



Climate Change Commission

CITY AND COUNTY OF HONOLULU

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COMMISSIONERS

Charles Fletcher, Ph.D., Chair
Rosanna Alegado, Ph.D., Vice Chair
Bettina Mehnert, FAIA, LEED AP
Makena Coffman, Ph.D.
Victoria Keener, Ph.D.

Climate Change Commission Tuesday, August 31, 2021 9:00 AM Zoom Virtual Meeting Meeting Minutes

Members Present: Chair Charles Fletcher, Vice Chair Rosie Alegado, Makena Coffman, Bettina Mehnert

Members Absent: Victoria Keener

Public: Nicola Hedge, Hayley Cook, Ben Sullivan (Office of Climate Change, Sustainability and Resiliency); Courtney Sue-Ako (Corporation Counsel); Roger Babcock (Department of Facility Maintenance); Walter Billingsley (Department of Design and Construction); Vivek Shandas (CAPA Strategies); Jainey Bavishi (New York City Mayor's Office of Climate and Resiliency); Howard Wiig, Gail Suzuki-Jones (Hawai'i State Energy Office); Nancy McPherson (Department of Hawaiian Homelands); Kurt Shickman (Global Cool Cities); Jillian Cristobal (Hawai'i Green Growth); Katie Rooney (Ulupono Initiative); Ryan Ringuette; Tawn Keeney; Josh Taita; Henry Curtis; Ashi Behlabeht; Kiana Otsuka; Charley Ice; Patrícia Sendão; Dolan Eversole.

- 1. Call to Order:** Chair Fletcher called the meeting to order at 9:03 AM.
- 2. Roll Call:** Four out of five Commissioners were present. Quorum was established.
- 3. Approval of the Meeting Minutes of July 13, 2021:** The meeting minutes of July 13, 2021 were adopted (**AYE:** All; **NAY:** None; **ABSTAIN:** None).
- 4. Report on the Activities of the Office of Climate Change, Sustainability and Resiliency (CCSR):**

Deputy Director Nicola Hedge presented the following report:

- Deputy Director Hedge thanked Commissioner Mehnert for her over three years of service as a Commissioner.
- City Council Resolution 21-266 to appoint Melanie Islam to the Commission was introduced at the City Council meeting on August 11th and passed out of the Transportation, Sustainability and Health Committee meeting on August 24th, with final adoption and confirmation expected at the City Council meeting on September 8th.
- CCSR said goodbye to two AmeriCorps VISTAs working in the food and energy programs and will be welcoming five new VISTAs to the City serving in both CCSR and the Office of Economic Revitalization (OER).
- Lala Nuss, Climate Resilience and Equity Program Manager will be leaving her position with CCSR after two years in the role, and CCSR is actively recruiting to refill the position.
- CCSR continues to coordinate with City leadership and other departments on the emissions reductions work as outlined in the Climate Action Plan. Related, the City announced the opening of a new bike lane on Ward Avenue.
- CCSR has kicked off a municipal working group around the fleet transition to help make sure that the City is comprehensively looking at this opportunity within its own fleet and be a better support

for the broader community transition to electric vehicles.

- CCSR has recently begun an energy and water building benchmarking program for municipal facilities. Through the City's energy service performance contracts, 40 municipal buildings have been benchmarked. CCSR will continue to benchmarking all municipal buildings above 10,000 square feet on an annual basis in accordance with Ordinance 20-47. CCSR will also be presenting to the City Council at an upcoming Transportation, Sustainability and Health Committee meeting on how benchmarking efforts could be expanded to a community-wide program.
- Through the Visions of O'ahu efforts, CCSR is wrapping up a number of community events designed to listen to community and get engagement on the climate adaptation strategy.
- CCSR is coordinating across agencies to try to solicit and organize additional Building Resilient Infrastructure and Communities (BRIC) grants through the Federal Emergency Management Agency (FEMA). The grant amount for the BRIC program has doubled and the City is looking to remain competitive.

Questions and comments that followed:

1. Chair Fletcher noted that a reason Honolulu has not been successful in securing BRIC grants in the past is because its building codes are not updated. Deputy Director Hedge responded that there has been some progress on the State building codes since last year, which may qualify the City for more points. She also noted that there are points to be earned through participation in the Building Code Effectiveness Grading Schedule (BCEGS) program, which could be considered in the future. Vice Chair Alegado commented that Hawai'i's non-participation in BCEGS is what makes the state non-competitive for BRIC because every project automatically loses technical points. She noted that none of Hawai'i's 17 competitive projects were funded last year. Howard Wiig of the Hawai'i State Energy Office commented that the qualification is a county matter in showing compliance with codes and Hawai'i County is leading this effort and may be able to provide guidance to the other counties. Chair Fletcher noted this information will be included in the Commission's forthcoming construction industry guidance document.

Comments and public testimony that followed: None.

5. Presentation on Heat Management Strategies from Jainey Bavishi, Director of the New York City Mayor's Office of Climate and Resiliency

- Jainey Bavishi presented on what New York City (NYC) is doing to manage extreme heat. She also noted that there is a range of climate hazards NYC must prepare for including coastal storms, sea level rise, and precipitation, in addition to heat.
- She shared that according to local climate projections, the number of days above 90 degrees Fahrenheit in NYC is expected to triple by the 2050s. This would result in NYC feeling more like how Birmingham, Alabama feels now.
- She shared that extreme heat is the deadliest natural hazard NYC faces, where densely developed areas are up to 22 degrees Fahrenheit hotter than surrounding areas due to the urban heat island. She also noted that extreme heat impacts most vulnerable residents, including older adults, individuals with chronic health conditions, and those experiencing poverty or poor housing quality for whom vulnerability is amplified.
- NYC has a heat vulnerability index (HVI) that guides the city's heat-related investments. The HVI takes into consideration both physical (density, green space) and social indicators (race, poverty) of heat risk to rank neighborhoods at risk for heat illness and heat-related mortality. Areas with highest risk are targeted for investment. The HVI demonstrated that low-income Black residents face the greatest heat risks.
- NYC's heat resiliency goals and strategies are outlined in the Cool Neighborhoods NYC report (https://www1.nyc.gov/assets/orr/pdf/Cool_Neighborhoods_NYC_Report.pdf) released in 2017. The report centers around four goals: (1) to make neighborhoods cooler; (2) to reach the most vulnerable residents; (3) to increase access to at-home cooling; and (4) to monitor temperatures to understand risk and impact of interventions.
- NYC has made over \$100 million in investments through targeted tree planting in key neighborhoods. This includes street tree planting to increase shade in dense urban areas, forest restoration, and park tree restoration.

- Bavishi noted that through temperature monitoring, the city has found that green space and vegetation is one of the most impactful strategies for cooling.
- Another strategy NYC is pursuing is a cool roofs program to increase reflective surfaces across the city. This entails coating rooftops white with a special reflective coating. In ten years of the program's existence, over ten million square feet of rooftops have been coated to date. Cool roofs reduce building energy usage (as much as 30 percent) and reduce local ambient temperatures.
- NYC piloted a "Be a Buddy" program to reach vulnerable residents. Through this program, the city partners with community-based organizations to develop hyper-local networks of volunteers who can check in on vulnerable residents during blue skies and activate during extreme heat and other emergencies.
- To increase at-home cooling, NYC installed over 74,000 air conditioners in the homes of low-income seniors and worked with the state to provide energy subsidies to low-income families. The city is now working to reform its Low-Income Home Energy Assistance Program to meet new cooling needs presented by climate change.
- Bavishi shared that the city is working to incorporate heat resiliency in the design and construction of all of the city's capital projects going forward. The NYC City Council mandated the use of the Mayor's Office of Resiliency's Climate Resiliency Design Guidelines (https://www1.nyc.gov/assets/orr/pdf/NYC_Climate_Resiliency_Design_Guidelines_v4-0.pdf). The city is piloting the guidelines on a range of diverse projects over the next few years.

Questions and comments that followed:

1. Commissioner Coffman asked if NYC has been engaging the private sector around the cool roofs program for existing building stock. Bavishi responded that the city provides free coating (labor and materials) for any building that serves a social purpose (nonprofit, affordable housing, etc.). She noted that cool roofs are required in the building code for new construction but it is a tiered requirement to install green roofs or solar panels first and when that is not feasible, to install a cool roof. She also noted that there is a tax abatement program for green roofs at the state level but uptake has been slow, so the city is still grappling with what levers can be used to incentivize cool roofs where green roofs aren't possible.
2. Commissioner Mehnert asked if NYC is seeing a problem where air conditioning systems in place are not able to handle the increased load of higher temperatures. Bavishi responded that it's important not to think of any solutions as mutually exclusive and to advance all solutions as comprehensive strategy. She also shared that when NYC experiences major heat waves, the city coordinates with utility companies to send out notices asking residents to be cognizant of energy usage, which has shown behavior change in past events where residents were responsive to the communications.
3. Commissioner Mehnert asked if NYC sees impacts to the health of trees due to climate change. Bavishi responded that she could consult with the city's parks department to get an answer to Mehnert's question.
4. Chair Fletcher asked if the HVI is a standardized index not specific to NYC. Bavishi responded that it was developed with researchers at Columbia University to be specific to NYC, but believes it could be adaptable for different communities.
5. Chair Fletcher asked if there have been any unexpected negative impacts from heat interventions, such as cool roofs. Bavishi responded that the city has not experienced any negative impacts and is eager to expand its focus and experiment with other strategies like cool pavements.

Comments and public testimony that followed: None.

6. Presentation on Mapping Urban Heat Islands from Vivek Shandas, CAPA Strategies

- As a professor at Portland State University and an Advisor Consultant at CAPA Strategies, Vivek Shandas presented on recent heat-related events in the Pacific Northwest and efforts to engage municipalities around the country in addressing climate adaptation questions.
- Vivek noted that the Pacific Northwest experienced a heat dome in June of 2021, which broke records for the region and climate models. Related deaths in Portland, Oregon were primarily older adults and those who live in older buildings (largely multifamily and mobile homes). Vivek

also shared that distribution of impacts of the extreme heat event correlated with the hottest areas of the city. He noted that the increased intensity of heat not only increased vulnerability of residents but also extended the difference of temperature from neighborhood to neighborhood.

- Vivek shared his takeaways from NYC's programs including: a focus on equity, strategic investment in specific locations, reliance on community-based organizations, interventions based on science, and development of a heat plan at the municipal scale.
- Through his work with CAPA Strategies, Vivek shared efforts to conduct heat assessment campaigns in coordination with the National Oceanic and Atmospheric Administration (NOAA) to first understand where disproportionate impacts exist within a city or region. He shared that the goal is to get people to ask why there are differences from one city block to another, which can unveil historic planning and policy decisions that have exacerbated vulnerabilities.
- CAPA Strategies has completed 50 campaigns including one on O'ahu on August 31, 2019. They used machine learning algorithms to help describe the distribution of heat across the island. He noted that Honolulu's complex landscape required a reassessment of the models.
- Vivek shared how Honolulu's collected data was used to produce an interactive community heat map (<https://cchnl.maps.arcgis.com/apps/View/index.html?appid=ff1b73d836074cf6b2aca420ffbd930>).
- Vivek shared that such maps have been helpful for identifying social vulnerability and ecological vulnerability, such as how while trees and green space are one of the biggest contributors to ameliorating increasing temperatures, they also get stressed by higher temperatures and there can be large differences in health of trees from a hotter area to a cooler one.
- Vivek encouraged looking at next steps in heat mitigation planning, which often includes jurisdictional scans of existing efforts and capacity assessments for understanding community vulnerabilities and potentialities towards development of a heat plan.

Questions and comments that followed:

1. Commissioner Coffman asked Deputy Director Hedge to what extent CCSR has been able to operationalize the data collected from the heat mapping campaign for decision-making purposes. Deputy Director Hedge responded that there is a lot more opportunity to continue to implement and operationalize the data, but continues to provide insight into moving forward strategies in the City's Climate Action Plan, including increasing tree canopy and building code development. Hedge noted that she could provide more information to the Commission from CCSR's Coastal and Water Program.
2. Chair Fletcher noted that the day the City took conducted its heat mapping campaign in 2019 was tied with the hottest day on record in Honolulu. Chair Fletcher also noted that the heat wave in 2019 was caused by a marine heat wave, not an atmospheric heat dome.
3. Vice Chair Alegado asked Deputy Director if the City intends to have an independent heat plan or if strategies will be incorporated into the climate adaptation strategy. Deputy Director Hedge responded that heat will be targeted in the climate adaptation strategy but it will be high-level, so there are opportunities to move beyond and see focused and transformative efforts in other applications.
4. Chair Fletcher noted that with the consideration of social indices in the O'ahu Heat Vulnerability Map Series (<https://cchnl.maps.arcgis.com/apps/MapSeries/index.html?appid=81a93d637086418f9118d8740a7e8f3c>), Honolulu is in a good position to develop something similar to NYC's HVI.

Comments and public testimony that followed:

1. Howard Wiig shared that he sits on the Cool Roof Rating Council, which is in the process of establishing the Cool Wall Rating Council, which is projected to save as much energy and air conditioning load as cool roofs. He noted that the Council is updating its urban heat island effect brochure for sharing with a wide audience.
2. Walter Billingsley shared he would be interested in more discussion of solar photovoltaic on roofs in addition to green and cool roofs to power air conditioning requirements.

7. Communication and Correspondence from the Public:

- **Discussion of Email Communication Received by Chair Fletcher from Dr. Tawn Keeney on a Study of Greenhouse Gas Emissions from Air Travel Related to the Hawai'i Visitor Industry**

- Dr. Tawn Keeney shared that he completed a study concluding that the greenhouse gas (GHG) emissions from air transport of 10 million visitors to Hawai'i in 2019 was 18 million tons of carbon dioxide equivalents (CO₂e) or 1.8 mCO₂e per person roundtrip. He noted that he believes these numbers have escaped the consciousness of both the public and leadership but are important for those thinking about climate change mitigation. Keeney noted that his methods were substantiated by two reports released in 2021:
 - "The contribution of global aviation to anthropogenic climate forcing for 2000 to 2018" by Lee et. al., Journal of Atmospheric Environment (<https://www.sciencedirect.com/science/article/pii/S1352231020305689>)
 - Intergovernmental Panel on Climate Change Methodology Report on Short-lived Climate Forcers (<https://www.ipcc.ch/report/methodology-report-on-short-lived-climate-forcers/>)
- Dr. Keeney stated that given the findings of these reports, there needs to be a study done of the air transport of visitors in Hawai'i and the resulting GHG emissions.
- Commissioner Coffman commented that how aviation emissions are thought of in their totality is important and current GHG inventory protocols consider fuel consumption without other important forcings such as altitude and contrails.
- Commissioner Coffman shared a rough calculation of where the State of Hawai'i GHG inventory is relative to the methodology put forth in Dr. Keeney's communication. She shared how 2017 State inventory aviation emissions data based on Energy Information Administration fuel reporting accounts for one-way trips to avoid double counting between jurisdictions. She noted that doubling the State's data to account for round-trip travel would provide more of a visitor footprint analysis per Dr. Keeney's inquiry related to aviation emissions in totality. She demonstrated her rough adjustments of the round-trip emissions data for considerations of passengers relative to cargo and visitors relative to total travelers. She then discussed considerations of other radiative forces not accounted for in the inventory protocols and noted that the study behind Dr. Keeney's analysis uses an additional radiative forcing factor of two, whereas the Lee et. al. study uses a factor of three. Using a factor of two, Commissioner Coffman's calculations produce a total of 13.55 million CO₂e for visitor air transport in 2017. A spreadsheet and full analysis of Commissioner Coffman's calculations can be reviewed on the meeting recording at timestamp 1:18:10 (<https://www.facebook.com/ResilientOahu/videos/1078985326264097>).
- Henry Curtis commented that the tourism GHG footprint also includes car rental use. Commissioner Coffman noted that any electricity consumed while staying in accommodations would also be considered in a full visitor footprint.
- Dr. Keeney asked how to use the information from Commissioner Coffman's calculations to inform the public and leadership about the magnitude of visitor emissions. He commented that quick action is necessary, particularly in the context of anticipated conversations during the upcoming State Legislative session regarding a green fee, which he described as the only actual mechanism available on a practical level for government modulation of the number of visitors that arrive to the state. Dr. Keeney shared his desire for the Commission to conduct a study based on Commissioner Coffman's calculations that can be reported to the public and to the Legislature to assist in future green fee deliberations. Commissioner Coffman responded that her calculations are too simplistic to truly understand the impact of a green fee on visitor arrivals, spending, and GHGs. She noted that the State carbon tax analysis study provided insight on how visitor arrivals are insensitive to airline price changes.
- Chair Fletcher noted that the increase in visitor arrivals in 2019 did not cause an increase in use of hotel rooms, but rather increased use of vacation rentals. He commented that management of illegal vacation rentals is a realistic mechanism by which to manage the number of visitors, but it is a complicated issue as vacation rentals have become an important source of income for a number of people.
- Vice Chair Alegado commented that in order to have a true appreciation of the economic impact of vacation rentals, it must be known whether the owners of illegal vacation rentals are residents. She also noted that turning vacation rentals to tourist dollars dramatically decreases the standing stock of rentals for Hawai'i residents.
- Vice Chair Alegado suggested the Commission consider what a tourism guidance document might look like and what is in the Commission's domain to consider in the development of such a document.

Questions and Comments that followed: None.

Comments and public testimony that followed: None.

8. Update and Discussion on the Climate Change & the Construction Industry Guidance Document

- Commissioner Mehnert shared that Dr. Wendy Meguro, an Associate Professor with the University of Hawai'i School of Architecture will be providing research support to finalize the guidance document. Commissioner Mehnert noted that revisions will focus on implementation of strategies, alignment with the City's Climate Action Plan, and examples of how other cities and states are implementing their approaches.

9. Public Input for Matters Not on the Agenda:

- Howard Wiig shared that he hosts a program called Code Green on ThinkTech Hawai'i and is always looking for guests.

10. Tentative Next Meeting Date: The next meeting date is scheduled for September 16, 2021 at 9:00 AM via Zoom.

11. Announcements:

1. Ryan Ringuette has started working with the Commission as a Graduate Assistant researching urban heat adaptation actions.
2. Hawai'i Environmental Change Agents is hosting a free online event on September 18 with Senator Mike Gabbard, Representative Nicole Lowen, and Representative David Tarnas to discuss priorities for the upcoming 2022 State Legislative session.

12. Adjournment: The meeting was adjourned at 10:47 AM.