of_ordinances?nodeId=TIT16BUCO_CH16.16BENCO

Maui General Plan 2030 and Community Plan links
https://www.mauicounty.gov/421/General-Plan-2030

Maui "Sustainable Energy Strategies for Implementation" (2009)
https://www.mauicounty.gov/DocumentCenter/View/12762/MCEA-Expo-Long-Version-Final-Sep-09?bidId=

Oahu's Climate Plan (p. 74):
https://static1.squarespace.com/static/5e3885654a153a6ef84e6c9c/t/6080c33e91bbf23a20b74159/1619051381131/2020-2025+Climate+Action+Plan.pdf
Tropical Zone Requirements to 2015 IECC
https://energy.hawaii.gov/wp-content/uploads/2016/07/Webinar-One-Overview-of-Tropical-Zone-4282016.pdf

US Green Building Council- Leed Certification for New and Existing Buildings
https://www.usgbc.org/search?Search+Library=%22Leed+net+zero%22

**2. Elimination of Fossil Fuels in Transportation Resources**
CAAC EV / Energy subcommittee members: Rob Weltman, Larry Stevens

Research resources: Hawaii EV Association, Maui Nui EV Association
(Please contact Rob Weltman for other EV Research resources)

**3. Carbon Sequestration Resources:**

CAAC members working in Carbon Drawdown / Agriculture space include Olena Alec, Rita Ryan and Lily Diamond. Contributing to this CAAC subcommittee is Char O'Brien with Food Security Hawaii. She is in discussion to bring a top agronomist and his Nobel Prize winning soil carbon specialist partner to Maui this winter.

Please review the 2019 report "Feasibility and Implications of Establishing a Carbon Offset Program for the State of Hawai'i"

Project Drawdown: https://drawdown.org/

Please contact Rita Ryan for other carbon drawdown resources.

You might also want to speak with Anne Boticelli. She reitired in 2020 as the head of the carbon credits for Hawaiian Airlines, and lives on Oahu.