BILL064(23)
Testimony

MISC. COMM. 284

PLANNING AND THE ECONOMY (P&E)

PLANNING AND THE ECONOMY (P&E) Meeting

Meeting Date: Jun 27, 2024 @ 09:00 AM

Support: 13

Oppose: 1

I wish to comment: 9

Name:	Email:	Zip:
Susan Wadas	susan.wadas@gmail.com	96734
Representing:	Position:	Submitted:
Self	Oppose	Jun 24, 2024 @ 10:49 AM

Name:	Email:	Zip:
Andrea Woods	sbca1959@gmail.com	96712
Representing:	Position:	Submitted:
Sunset Beach Community Association	I wish to comment	Jun 24, 2024 @ 08:05 PM

Name:	Email:	Zip:
Debra Luning	debbiel@gentryhawaii.com	96813
Representing:	Position:	Submitted:
The Gentry Companies	Support	Jun 25, 2024 @ 10:49 AM

Name:	Email:	Zip:
Greg Shimokawa	nancy.bernal@hawaiianelectric.com	96840
Representing:	Position:	Submitted:
Hawaiian Electric	I wish to comment	Jun 25, 2024 @ 02:13 PM

Name:	Email:	Zip:
Tracy Tonaki	ttonaki@drhorton.com	96813
Representing:	Position:	Submitted:
D.R. Horton Hawaii	I wish to comment	Jun 25, 2024 @ 05:00 PM

Name:	Email:	Zip:
Sunny Unga	kahukucommunityassociation@gmail.com	96731
Representing:	Position:	Submitted:
Kahuku Community Association	Support	Jun 25, 2024 @ 08:58 PM

Name:	Email:	Zip:
Jessica dos Santos	nrtshrlv@gmail.com	96731
Representing:	Position:	Submitted:
Self	Support	Jun 25, 2024 @ 10:12 PM

Testimony:

Aloha Council Members,

I strongly support Bill 64 (2023), FD1, CD1 as it is currently written. I strongly support the minimum distance of a 1.25 mile setback.

However, I strongly oppose adding any language limiting these setback requirements to only apply to new wind energy generation facilities. Existing large wind energy generation facilities that do not meet the setback requirements must be classified as nonconforming after the expiration of their lease or power purchase agreement. In addition, I strongly oppose adding any and all language that would permit the increase in height of existing facilities.

As a lifelong Kahuku resident having to live in very close proximity to industrial wind turbines, I thank you for your consideration.

Respectfully,
Jessica dos Santos

Name:	Email:	Zip:
Melisa Heimuli	halamehiheimuli@gmail.com	96731
Representing:	Position:	Submitted:
Self	Support	Jun 26, 2024 @ 02:24 AM

Testimony:
I strongly support Bill 64 (2023), FD1, CD1 as it is currently written. We strongly support the minimum distance of a 1.25 mile setback.

However, we strongly oppose adding any language limiting these setback requirements to only apply to new wind energy generation facilities. Existing large wind energy generation facilities that do not meet the setback requirements must be classified as nonconforming after the expiration of their lease or power purchase agreement. In addition, we strongly oppose adding any and all language that would permit the increase in height of existing facilities.

Name:	Email:	Zip:
Feao Heimuli	feaoheimuli@gmail.com	96731
Representing:	Position:	Submitted:
Self	Support	Jun 26, 2024 @ 02:30 AM

Testimony:
My name is Feao Heimuli and I have lived in Kahuku on Huehu street for 40+ years. I strongly support Bill 64 (2023), FD1, CD1 as it is currently written. We strongly support the minimum distance of a 1.25 mile setback.

However, we strongly oppose adding any language limiting these setback requirements to only apply to new wind energy generation facilities. Existing large wind energy generation facilities that do not meet the setback requirements must be classified as nonconforming after the expiration of their lease or power purchase agreement. In addition, we strongly oppose adding any and all language that would permit the increase in height of existing facilities.

Name:	Email:	Zip:

Corbin Thomander	corbin.thomander@gmail.com	96731
Representing: Self	Position: Support	Submitted: Jun 26, 2024 @ 06:20 AM

Testimony:

I strongly support Bill 64 (2023), FD1, CD1 as it is currently written. We strongly support the minimum distance of a 1.25 mile setback.

However, we strongly oppose adding any language limiting these setback requirements to only apply to new wind energy generation facilities. Existing large wind energy generation facilities that do not meet the setback requirements must be classified as nonconforming after the expiration of their lease or power purchase agreement. In addition, we strongly oppose adding any and all language that would permit the increase in height of existing facilities.

I would be willing to find a compromise of immediately giving residents within 1.25 miles free electrical power up to a specific monthly limit and discounted electrical power after that. I see the value in wind power, however, the negatives outweigh the positives when turbines are built so close to us. Many benefit from this power that who are much further away. Because we are affected by the wind turbines everyday, we should receive a benefit.

Name: Saleia Tuia	Email: saleiam09@gmail.com	Zip: 96731
Representing: Self	Position: Support	Submitted: Jun 26, 2024 @ 08:39 AM

Testimony:

"I strongly support Bill 64 (2023), FD1, CD1 as it is currently written. We strongly support the minimum distance of a 1.25 mile setback.

However, we strongly oppose adding any language limiting these setback requirements to only apply to new wind energy generation facilities. Existing large wind energy generation facilities that do not meet the setback requirements must be classified as nonconforming after the expiration of their lease or power purchase agreement. In addition, we strongly oppose adding any and all language that would permit the increase in height of existing facilities."

Name: Elizabeth Songvilay	Email: es569u@att.com	Zip: 96782
Representing: AT&T	Position: I wish to comment	Submitted: Jun 26, 2024 @ 08:56 AM

Name: Micah Munekata	Email: mmunekata@ulupono.com	Zip: 96813
Representing: Ulupono Initiative	Position: I wish to comment	Submitted: Jun 26, 2024 @ 09:54 AM

Name:	Email:	Zip:
Mark Glick	dbedt.energyoffice@hawaii.gov	96813
Representing:	Position:	Submitted:
Hawaii State Energy Office	I wish to comment	Jun 26, 2024 @ 12:22 PM

Name:	Email:	Zip:
Carissa Tafuna	carissam40@gmail.com	96731
Representing:	Position:	Submitted:
Self	Support	Jun 26, 2024 @ 12:26 PM

Testimony:

I strongly support Bill 64 (2023), FD1, CD1 as it is currently written. We strongly support the minimum distance of a 1.25 mile setback.

However, we strongly oppose adding any language limiting these setback requirements to only apply to new wind energy generation facilities. Existing large wind energy generation facilities that do not meet the setback requirements must be classified as nonconforming after the expiration of their lease or power purchase agreement. In addition, we strongly oppose adding any and all language that would permit the increase in height of existing facilities.

Name:	Email:	Zip:
Garret Matsunami	motake@castlecooke.com	96817
Representing:	Position:	Submitted:
Castle & Cooke Homes Hawaii, Inc.	Support	Jun 26, 2024 @ 02:57 PM

Name:	Email:	Zip:
Frederick Redell	fred@hawaiicleanpower.org	96813
Representing:	Position:	Submitted:
Hawaii Clean Power Alliance	Support	Jun 26, 2024 @ 03:14 PM

Name:	Email:	Zip:
Gil Riviere	gil@gilriviere.com	96791
Representing:	Position:	Submitted:
Keep the North Shore Country	Support	Jun 26, 2024 @ 04:18 PM

Name:	Email:	Zip:
Dawn Bruns	dawnbbruns@gmail.com	96712
Representing:	Position:	Submitted:
Self	I wish to comment	Jun 26, 2024 @ 05:54 PM

Name:	Email:	Zip:
Jacob Franco	jac1snake@yahoo.com	96731

Representing:	Position:	Submitted:
Self	Support	Jun 26, 2024 @ 09:02 PM

Testimony:
I strongly support Bill 64 (2023), FD1, CD1 as it is currently written. I strongly support the minimum distance of a 1.25 mile setback. However, we strongly oppose adding any language limiting these setback requirements to only apply to new wind energy generation facilities. Existing large wind energy generation facilities that do not meet the setback requirements must be classified as nonconforming after the expiration of their lease or power purchase agreement. In addition, we strongly oppose adding any and all language that would permit the increase in height of existing facilities.

Name:	Email:	Zip:
Sandra Larsen	sandra.larsen@aes.com	96813
Representing:	Position:	Submitted:
aes Hawaii	I wish to comment	Jun 26, 2024 @ 11:47 PM

Name:	Email:	Zip:
Stefanie Sakamoto	ssakamoto@imanaka-asato.com	96789
Representing:	Position:	Submitted:
AES HAWAII	I wish to comment	Jun 27, 2024 @ 08:08 AM

Name:	Email:	Zip:
Tatiana Santiago	tatisantiago12@gmail.com	96731
Representing:	Position:	Submitted:
Self	Support	Jun 27, 2024 @ 08:32 AM

Testimony:
I strongly support Bill 64 (2023), FD1, CD1 as it is currently written. We strongly support the minimum distance of a 1.25 mile setback.

However, I strongly oppose adding any language limiting these setback requirements to only apply to new wind energy generation facilities. Existing large wind energy generation facilities that do not meet the setback requirements must be classified as nonconforming after the expiration of their lease or power purchase agreement. In addition, I strongly oppose adding any and all language that would permit the increase in height of existing facilities.

Dear Honolulu City Council Members,

As a longtime resident with roots in our family that go back to 1812 in Hawaii, we oppose Bill 64 that the City Council has proposed.

No City Council members do not have the right to take away what a tax paying citizen can do on their own land. This is against all Hawaiian tradition and an insult to the oath you all took to protect our constitution.

In proposing this authoritarian bill again just shows that every single one your Council members does not have enough to do in their job but take away our freedoms that are not only guaranteed by our constitution but also by our Bill of Rights.

These are just a few of the issues we have with this bill:

Who do you all think you are regulating how much we can store on our own property?
Who do you think you are by now adding 1% to the Ag land. What small mind came up with adding this on.
Why do you need to put more regulation on small businesses, like feed stores. Who cares what they sell? Why is it your business what they sell?
Why do we need more broadcast antennas on preservation land? Do you know these antennas do biochemical harm to the bees that live on this land, and they cannot pollinate when their senses are messed up from these invasive transmissions?
Why do you care if people have chickens, rabbits and other animals? This is not in your Kuleana at all. You need to stay in your lane and stop adding more government control on our citizens.

This Bill 64 is total authoritarianism, and you all need to stop. This bill takes away the very freedoms that make our country the best in the world. If you all do not think this then every one of you that agrees with this bill needs to resign your position. To make up a 288-page bill with all these rules and regulations is a waste of time. We need to keep the LUO just the way it is.

We need less government control in our Aina.

Please vote no to this absolutely tyrannical bill that has wasted taxpayer monies in its creation and not one person I have spoken to agrees with this kind of oppressive government control on our properties.

Thank you,
The Wadas Ohana
1316 Mokapu Blvd
Kailua, HI 96734

Sunset Beach Community Association
P.0. Box 471
Hale'iwa, Hawai'i 96712

Chair Kia'āina
Committee on Planning and the Environment
City and County of Honolulu
Honolulu City Council

Subject: Bill 64, Wind Turbine setback

June 22, 2024

Aloha Chair Kia'āina,

The Sunset Beach Community Association (SBCA) agrees it is of utmost importance for wind turbines to be kept 1.25-miles from residential areas. This 1.25-mile setback distance has been negotiated over several years, and we are in full support.

While we consider the proposed 1.25-mile setback distance to be a good start, SBCA, by unanimous vote of the membership, would like you to understand a more protective 3 mile nighttime wind turbine operation buffer distance is likely to be needed in future legislation, to reduce wind turbine nuisance and better ensure future turbine sites will not prevent residents from using their homes for sleep.

Please ensure Bill 64 specifically disallows modifications to a nonconforming turbine's height or blade length. This will allow the turbines to live out their Power Purchase Agreement terms but please do not further perpetuate the injustice of these too-big, too-close wind turbines. A whole generation of Kahuku and Sunset Beach residents, at our homes, in our schools, and in our hospital, has been chronically exposed to high levels of inaudible low-frequency sound (approximately 0.8 hz). This low-frequency wind turbine sound interferes with sleep and concentration, even miles away, consistent with effects documented in scientific literature. Members of our community continue to suffer from the cumulative effects of the huge wind turbines.

We understand Bill 64's passage would cause the existing wind farms to be nonconforming, which would reduce their likelihood of carrying out expensive component upgrades.

Our communities have sacrificed and done our part, in that a generation has endured these turbines which act as a bridge to Oahu's alternative energy future. Past decision makers did not know the turbines would have such far-reaching effects or they most likely would not have allowed them.

Again, SBCA by unanimous vote of the membership, remains opposed to any allowance that would facilitate future operation of the existing turbines within 1.25-miles of residential and country-zoned areas, hospitals, or schools.

We join Kahuku Community Association in understanding and supporting the need for clean energy. By situating future turbines properly, away from residential areas, Bill 64 will increase wind farm longevity and Oahu's future alternative energy future.

Sincerely,

Yvonne Alexander

Yvonne Alexander
Sunset Beach Community Association
President

Cc: Councilmember Matt Weyer

THE GENTRY COMPANIES

June 24, 2024

The Honorable Esther Kia'āina, Chair,
and Councilmembers
Committee on Planning and the Economy
Honolulu City Council
530 South King Street
Honolulu, Hawaii 96813

Dear Chair Kia'āina and Members of the Committee:

Subject: Comments on CD 1 to Bill 64 (2023), FD 1 – LUO AMENDMENTS RELATING TO USE REGULATIONS

My name is Debbie Luning and I'm testifying on behalf of Gentry Homes, Ltd. Gentry was/is the developer of the master planned communities of Waipio by Gentry and Ewa by Gentry, both of which are comprised of a mixture of land uses, including parks and open space.

Gentry Homes is very supportive of the proposed amendments in the latest draft C.D. 1 which would allow parks and community-based recreation centers in certain zoning districts, including P-2 General Preservation. This revision would enable the development of a world class tennis facility in Ewa by Gentry, subject to approval of a conditional use permit (minor). The facility will be owned and operated by the nonprofit U.S. Tennis Association in a park that is zoned P-2.

We also appreciate your responsiveness to our concerns expressed in our prior testimony by allowing private parks and community-based recreation centers in the Residential and Apartment Zoning Districts, especially because the dedication of park space is a City requirement for residential projects consisting of 3 or more units. These park dedication requirements can be fulfilled by building private parks as part of a planned development.

In order to facilitate the development of parks and accessory uses in residential neighborhoods, we would like to suggest an amendment to the bill that would eliminate the requirement for a Conditional Use Permit (minor) for Parks and Community-Based Recreation Centers when they are developed as part of a master planned development or in fulfillment of the City's Park Dedication requirements.

Proposed Amendments:

1) *Amend the Community-based recreation center entry in Use Table 21-5.1 to allow community-based recreation centers as a permitted use in all Residential and Apartment districts without the need for a Cm when they are part of a master planned community and/or are built to satisfy park dedication requirements.*

2) *Amend the Park entry in Use Table 21-5.1 to allow parks as a permitted use in all Residential and Apartment districts without the need for a Cm when they are part of a master planned community and/or are built to satisfy park dedication requirements.*

Thank you for your consideration of our comments and recommendations.

Sincerely,

GENTRY HOMES, LTD.

Debra M. A. Luning
Director of Governmental Affairs and
Community Relations

TESTIMONY BEFORE THE COMMITTEE ON PLANNING AND THE ECONOMY

COMMENTS ON BILL 64 (2023), FD1, AND PROPOSED AMENDMENTS IN COUNCIL COMMUNICATION 178 AND 180 REGARDING PUBLIC, CIVIC, AND INSTITUTIONAL USES

Thursday, June 27, 2024
9:00 A.M.
City Council Chamber

Greg Shimokawa
Director, Renewable Acquisition Division
Hawaiian Electric

Dear Chair Kia‘āina, Vice Chair Cordero, and Members of the Committee,

My name is Greg Shimokawa and I am submitting testimony on behalf of Hawaiian Electric **with comments** on Bill 64 (2023) proposing changes to Article 5 of the Land Use Ordinance (“LUO”) and proposed amendments in Council Communication 178 and 189 regarding Public, Civic, and Institutional Uses in Bill 64 (2023), FD1 (respectively, “CC-178” or “CC-189”, and collectively, the “Proposed Amendments to Bill 64”). While Bill 64 (2023) is proposing a myriad of changes to land use laws, Hawaiian Electric is only focused on the section that applies to existing wind energy generation facilities, as their current production of renewable energy is vital to the State’s decarbonization plans and Renewable Portfolio Standards (RPS) goal of 100% renewable energy by 2045. As the county with the largest population, peak demand for energy on ‘Oahu reaches about 1,100 MW, serving not only our local residents, but the demands of the military and our tourism industry.

Hawaiian Electric understands there are concerns regarding setbacks for wind energy generation facilities and is sensitive to concerns raised by the community.

Hawaiian Electric does not oppose operational limits on existing farms to address flicker, subject to further understanding on the limitation of output. However, Hawaiian Electric would like to point out that the current version of Bill 64 (2023) removes language that would have applied setback and buffer zone requirements only to newly constructed large wind energy generation facilities, and not to the repair, maintenance, or component replacement of any existing facility covered by a power purchase contract with an electric public utility during the term of the contract, including any renewal or extension thereof.

Hawaiian Electric understands that, in the absence of language exempting existing facilities from these requirements, such facilities may be considered "nonconforming" per Section 21-4.110 of the Land Use Ordinance; such a facility may be repaired, expanded, or altered "in such a manner that does not increase its nonconformity." Hawaiian Electric appreciates that CC-180 adds some detail around the types of repairs that may not be considered to increase an existing large wind energy generation facility's nonconformance. However, Hawaiian Electric also notes that classification as a nonconforming structure may not give sufficient certainty to facility operators, who may need to do repairs that do not clearly fall within the scope of CC-180's proposed amendments. Additionally, this exemption is time-limited, applying only to work performed "during the term of the facility's current power purchase agreement." Afterwards, the facility would need to comply with the setback rules. Accordingly, Hawaiian Electric respectfully submits that the amendments in CC-178, which explicitly state that the new setback requirements "do not apply to the repair, maintenance, or component replacement of any existing facility," would provide greater certainty regarding the continued operation of existing large wind energy generation facilities.

Hawaiian Electric acknowledges that the Honolulu City Council is the appropriate policymaking body on this matter. Hawaiian Electric is therefore not advocating for a particular outcome, but would like to advise the Committee of possible consequences

should existing large wind energy generation facilities be required to cease operations:

- With the absence of these resources, Hawai‘i may be unable to achieve its goal of 100% renewable energy by 2045.
- These existing facilities, which currently provide the only utility scale non-photovoltaic variable renewable generation on ‘Oahu, **would not** be able to participate in future procurements, reducing competition and increasing costs to customers via development of new facilities.
- Construction of new facilities would likely require significant additional resources, such as:
    - Approximately 123 MW of photovoltaic solar generation;
    - Additional land, estimated at approximately 5-10 acres per MW, and
    - New interconnection facilities to connect these new facilities to the Hawaiian Electric grid.
- Replacing wind with photovoltaic solar generation would reduce the resource diversity of Hawaiian Electric’s renewable generation portfolio, with generation becoming more dependent on sunny weather.

The cessation of existing wind energy generation could thus result in an inability to meet Hawai‘i’s renewable energy goals, additional costs to customers who will need to fund replacement projects that could potentially be more costly than maintaining projects and interconnection facilities that are already built, and increased uncertainty in electrical generation.

We sincerely appreciate the efforts of the Honolulu City Council and the Committee on Planning and the Economy in developing this bill and look forward to continuing our work together as the bill progresses.

Thank you for the opportunity to testify.

D·R·HORTON®
America's Builder
HAWAII

June 25, 2024

The Honorable Esther Kia'āina, Chair
The Honorable Radiant Cordero, Vice Chair
Members of the Committee on Planning and the Economy
City and County of Honolulu
Honolulu, Hawaii 96813-3077

RE: **Bill 64 (2023), FD1, Proposed CD1 – LUO Amendment Relating to Use Regulations**
Meeting: June 27, 2024 @ 9:00am

Aloha Chair Kia'āina and Members of the Committee on Planning and the Economy,

Mahalo for the opportunity to submit testimony on behalf of D.R. Horton Hawaii, offering comments to Bill 64 (2023), FD1, Proposed CD2 Land Use Ordinance (LUO) Amendment relating to use regulations. D.R. Horton Hawaii has provided previous testimony offering our strong support. At this time, **we continue to offer our support with two recommended amendments relating to Parks and Community-based recreation centers.**

To encourage a variety of gathering spaces within master planned communities or to satisfy park dedication requirements, we propose the following to permit the inclusion of pools and gymnasiums and align with the City's intent pursuant to ROH Chapter 22 Article 7 for the Subdivision of Land.

1. **Recommended Amendment #1 - Definition of "Park":**

   "***Park.*** An area used for outdoor play or recreation, often containing recreational equipment such as slides, swings, climbing frames, sport courts and fields, and botanical gardens. A park may include small office spaces for managers or groundskeepers, storage structures, and barbeque pavilions. A park does not include swimming pools and gymnasiums (see community-based recreation center) ***unless being used to satisfy park dedication requirements, or is a part of a master planned community***. The term may include both passive and active recreation. The term includes projects that promote and enhance ecosystem benefits, keep wildlife on land with preserved natural features, as well as picnic grounds, beaches, beach access, greenways, and areas for hiking, fishing, hunting, and other scenic interests. The term does not include public parks (see public facility) or community recreation centers (see community-based recreation center). See also nature-based recreation, general outdoor recreation, meeting facility."

2. **Recommended Amendment #2 - Sec 21-5.6-1(b) Community-based recreation center – Standards:**

   "***Community-based recreation center - standards.***" Community-based recreation centers are only permitted in the P-2 district if the community-based recreation center is being used to satisfy park dedication requirements, or is a part of a master planned community. ***Community-based recreation centers are a Permitted Use (P) in all Residential and Apartment use districts if the community-based recreation center is being used to satisfy park dedication requirements, or is a part of a master planned community.***

Mahalo for your time and consideration, it is very much appreciated. Should you have any questions, please do not hesitate to contact me at (808)782-4109 or ttonaki@drhorton.com.

Sincerely,

Tracy Tonaki
President
Hawaii Division

Kahuku Community Association

Honolulu City Council
530 South King Street Room 202
Honolulu, HI 96813

June 25, 2024

RE: Bill 64 (2023), FD1,CD1 Related to Large

Dear Chair Kiaʻāina and fellow Council Members,

Kahuku Community Association (KCA) strongly supports Bill 64 (2023), FD1, CD1 as it is currently written. We strongly support the minimum distance of a 1.25 mile setback. However, we strongly oppose adding any language limiting these setback requirements to only apply to new wind energy generation facilities. Existing large wind energy generation facilities that do not meet the setback requirements must be classified as nonconforming after the expiration of their lease or power purchase agreement. In addition, we strongly oppose adding any and all language that would permit the increase in height of existing facilities.

§ 21-5.60-6 Utility.(c) (2) (E), page 43:

(E) Large wind energy generation facilities must be set back as follows: (i) From all property lines a minimum distance equal to the height of the facility; and (ii) From the property lines of any zoning lot located in the country, residential, apartment, apartment mixed-use, or resort zoning districts a minimum distance of 10 times the height of the facility or 1.25 miles, whichever is greater. For purposes of this paragraph, height is measured from the farthest vertical extension of the tower, which includes the height of the tower or its vertical support structure and the farthest vertical extension of the blade tip from the tower.	
(F) With regard to occupied buildings in proximity to the facility that exist on the submission date of the facility's conditional use permit application: (i) No portion of a large wind energy facility may cause more than 10 hours per year or 10 minutes per day of shadow flicker on existing occupied buildings; and (ii) During normal operation, facility noise levels may not exceed 10 dBA above ambient sound levels at existing occupied buildings. Prior to the issuance of a conditional use permit for the facility, the applicant shall submit to the department site-specific data (such as weather, topography, and turbine operating characteristics) using software models such as WindPro or iNoise, demonstrating conformity with shadow flicker and noise restrictions.	KCA strongly agrees to adding regulations to shadow flicker and feel that this is a step in the right direction. However, KCA would like to see no shadow flicker entering homes be the standard.

KCA strongly supports a minimum 1.25-mile setback and is grateful that the Council has recognized the need for this increase. An adequate setback is the best and only proven safety measure to protect host communities from the negative impacts of industrial-scale wind turbines.

Furthermore, KCA strongly opposes any language limiting the new setback requirements to only new large wind energy projects. This measure is crucial for our Kahuku community, which is currently surrounded by 20 turbines and experiences the cumulative impacts of industrial wind such as safety concerns related to blade throw, tower collapse, fire, and health impacts from audible noise, inaudible noise, shadow flickers that impact the overall safety, health, and quality of life of our Kahuku residents.

Correcting this injustice under the new setback law is essential. It is disheartening to see those who would never want to be in Kahuku's situation impose this burden onto our community and under the assumption that renewal is necessary. It will be tragic to include language that allows existing projects to avoid compliance with the new setback, further perpetuating the risks to our children and residents in perpetuity even after the 20 year lease period.

Allowing existing turbines within the 1.25 mile setback to extend, repower, or renew despite the recognized impacts is a great injustice and travesty that must be addressed. We must not allow any loopholes that perpetuate the ongoing issues and injustice our Kahuku residents currently face and undermine the progress we hope to achieve. To move forward in an equitable energy transition, we must acknowledge and correct past wrongs, and find creative solutions that do not continually place the burden on the same communities. Large wind facilities that do not meet the new setback, shadow flicker, and noise requirements should be required to become nonconforming.

KCA also strongly opposes adding any language that would allow developers to replace existing blades with longer ones, thereby increasing the height of wind turbines to 575 feet or by 7% of the original height. This contradicts everything we have been fighting for. The existing projects are already too large and too close to our communities. Allowing developers to install longer blades than originally permitted sets a dangerous precedent.

Allowing developers to replace turbine blades with larger ones will impact turbine setbacks, blade throw safety zones, and increase the blade swept area. As noted in the Na Pua Makani project's EIS, "...taller turbines have larger rotor swept areas which could influence collision risk." These factors were assessed based on the existing blade length and turbine height in the project's initial environmental reviews. Bypassing environmental assessments for larger blade replacements without proper evaluation violates the public trust duties that DPP and the City Council are responsible for protecting.

If developers cannot source blades of the same size, the DPP and the Council should mandate that developers follow proper procedures to protect the community and endangered species. Developers should not be given excessive leeway due to a lack of same-size blades. They must not take shortcuts, given the serious consequences. If anything, they should use shorter blades, not longer ones, and comply with all other regulations.

KCA acknowledges the need for clean energy as our communities face the effects of extreme weather events caused by climate change. However, it is imperative to strike a balance by implementing regulations that ensure renewable energy projects do not compromise the health, safety, and quality of life of host communities and their residents. The PUC and the State Energy Office have made public commitments to move forward equitably. Now is the time to turn words into action. Kahuku has done its part. After the 20-year lease period or power purchase agreement, it is only just to right the wrongs done to our community. Moving forward in an equitable way means correcting the injustice that was forced onto our Kahuku community with this new law.

We respectfully ask the Council to heed our community's firsthand experience. Mahalo for your attention to this critical matter.

Respectfully,

Sunny Unga (e-sign)

Kahuku Community Association

Sunny Unga - President
Valeriano Garrido- Vice President
Tatiana Santiago- Secretary
Budde Cabael -Treasurer
Atalina Pasi - Director
Budde Cabael - Director
James Munoz - Director
Ralph Makaiau - Director

June 26, 2024

Chair Esther Kiaʻāina
Planning & Economy Committee
Honolulu City Council
South King Street
Honolulu, HI 96813

Dear Chair Kiaʻāina, Vice Chair Cordero, and members of the Planning & Economy Committee,

We thank the Planning & Economy Committee for its continued efforts to update Honolulu's Land Use Ordinance and for this opportunity to provide testimony on proposed changes to Public, Civic, and Institutional Uses in Bill 64.

As stakeholders of the telecommunications industry who help to provide wireless services to customers across Oʻahu, we write to express our support for Chair Kiaʻāina's latest proposed amendments to § 21-5.60-2(c) in Bill 64's Communications section and urge its adoption.

Our companies are responsible for building and upgrading wireless facilities, and in some cases, we also own the underlying infrastructure. The projects our industry carries out are typically initiated in response to increased wireless data traffic and demand, which saw a 38 percent increase nationally in 2022 alone.[1] To best keep up with wireless demand and provide services that our customers rely on each day, reasonable land use requirements and permit review timelines in the City & County of Honolulu are critical.

As the Committee is aware, the wireless telecommunications industry has worked with the Department of Planning and Permitting's (DPP) Land Use Division for many months on Bill 64's Communication section. We would like to extend our deep appreciation to the Land Use Division for their time, insights, and thoughtful engagement. As a result of these discussions, our industry group and DPP worked together through a large number of issues, most of which are already reflected in the current Bill 64 draft. Chair Kiaʻāina's latest set of proposed amendments resolves the last of our outstanding issues.

Following last month's Planning & Economy Committee meeting, the industry's remaining concerns were with § 21-5.60-2(c), the "Communication Support Structure – Standards" section.

Specifically, the industry sought a balance between mitigating visual impacts of new communication support structures while ensuring sufficient flexibility for effective and efficient deployment of wireless services. It was also important to the industry that the standards were written in a way that will be easy for both industry providers and DPP to follow, ensuring efficient permit reviews.

The Chair's proposed amendments address all of the industry's concerns from the last committee meeting. For these reasons, we urge the Committee to adopt the Chair's latest amendments to the Communications section.

Again, we commend the Committee for all its efforts to update Honolulu's Land Use Ordinance – especially language pertaining to wireless telecommunications infrastructure – and this opportunity to provide testimony. We appreciate your consideration of the comments we provided today and look forward to continuing to work with you as Bill 64 moves forward.

Sincerely,

AT&T
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T-Mobile
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Email: communications@ulupono.com

HONOLULU CITY COUNCIL COMMITTEE ON PLANNING & THE ECONOMY
Thursday, June 27, 2024 — 9:00 a.m.

Ulupono Initiative offers comments on Bill 64 (2023) FD1, Relating to Land Use Ordinance (LUO) Use Regulation Amendments.

Dear Chair Kiaʻāina and Members of the Committee:

My name is Micah Munekata, and I am the Director of Government Affairs at Ulupono Initiative. We are a Hawaiʻi-focused impact investment firm that strives to improve the quality of life throughout the islands by helping our communities become more resilient and self-sufficient through locally produced food, renewable energy and clean transportation choices, and better management of freshwater resources.

Ulupono offers comments on Bill 64 (2023) FD1. This bill proposes amendments to the regulation of uses throughout Chapter 21, Revised Ordinance of Honolulu 1990 ("Land Use Ordinance").

Agriculture

In October 2022, Bill 10, relating to land use regulations, was postponed by the Council to allow for further discussion and collaboration with the community, including the agricultural industry who requested additional time to address the many updates made to agricultural land uses. The bill's postponement was done with the understanding that the agriculture industry would bring recommendations to the Council for the next round of hearings in 2023 and 2024.

During that time, Ulupono had the opportunity to convene and participate in several, all-day weekend meetings with agricultural producers and stakeholders for review and comment on the proposed bill. The following organizations were included in these discussions: Oʻahu Agriculture and Conservation Association, Kuilima Farm, Kualoa Ranch, Waimānalo Agricultural Association, KōHana Distillers, Kunia Country Farms, Hawaiʻi Cattlemen's Council, Ulupono Initiative, Hawaiʻi Farm Bureau, and East County Farm Bureau.[1] The group also included the City and County of Honolulu's (CCH) Department of Planning and Permitting, CCH Office of Economic Revitalization, and State of Hawaiʻi Department of Agriculture.

After going line by line on the measure's proposed amendments and additions to the agricultural uses in the Land Use Ordinance, our group was able to produce several

[1] Note: we recognize that this group is not a full representation of the entire Oʻahu agriculture community, but it does offer significant and meaningful representation of those who were active in Council deliberations of Bill 10 in 2022.

recommendations that we believe support the future of agriculture on Oʻahu. The results of these meetings are reflected in the recommendations provided below[2]:

Assembly
In Section 21.5.60-1 Use Table, relating to Assembly, the FD1 allows small meeting facility use on AG2 land as Cm*+ (Minor Conditional Use, Standards, SUP) and on Country land as Cm* (Minor Conditional Use, Standards), and medium meeting facility use on AG2 land as C*+ (Major Conditional Use, Standards, SUP) and on Country land as C* (Major Conditional Use, Standards). We oppose this provision and propose that meeting facilities should not be allowed on AG1 and AG2 land, which should be preserved and used for active agriculture production and accessory agriculture. Meeting facilities of all sizes may be placed in country-zone districts; however, some country-zoned districts are small and located between AG1 and AG2 farms. Such proximity can compromise normal agriculture activities (i.e., herbicide/insecticide spraying, animal odors, machinery noises, etc.) by complaints from meeting attendees.

Communication
In Section 21-5.60-2(b), relating to Communication, we support the allowance of communication towers in AG1 and AG2 districts as the communications tower footprint is small, and it is federally regulated. We offer the suggestion to give neighbors notice of conditional use permits in ag lots as sometimes they come up overnight. Currently, it is believed that a neighborhood board notice is required.

Education (K-12)
In Section 21-5.60-3, relating to Education, we respectfully oppose K-12 schools in AG2 districts as C*+ (Major Conditional Use, Standards, SUP). Schools are incompatible with normal ag activities (i.e., herbicide/insecticide spraying, animal odors, machinery noises, etc.), and this could generate complaints and hinder management of the farm. We ask for the removal of schools as a permitted use on country-zoned parcels that are *adjacent* to AG1 or AG2 parcels. Some of the country ag parcels are small and between AG1 and AG2 farms. When schools are allowed on these parcels zoned for agriculture, it infringes on the "right to farm" as preserved in the Hawaiʻi State Constitution.

Parks and Open Space (Cemetery)
In Section 21-5.60-5(a) relating to Cemeteries, we agree with the stated cemetery standards and higher PRU+ (Plan Review Use, SUP) in the AG-2 District. The PRU+ requirement is the highest level of review and, as such, we support this.

Utility
In Section 21-5.60(a), relating to Utility, we recommended amending this to: wind energy generation facilities of all categories, small, medium, and large, when placed on AG1 and AG2 lands, must dedicate at least 51% of the zoning lot area suitable for crop raising, animal raising, or aquaculture. The Director may adopt rules pursuant to HRS Chapter 91 to determine the zoning lot area considered suitable for crop raising, animal raising, or

[2] There are several recommendations that came out of these meetings and they will be provided to the Council as additional agricultural items are taken up for Bill 64 (2023).

aquaculture. Soil classifications (addressed by State Land Use HRS) and specific agriculture zone designations (addressed by County AG1 and AG2 districts) for wind energy generation facilities should be considered in the approval of the location of such facilities on agricultural lands.

Energy

Ulupono has concerns with the proposed 1.25-mile wind machine setback and wants to help ensure that the "costs" of such a setback are clear for decision makers. In short, this policy will likely increase electricity costs for residents and hinder Hawai'i's progress towards achieving our renewable energy goals. Onshore wind projects are a low-cost option to advance our clean energy goals, so the proposed setback may exacerbate our state's dependence on high-cost and polluting energy resources, such as fossil fuels, and thereby contribute to the increased severity and frequency of storms, sea-level rise, eroding beaches, and more.

Ulupono believes it is important that the proposed setback sufficiently balance the ability to repower (replacing old turbines, etc.) existing wind power sites/projects. Repowering existing turbines is especially important to O'ahu's ratepayers and low- to middle-income residents, as repowering an existing facility would cost substantially less than developing an entirely new project—a cost that would be passed on to all O'ahu ratepayers. Additionally, repowering an existing wind facility may prevent the County from sliding backwards on our renewable energy goals. We support the language proposed in CC-178 by Councilmember Say and are hopeful that such an exclusion from this setback for any repowering of existing wind power facilities is carefully considered.

We appreciate your consideration of these comments and hope to contribute further to this important conversation as we look to update the many important land uses in Bill 64 (2023).

Respectfully,

Micah Munekata
Director of Government Affairs

HAWAII STATE ENERGY OFFICE
STATE OF HAWAII

JOSH GREEN, M.D.
GOVERNOR

SYLVIA LUKE
LT. GOVERNOR

MARK B. GLICK
CHIEF ENERGY OFFICER

235 South Beretania Street, 5th Floor, Honolulu, Hawaii 96813
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804

Telephone: (808) 451-6648
Web: energy.hawaii.gov

Testimony of
MARK B. GLICK, Chief Energy Officer

before the
HONOLULU CITY COUNCIL
COMMITTEE ON PLANNING AND THE ECONOMY

Thursday, June 27, 2024
9:00 AM

Providing Comments on
BILL 64 (2023), FD1, CD1

RELATING TO USE REGULATIONS

Chair Kiaʻāina, Vice Chair Cordero, and members of the Committee, the Hawaiʻi State Energy Office (HSEO) offers comments on Bill 64 (2023) changes to Revised Ordinances of Honolulu 2021 ("ROH") Chapter 21, Article 5, related to large wind energy facilities.

HSEO's comments are guided by its statutory role under HRS §196-71(b)(1) "to provide analysis and planning to actively develop and inform policies to achieve energy efficiency, renewable energy, energy resiliency, and clean transportation goals with the legislature, public utilities commission, state agencies, and other relevant stakeholders."

HSEO appreciates the continued dialogue regarding the appropriate siting conditions for large wind energy facilities. The constructive conversation at the May 23rd meeting indicated clear support among this Committee for both the ongoing operation of the existing wind farms operating on Oʻahu, and mitigation of negative impacts that those large wind energy facilities may have on their neighbors.

To that end, HSEO supports adding requirements for large wind energy facilities that mitigate the impact of noise and shadow flicker on residences and proposes the attached language. HSEO recommends these noise and flicker requirements for both existing and new large wind energy facilities and would encourage a path to conforming

use for existing facilities that can verifiably demonstrate that their operations meet noise and flicker thresholds.

Regarding setback distance, the discussion so far has revealed that setback distance and the request to “grandfather” existing facilities into conforming use are strongly intertwined.

The largest setback HSEO found in current county zoning applies to waste processing facilities, with a required distance of one-half mile to the nearest residence or school. This is roughly equivalent to a setback of five times the turbine height. Members of the Kahuku Community Association have requested a 15X height multiplier as the setback distance. This would place existing farms into nonconforming use, significantly impacting their ability to receive financing and effectively requiring them to shut down at the end of their existing Power Purchase Agreements (PPAs). This has prompted large wind energy facility owner/operators to request a “grandfathering” to whatever changes the Council makes to setback requirements. “Grandfathering” existing facilities could allow existing facilities to continue operations “as is” and to potentially increase turbine height, all without addressing any impact on their neighbors.

HSEO’s candid assessment is that attempts to significantly increase the setback devoid of a path to conforming use would lead the wind farms to close, while attempts to increase the setback with a “grandfathering” clause for existing windmills would do nothing to address community concerns. HSEO respectfully submits that neither of those outcomes would be in the public interest.

With the first wind power purchase agreement set to expire in 2030 – assuming it was the will of the Council to support the continued operation and modernization of existing facilities -- your establishing a setback distance of seven times the turbine height to residential zoning boundaries may be an appropriate way to balance the concerns of facility owners and community members. This distance would require the largest existing wind facilities to match the setback that currently exists for waste processing facilities. Regardless of setback height changes, HSEO wishes to make clear that it encourages the incorporation of noise and shadow flicker requirements for all large wind energy facilities, whether new or existing. HSEO provides the attached language for the committee’s consideration which attempts to improve on the existing requirements for large wind energy facilities.

We appreciate your full consideration of the issues at hand. The limited land availability means that large wind energy facilities may have undesirable impacts on neighboring residences such as shadow flicker and negative impacts to property values, as found by Lawrence Berkeley National Laboratory (https://emp.lbl.gov/publications/impact-wind-power-projects). On the other hand, the National Renewable Energy Laboratory has concluded that restrictive siting and zoning can significantly limit the potential for wind energy development,[1] and onshore wind energy has demonstrated potential to cost-effectively deliver renewable resources to meet energy and climate policy objectives consistent with Hawai‘i’s globally leading energy transition policies.

Finally, HSEO strongly supports the necessary capability of existing facilities to maintain the safety of their operations, including being able to replace components as needed without jeopardizing an existing permit. A zoning change that puts an entire existing facility into nonconforming use would seriously jeopardize the ability to invest in these facilities. If the Council wishes existing facilities to continue to maintain or improve their facilities, a zoning change that establishes a clear path to conforming use would be prudent and advisable.

Thank you for the opportunity to testify.

[1] https://www.nrel.gov/news/program/2022/nrel-releases-comprehensive-databases-of-local-ordinances-for-siting-wind-solar-energy-projects.html.

Attachment to testimony: Recommended Language

Bill SECTION	3
ROH Section, Exhibit, or Figure, and Title	§ 21-5.60-6 Utility.
Page No.	43-44
Amendment Text (in Ramseyer Format)	Please see below

Proposed Revisions to the current committee draft version, BILL064(23), FD1, Proposed CD1 - EK5:

(E) Large wind energy generation facilities must be set back as follows:

(i) From all property lines a minimum distance equal to the height of the facility; and

(ii) From the property lines of any zoning lot located in the country, residential, apartment, apartment mixed-use, or resort zoning districts a minimum distance of [~~10~~] 7 times the height of the facility [~~or 1.25 miles, whichever is greater~~].

For purposes of this paragraph, height is measured from the farthest vertical extension of the tower, which includes the height of the tower or its vertical support structure and the farthest vertical extension of the blade tip from the tower.

(F) With regard to occupied buildings in proximity to the facility that exist on the submission date of the facility's conditional use permit application:

(i) No portion of a large wind energy facility may cause more than 10 hours per year or 10 minutes per day of shadow flicker on existing occupied buildings; and

(ii) During normal operation, facility noise levels may not exceed 10 dBA above ambient sound levels at existing occupied buildings.

Prior to the issuance of a conditional use permit for the facility, the applicant shall submit to the department site-specific data (such as weather, topography, and turbine operating characteristics) using software models such as WindPro or iNoise, demonstrating conformity with shadow flicker and noise restrictions.

Additional Information

General:

- Report for Linn County by the University of Iowa. Includes discussions of multiple issues and siting factors, with diagrams. Z. Chen et al., "Linn County Wind Farm Siting Analysis." https://iisc.uiowa.edu/sites/iisc.uiowa.edu/files/2022-09/final_report_-_linn_county_wind_farm_siting_analysis.pdf

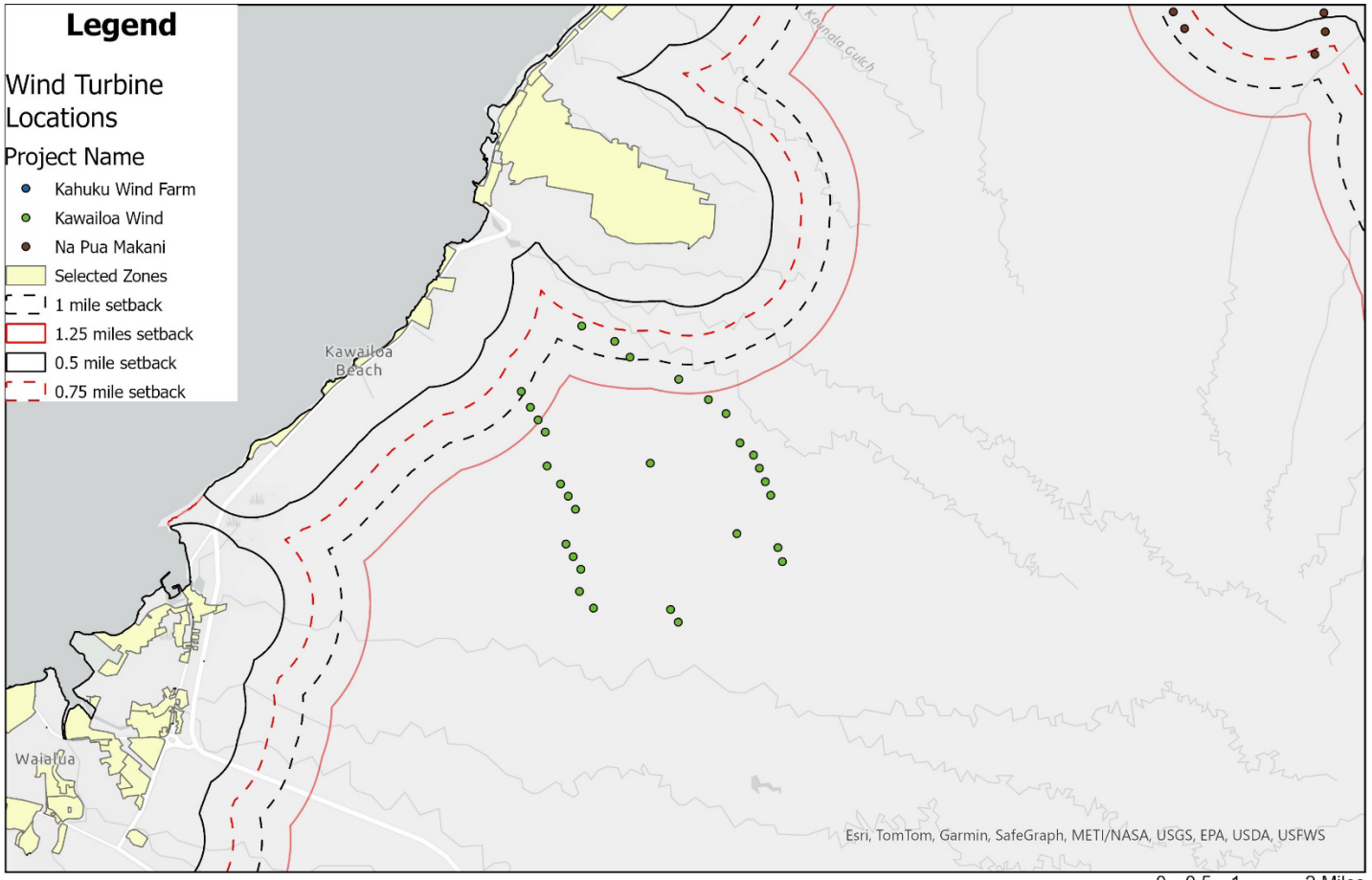
Shadow flicker:

- Energy Research and Social Science, "In the shadow of wind energy; Predicting community exposure and annoyance to wind turbine shadow flicker in the United States." https://www.sciencedirect.com/science/article/pii/S2214629621005582?via%3Dihub
- E Koppen et al., Conf. on Wind Turbine Noise Rotterdam (2017), 7th International Legislation and Regulations for Wind Turbine Shadow Flicker Impact. https://www.slideshare.net/ErikKoppen/wtn-2017-international-legislation-and-regulations-for-wind-turbine-shadow-flicker-impact
- World Bank Group, "Environmental, Health, and Safety Guidelines - Wind Energy." https://documents1.worldbank.org/curated/en/498831479463882556/pdf/110346-WP-FINAL-Aug-2015-Wind-Energy-EHS-Guideline-PUBLIC.pdf

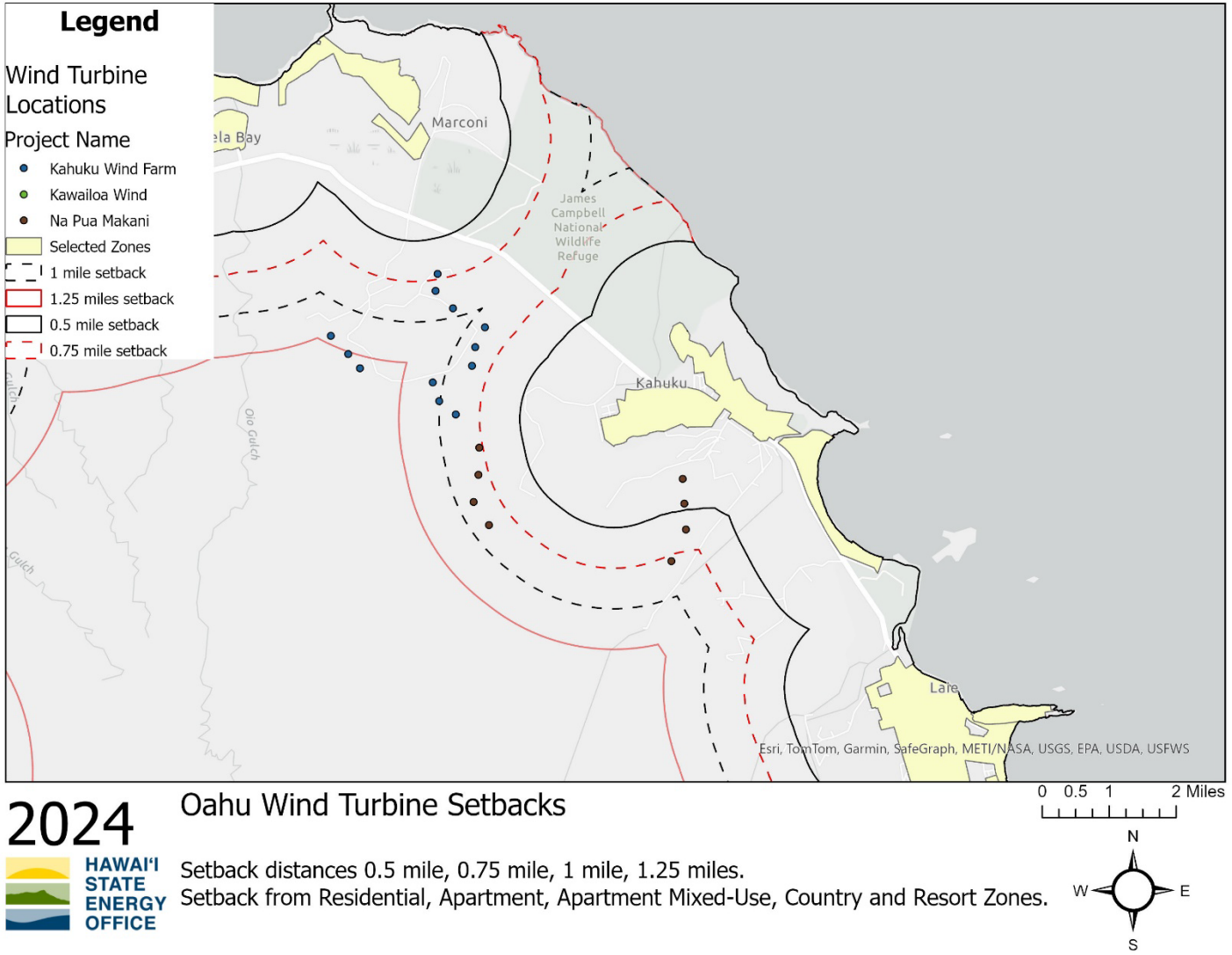
Noise:

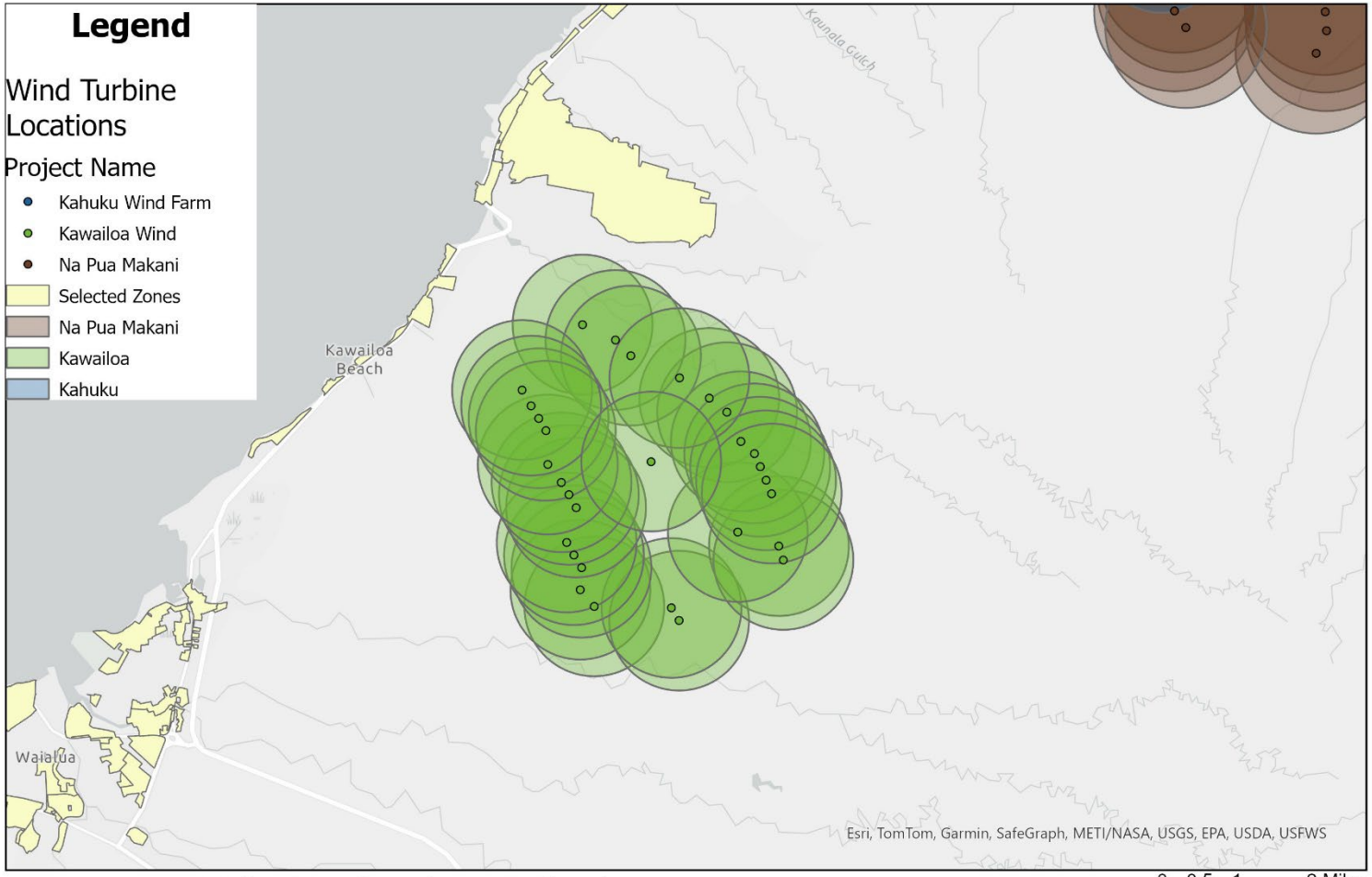
- World Health Organization Europe, Environmental Noise Guidelines for the European Region: https://iris.who.int/bitstream/handle/10665/279952/9789289053563-eng.pdf?sequence=1
- National Association of Regulatory Utility Commissioners, Wind Energy & Wind Park Siting and Zoning Best Practices and Guidance for States: https://pubs.naruc.org/pub.cfm?id=539BA6EE-2354-D714-5157-359DDD67CE7F
- Lawrence Berkeley National Laboratory, Wind turbine audibility and noise annoyance in a national U.S. survey: https://eta-publications.lbl.gov/sites/default/files/haac_et_al._2019_wind_turbine_audibility_and_noise_annoyance_in_a_national_u.s._survey.pdf

Wind turbine setbacks of 0.5 mile, 0.75 mile, 1 mile, and 1.25 miles (Kawailoa)



Wind turbine setbacks of 0.5 mile, 0.75 mile, 1 mile, and 1.25 miles (Kahuku and Na Pua Makani)





2024

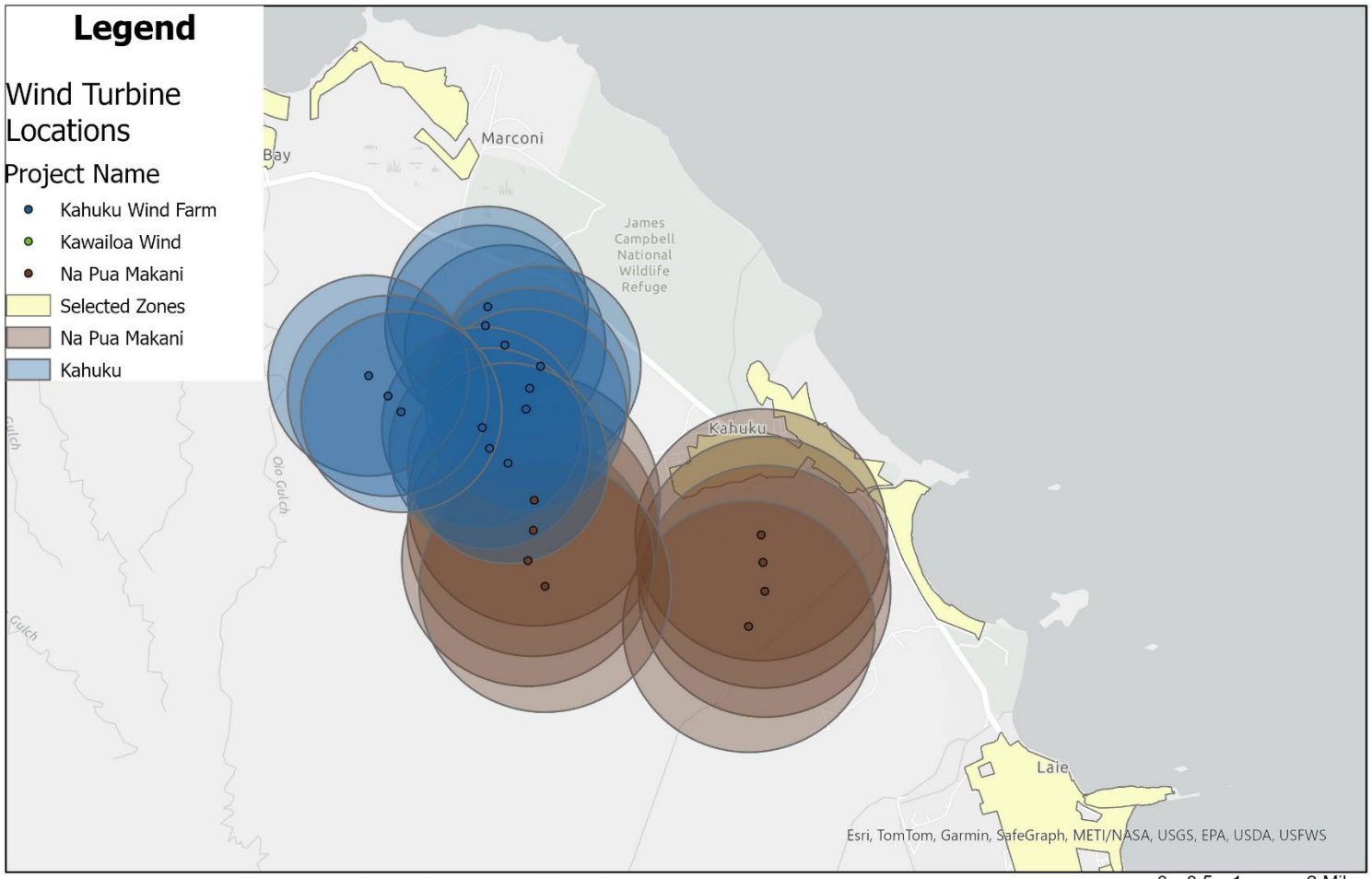
HAWAIʻI STATE ENERGY OFFICE

Oahu Wind Turbine Setbacks

Rings showing 7x turbine heights setbacks.
Selected zones are Residential, Apartment, Apartment Mixed-Use, Country and Resort Zones.

0 0.5 1 2 Miles

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2024

HAWAIʻI STATE ENERGY OFFICE

Oahu Wind Turbine Setbacks

Rings showing 7x turbine heights setbacks.
Selected zones are Residential, Apartment, Apartment Mixed-Use, Country and Resort Zones.

0 0.5 1 2 Miles

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Testimony by Garret Matsunami
Executive Vice President & Chief Operations Officer, Castle & Cooke Homes Hawai'i, Inc.
June 26, 2024

Honolulu City Council Committee on Planning & the Economy
Regarding:
BILL 64 (2023) FD1
ADDRESSING THE REGULATION OF USES THROUGHOUT CHAPTER 21,
REVISED ORDINANCES OF HONOLULU 2021 ("LAND USE ORDINANCE" OR "LUO")

SUPPORT WITH AMENDMENTS

Chair Esther Kia'āina, Vice Chair Radiant Cordero, and Members of the Committee on Planning and the Economy,

Thank you for the opportunity to submit testimony in support of Bill 64 (2023), FD1 with amendments relating to public, civic, and institutional uses. I would like to express our appreciation for the tremendous work that has gone into the proposed amendments by the Department of Planning and Permitting and the City Councilmembers for an important update and modernization of the Land Use Ordinance (LUO).

The LUO directs the planning, design, and decision making for the communities that we build. The proposed amendments in the latest draft of Bill 64 (2023), FD1 allows for community-based recreation centers in the Apartment Mixed-Use, Resort, Business, Business Mixed-Use districts. Additionally, Table 21-5.1 is amended to extend the use with a Conditional Use Permit (minor) in the Residential, Apartment, Preservation (only P-2) and Country districts.

We propose the following amendments:

1. Amend the Community-based recreation center use in Table 21-5.1 to add an asterisk (noting that development standards will apply) to all the Residential and Apartment zoning districts.

2. Amend Sec. 21-5.60-1(b) to allow for community-based recreation centers as a permitted use in all Residential and Apartment districts without the Conditional Use Permit (minor) when it is part of a master planned community and/or built to satisfy park dedication requirements.

The proposed amendment is as follows:

> (b) Community-based recreation center – standards. Community-based recreation centers are [~~only~~] a permitted use [~~in the P-2 zoning district~~] if the community-based recreation center is being used to satisfy park dedication requirements, or is a part of a master planned community. This would apply to the P-2, Residential, Apartment, Apartment Mixed-Use, Resort, Business, and Business Mixed-Use districts.

Mahalo for your consideration of my testimony. Should you have any questions, please feel free to contact me:

Garret Matsunami
Executive Vice President and Chief Operations Officer
Castle & Cooke Homes Hawaiʻi, Inc.
gmatsunami@castlecooke.com
Phone: 626-3625

Honolulu City Council
Committee on Planning and the Economy

Bill 64, FD1 (2023) – Land Use Ordinance Amendment Relating to Use Regulations

Hearing - June 27, 2024, 9:00 AM

Chair Kia'āina, Vice Chair Cordero and Members of the Committee,

Hawaii Clean Power Alliance ("HCPA") is a nonprofit alliance organized to advance and sustain the development of clean energy in Hawaii. Our goal is to support the state's policy goal of 100% renewable energy by 2045. We advocate for utility-scale renewable energy, which is critical to meeting the state's clean energy and carbon reduction goals.

HCPA supports Councilmember Say's proposed revisions (highlighted) to Bill064(23), CD1-6-13-24 regarding 21-5.60-6 Utility (C) (2) (E) and (F) (Pages 43-44), which provide:

(E) Large wind energy generation facilities must be set back as follows:

(i) From all property lines a minimum distance equal to the height of the facility; and

(ii) From the property lines of any zoning lot located in the country, residential, apartment, apartment mixed-use, or resort zoning districts a minimum distance of 10 times the height of the facility or 1.25 miles, whichever is greater;

provided that the setback requirements in this paragraph only apply to new large wind energy generation facilities and do not apply to the repair, maintenance, or component replacement of any existing facility.

For purposes of this paragraph, height is measured from the farthest vertical extension of the tower, which includes the height of the tower or its vertical support structure and the farthest vertical extension of the blade tip from the tower.

(F) With regard to occupied buildings in proximity to [~~the~~] any new facility that exist on the submission date of the new facility's conditional use permit application:

(i) No portion of a large wind energy facility may cause more than 10 hours per year or 10 minutes per day of shadow flicker on existing occupied buildings; and

(ii) During normal operation, facility noise levels may not exceed 10 dBA above ambient sound levels at existing occupied buildings.

Prior to the issuance of a conditional use permit for the new facility, the applicant shall submit to the department site-specific data (such as weather, topography, and turbine operating characteristics) using software models such as WindPro or iNoise, demonstrating conformity with shadow flicker and noise restrictions.

It is imperative that existing wind projects be able to continue to serve the public good and fulfill contractual obligations to operate and be permitted to conduct repairs, maintenance, and replacement of project components without being subject to newly adopted standards. The imposition of newly adopted land use standards, without an explicit statement that the new standards do not apply to existing wind projects, could have unintended consequences that should be avoided in the interest of the public. Councilmember Say's proposed amendments to CD1-6-13-24, dated June 18, 2024, and highlighted above, are necessary so that the City Council does not inadvertently impair the existing wind energy projects' ability to provide renewable energy necessary for Oahu, such as by preventing their ability to obtain financing.

As the Committee evaluates other proposed amendments, we also note that the reliance on the "nonconforming" statute in "Revised Ordinances of Honolulu ("ROH") § 21-4.110 Nonconformities" is flawed and fails to protect existing wind projects and the ability to repair, maintain or replace components. Existing facilities need to be conforming structures for financing purposes. If existing facilities are not exempt from

the new proposed setback requirements and, therefore, become nonconforming, existing wind projects will become unfinanceable. Component replacements factor in the millions of dollars, and without financing, existing facilities will be negatively impacted. Projects will be reticent to make substantial long-term investments in nonconforming structures for which they cannot obtain financing.

To the extent that other proposed amendments limit repairs, maintenance, and component replacement to 7% of the original height of the facility, we believe this is arbitrary and too restrictive based upon the replacement components available in the market today. Additionally, as technology evolves over time, there needs to be enough cushion to accommodate changes in technology that are certain to occur. We believe a 15% metric is reasonable and workable for the existing facilities. We note that this buffer is far smaller than the difference in height between the existing facilities today, which is approximately 35%. An exemption for existing facilities from the new setback requirements could be coupled with a requirement that any repair, maintenance, or component replacement would not increase the height of the facility by more than 15%.

The City and County of Honolulu's Bill 20-47 (2020) requires 100% renewable energy and promotes resiliency of Oahu communities. The State of Hawaii enacted Act 97 and Act 15, respectively, mandating achievement of a 100% renewable portfolio standard and carbon neutrality goal by 2045.

Wind energy projects provide a critical cornerstone towards meeting these goals and work in concert with solar energy projects to reduce the State's reliance on high-priced, imported fossil fuels. Currently, existing wind energy projects are capable of producing approximately 123 megawatts of energy, enough to supply power to approximately 45,000 homes annually and are an integral component of Oahu's existing diversified supply mix to ensure reliability and energy security at cost potentially significantly lower than other renewables.

Maintaining existing renewable energy facilities is more critical than ever, given the closure of the Coal Plant in September of 2022 which removed 20% of the lowest cost electricity supply to Oahu's households and businesses. Adopting new standards that could inadvertently curtail existing wind energy projects currently providing low cost, renewable energy could be a detrimental consequence to the public. Hawaii consumers already pay the highest energy bills in the nation, which will likely further increase due to the electric grid investments needed for wildfire mitigation. We must support renewable energy to eliminate fossil fuel price volatility and help drive costs down. As recently experienced earlier this year, all of Oahu was impacted by

unfortunate rolling blackouts from a lack of adequate energy production and reserve margins, as well as a lack of diversified mix of energy resources. Wind resources are essential electric generators that assist with keeping the lights on and avoiding blackouts.

Communities have many opportunities during numerous public approval processes to influence and shape energy facilities, including during the electric utility's RFP selection, which requires community outreach prior to selection and throughout the development process, the design of community benefits programs, the Public Utilities Commission Power Purchase Approval (PPA) Docket, and a variety of discretionary permit processes including Environmental Impact Statements, Habitat Conservation Plans, Conditional Use Permits (CUP), and other permitting processes. We encourage the Council to refrain from foreclosing any particular renewable energy through the Land Use Ordinance, especially given the numerous opportunities that provide for a community voice, and the benefits energy projects bring to communities, including good-paying local jobs, new sustaining community benefits programs, and more.

For the reasons noted above, HCPA respectfully urges that the Bill move forward with Councilmember Say's proposed revisions to Bill064(23), CD1-6-13-24 regarding 21-5.60-6 Utility (C) (2) (E) and (F), to clarify that existing wind energy facilities are exempt from the new proposed setback requirements so that they may continue as conforming and provide reliable and low-cost energy to the residents of Oahu, and not become nonconforming, which would severely limit if not eliminate financing options for existing projects. We request that the proposed ordinance explicitly state that the new standards only apply to new wind energy generation facilities.

Thank you for the opportunity to submit testimony regarding Bill 64, CD1 relating to large wind energy generating facilities.

Keep the North Shore Country

Honolulu Council Committee on Planning and the Economy
Regular Meeting, City Council Chamber,
June 27, 2024, 9:00 am

SUPPORT with COMMENTS for Bill 64 (2023)
– Kiaaina Proposed Amendments relating to 21-5.60(c)(2)

Aloha, Chair Kiaaina, Vice-Chair Cordeiro and Members.

"Too Big! Too Close!" was one of the rallying cries during the dramatic protests and traumatic arrest of more than 200 people during construction of Na Pua Makani. Massive wind turbines should never have been permitted so close to the residential community of Kahuku. Now is the time to amend the laws to prevent a similar tragedy from happening again.

Keep the North Shore Country supports provisions in Bill 64 intended to reduce the negative impacts of large industrial wind turbines on the residents of Honolulu and offers comments.

21-5.60(c)(2)(E) - Support
(i) The 1:1 ratio must be retained as the absolute minimum setback for existing and future turbines. There should be no exceptions, even for modifications to existing turbines.
(ii) The 10:1 setback ratio is appropriate for large turbines located near residential communities because the taller a turbine is, the more imposing it becomes at the same distance. We support the minimum distance of 1.25 miles as policy, and strongly support the 10:1 ratio.

21-5.60(c)(2)(F) - Comments
(i) It is outrageous that some Kahuku residents must regularly endure strobe effects from the spinning blades. There should be no tolerance for shadow flicker in future installations.

If, however, the Council believe some allowance must be made, then the annual limit should be reduced to 5 cumulative hours and the daily limit should not exceed 5 minutes. Imagine even five minutes of this hideous flicker on you at your home or office, every day.

If the Council decides to keep this paragraph, make sure both the daily and annual limits apply. i.e., "not more than 5 cumulative hours per year, and not more than 5 minutes on any day." The use of "or" could allow one of these criteria to be ignored.

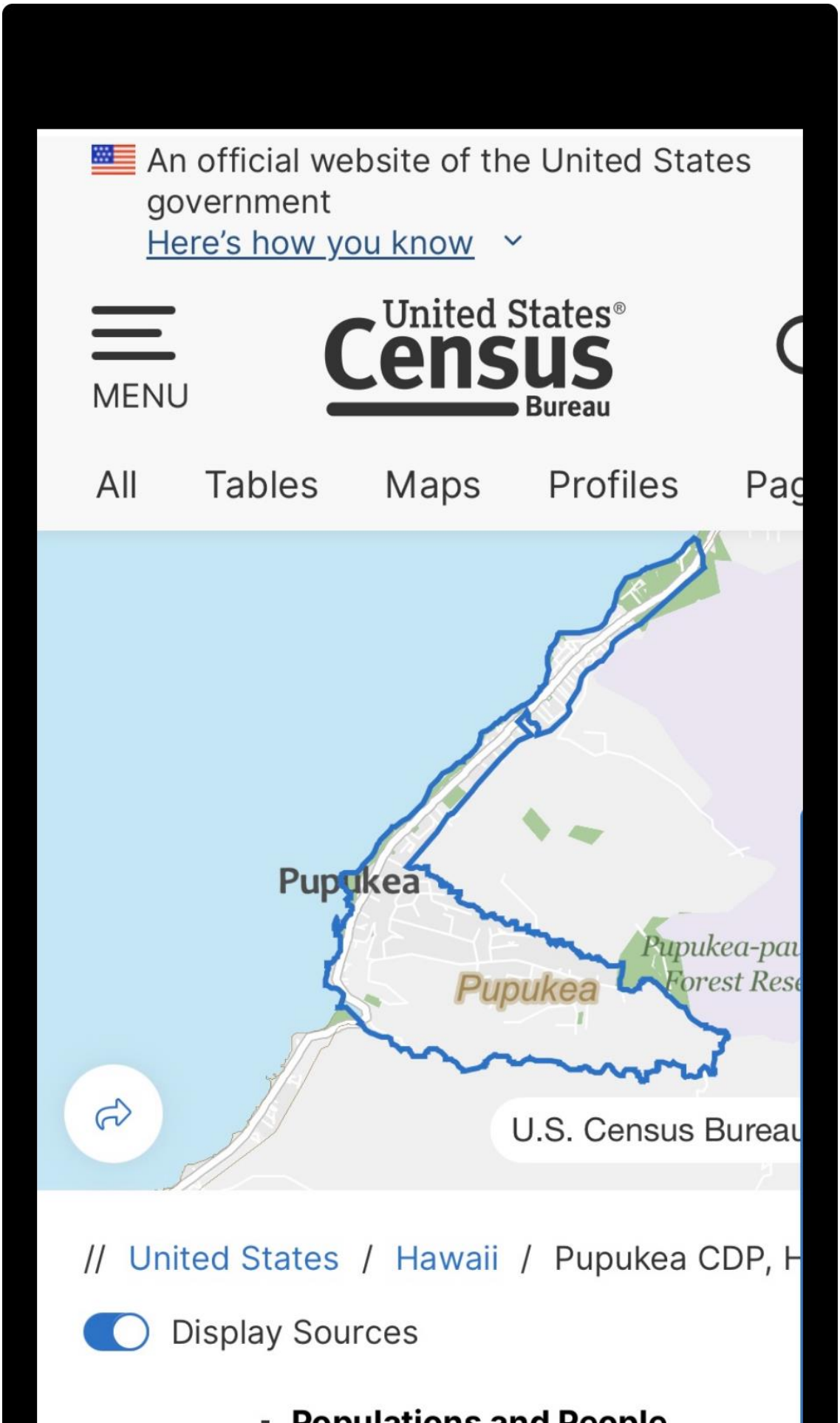
21-5.60(c)(2)(G) - OPPOSE
We strongly oppose the allowance of taller turbines without formal review, and we strongly oppose any exception to the 1:1 minimum setback standard. This section should be deleted.

Mahalo.

Dawn Bruns, Kaunala Resident, Sunset Beach, North Shore Oahu

June 27, 2024, for City Council Planning and the Economy Committee meeting Bill 64 (former Bill 10):

I am one of an estimated 1,000 residents of Sunset Beach who have been chronically experiencing insomnia and REM sleep deficit due to the wind turbines in Kahuku. Three miles from any wind turbine, our home is as far from a turbine as one can get at Sunset - other areas of our community are closer and more exposed than we are.


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Your adoption of the proposed 1.25-mile wind turbine setback distance and language disallowing modification in height or blade length of these too-big too-close wind turbines is your responsibility as a County with towns that do not have their own legislative self-determination.

Future Updates to Consider: As summarized below, the wind turbine low-frequency sound from the Kahuku turbines is a nuisance at Sunset Beach, three miles away, so we anticipate nighttime turbine shutdowns will, in the future, need to be added for distances farther than 1.25-miles.

Wind Turbine Sound Physics Background Information: The downstroke of the wind turbine blade, as it passes the tower, makes an audible (above 20 Hz) whooshing sound (audible more than one mile away) and each turbine blade tower pass also produces an inaudible air pressure pulse if approximately 1 Hz (detected by humans but not "audible"). This very low-frequency sound is measured with sensitive microphones or with air pressure sensors. The lower the frequency (Hz), the farther the sound travels – it also travels farther with the wind, and when the atmosphere is stable (such as when cool air sinks at night) with a low mixing height. The stronger the wind is, the faster the blade is moving, the higher the decibel level of the low-frequency sound pulse from the wind turbines. Harmonics of the fundamental frequency occur at multiples of the frequency produced by the turbine blade pass. The decibel scale is logarithmic – a 3 decibel increase in decibel level is a doubling in power (https://www.animations.physics.unsw.edu.au/jw/dB.htm).

Summary of Health Effects occurring miles from the wind turbines because of Wind Turbine Low-Frequency Sound:

At very high levels (levels normally only experienced occupationally, e.g., 100-decibels at 1 Hz tilt-rotor aircraft cockpits and unfortunately the levels occurring in Kahuku, low-frequency sound exposure limits are in hours rather than days; prolonged exposure to such high levels of low-frequency sound causes permanent thickening of tissues around the heart, changes in collagen related to thickening of arteries, epilepsy, birth defects, and other serious consequences regardless of the whether or not the person feels any discomfort (see references links below). Very high levels of low-frequency sound affect the town of Kahuku on most days because of the extremely close proximity of the wind turbines.

Chronic, prolonged nighttime exposure to low-frequency wind turbine pulses **above 55 decibels** causes an estimated 10-30% of the general population many miles from wind turbines (which is 500-1,500 of the 5,000 Sunset Beach residents) to experience significant disruptions to their use of their home by significantly impairing their health (whether they are aware of it or not), safety, peace, comfort, and convenience (one person per every one to three households). The most common problem caused by this dose of low-frequency wind turbine sound, documented in 93% of the patients that physician/PhD Nina Pierpont (2009) studied, was memory and concentration deficits (a known effect of lack of REM sleep). The second-most common problem, which affected 89% of the affected patients she studied, was noticeable chronic sleep disturbance. Chronic sleep disturbance appears to be the underlying cause of the fatigue (75%) and irritability

(76%) experienced by the patients she studied. Wind turbine-caused sleep disturbance has been well-documented. Wind turbine low-frequency sound sleep disturbance appears be the cause of the increased suicide rate Zou (2017) found during windy periods at distances spanning more than 25 km upwind and downwind from the 828 turbine installation events spanning 39 states between 2001 and 2013.

The sleep disturbance resolves immediately after the family moves away from the wind farm. Memory deficits usually resolve over a period of weeks to months after moving away from the wind farm. Learning and productivity deficits have affected our communities for more than a decade and we look very much forward to those turbines coming to their end because we are not moving away from our homes.

Not for this legislation, but for County executive branch who may be able to help us without legislation: During the remaining intervening years the wind turbines will operate, please allow us to park and sleep in our vehicles in county parks with restrooms away from the Kahuku turbines on windy nights. Sleeping in our cars to get away from the turbines carries its own public health and safety aspects that could be mitigated with these facilities. Renting a bedroom for sleeping away from the turbines when it's windy is preventing us from saving for retirement.

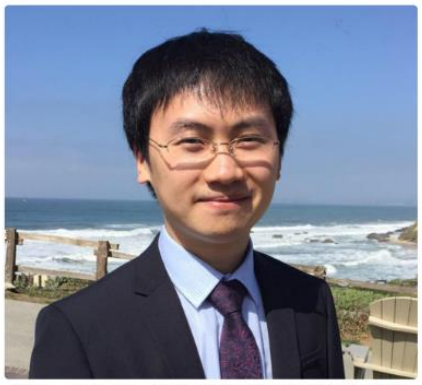
Annotated bibliography/links to most relevant literature (more wind turbine health effects peer-reviewed literature available my Google Drive Wind Turbine Noise Folder at https://drive.google.com/drive/folders/1x2bYkblTkTN_wmeht3eh8Row3tLpmkoO?usp=sharing:

1.) Zou 2020, The Impact of Wind Farms on Suicide, American Economic Journal: Economic Policy, in prep: Wind turbines increased suicide rates during windy periods in residents **more than 25 km (15 miles) upwind and downwind of turbines**. University of Oregon economics professor studied 828 turbine installation events spanning 39 states in the United States from 2001 to 2013. Sleep disturbance the likely cause. Wind turbine installation resulted in a total of 34,000 life years lost (LYL) due to increased suicides within a year after installation. To put this number in perspective, during the same one-year time window, the new wind capacity generated roughly 150 million megawatt hours (mWh) of clean energy; by comparison, based on existing estimates of the per mWh health cost of coal-generated electricity (Epstein et al., 2011), generating the same amount of electricity with coal would have resulted in around 53,000 life years lost due to air pollution.
https://static1.squarespace.com/static/56034c20e4b047f1e0c1bfca/t/5f612bb98bdfff6199b3a97c/1600203713573/turbine_zou202009.pdf

University of Illinois October 2017 Illinois

The impact of wind turbines on suicide

"Exploiting over 800 utility-scale wind turbine installation events in the United States from 2001-2013, I show robust evidence that wind farms lead to significant increases in suicide."



Eric Zou — Department of Economics, University of Illinois at Urbana-Champaign.

2.) Cape Bridgewater (2014-2015) This wind farm-funded study made measurements of low-frequency sound while residents documented their discomfort. Residents reported "severe impacts (significant changes in behavior, and/or inability to mitigate effect leading to psychological stress or physiological effects, e.g., regular sleep deprivation/awakening, loss of appetite, significant, medically definable harm" when **1 Hz wind turbine sound exceeded 58 decibels (72 decibels was the highest level studied)**, https://drive.google.com/drive/folders/1x2bYkblTkTN_wmeht3eh8Row3tLpmkoO?usp=sharing)

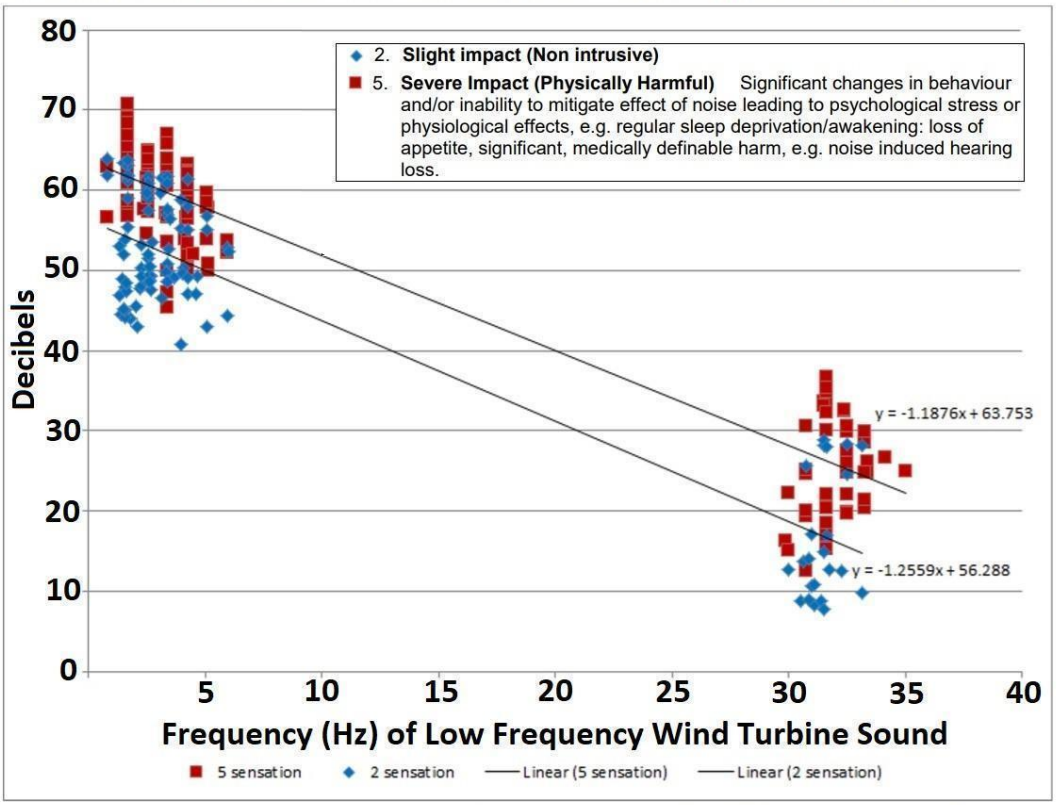


FIGURE 49: Human response to sound pressure of wind turbine signature and 31.5 Hz wind turbine amplitude modulation (both do not occur in the ambient environment) https://drive.google.com/open?id=180jlKaO_Z9pdWpQ64z8EFEh1vYdiqqrp

3.) Dr Alves Pereira (2019) University of Waterloo presentation (wind turbine low-frequency sound pressure is chronic – though exposure levels are usually below level of occupational exposure of military aircraft workers, biological effects to tissues are expected to be similar – thickening of the pericardial tissues around the heart, changes in collagen related to thickening of arteries, increased epilepsy, high blood pressure, heart conditions. In addition, low-frequency sound (**55-60 dB at 1 Hz**) caused residential structures to resonate (55-60 dB at around 10 Hz) – the resonance frequency of wood frame and concrete structural materials is around 10 Hz – in addition to low-frequency sound itself, the structure's resonance is often the significant cause of discomfort, causing the people to move away or sleep in the basement) https://livestream.com/itmsstudio/events/8781285/videos/196181579?fbclid=IwAR3pwiRLGzoHYKJqmEZJhjuIjCHehJIrgaP1QauPpGpDntVQNYuf6oHygLo

4.) Stepanov (2000) Biological effects of low frequency oscillations (Russian **75 dB limit for 2 Hz**. low-frequency sound for "living and public premises" based on exposure time,

p. 15. Russia has a lot of experience with low-frequency sound (as does NASA) due to the space programs. https://apps.dtic.mil/dtic/tr/fulltext/u2/a423963.pdf

Page 15 in Stepanov 2000 Biological effects of low frequency oscillations (Russia's low-frequency sound exposure limits) https://apps.dtic.mil/dtic/tr/fulltext/u2/a423963.pdf

Table 7 – Permissible infrasound levels at workplaces, living and public premises and populated areas

No.	Premise	Sound pressure levels, dB, in octaval bands of averaged geometric frequencies, Hz				General sound pressure level dB "Lin"
		2	4	8	16	
1.	Different jobs inside industrial premises and production areas:					
	- Different physical intensity jobs	100	95	90	85	100
	- Different intellectual emotional tension jobs	95	90	85	80	95
2.	Populated area	90	85	80	75	90
3.	Living and public premises	75	70	65	60	75

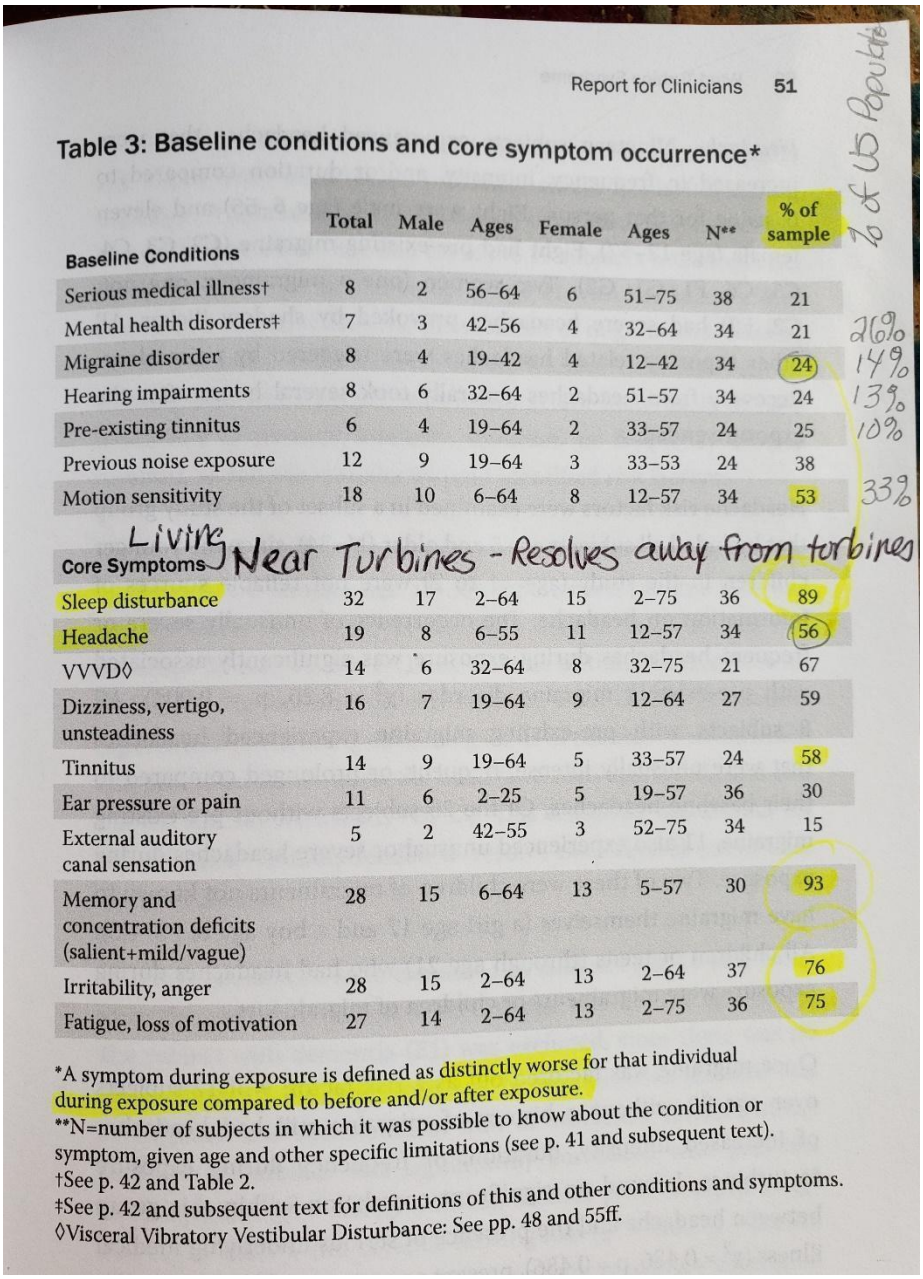
5.) The 65 dB ANSI threshold for low-frequency sound is based on effects of less-harmful traffic and aircraft noise. The physiological response to wind turbine sound is significantly greater than the physiological response to the same decibel sound from traffic and aircraft noise Schaffer 2016. Apparently, Hawaii doesn't even appear to have adopted the 65 dB ANSI low-frequency sound limit (let alone the Russian 75 dB limit to low-frequency sound, above) – adopting these general health-related restrictions to low-frequency noise (of any type, let alone the more harmful wind turbine pulses) seems like it should have been done already.

6.) Walker, Hessler, Rand, and Schomer (2012) Shirley Wind Farm, Wisconsin, in particular Appendix C, Rand Acoustics, pp 35-36, "intolerable" (headaches, nausea, dizziness, sleep interference) when wind turbines on (intolerable during the daytime at **73 decibels at 0.3 Hz fundamental frequency),** relief during the daytime at 3.5 miles away **(calculated to be approximately 61 dB at 0.3 Hz**).

7.) The 2.5 MW Clipper turbine, currently in use at the Kahuku Wind Farm has been declared a public health hazard by a Wisconsin county where residents 4.2 miles away are adversely affected and low-frequency sound pulses are detected more than 6 miles away (Wisconsin).

8.) Falmouth, Massachusetts wind turbines removed because they were a public health hazard Falmouth, MA Health Board 2012

9.) Pierpont (2009) Wind Turbine Syndrome book by physician, see "Report for Clinicians, Table 3 (Page 51) and Chapter 3, Case Histories, the raw data. (order $11 book, free shipping, from https://www.windturbinesyndrome.com/wind-turbine-syndrome/)



Report for Clinicians 51

Table 3: Baseline conditions and core symptom occurrence*

	Total	Male	Ages	Female	Ages	N**	% of sample
Baseline Conditions							
Serious medical illness†	8	2	56–64	6	51–75	38	21
Mental health disorders‡	7	3	42–56	4	32–64	34	21
Migraine disorder	8	4	19–42	4	12–42	34	24
Hearing impairments	8	6	32–64	2	51–57	34	24
Pre-existing tinnitus	6	4	19–64	2	33–57	24	25
Previous noise exposure	12	9	19–64	3	33–53	24	38
Motion sensitivity	18	10	6–64	8	12–57	34	53
Core Symptoms							
Sleep disturbance	32	17	2–64	15	2–75	36	89
Headache	19	8	6–55	11	12–57	34	56
VVVD◊	14	6	32–64	8	32–75	21	67
Dizziness, vertigo, unsteadiness	16	7	19–64	9	12–64	27	59
Tinnitus	14	9	19–64	5	33–57	24	58
Ear pressure or pain	11	6	2–25	5	19–57	36	30
External auditory canal sensation	5	2	42–55	3	52–75	34	15
Memory and concentration deficits (salient+mild/vague)	28	15	6–64	13	5–57	30	93
Irritability, anger	28	15	2–64	13	2–64	37	76
Fatigue, loss of motivation	27	14	2–64	13	2–75	36	75

*A symptom during exposure is defined as distinctly worse for that individual during exposure compared to before and/or after exposure.
**N=number of subjects in which it was possible to know about the condition or symptom, given age and other specific limitations (see p. 41 and subsequent text).
†See p. 42 and Table 2.
‡See p. 42 and subsequent text for definitions of this and other conditions and symptoms.
◊Visceral Vibratory Vestibular Disturbance: See pp. 48 and 55ff.

10.) Salt and Hullar 2010 ear response to low frequency sounds turbines https://pubmed.ncbi.nlm.nih.gov/20561575/

11.) Rand, R.W., S.E. Ambrose, and C.M.E. Krogh. 2011. Occupational Health and Industrial Wind Turbines: A Case Study. Bulletin of Science, Technology, and Society 31(5) 359-362. Excerpt from Page 361 - the author was personally affected when low

frequency sound measurements exceeded 60 dB.

> Salt and Hullar (2010) that certain structures in the inner ear are sensitive to infrasound and can be stimulated by low-frequency sounds at levels starting at 60 dBG, well below levels that can be heard. The stimulation is maximal at low background sound levels (e.g., indoors). The authors found that when the wind turbine modulating, pulsing infrasonic levels dropped below 60 dBG (nearest wind turbine OFF), there was improvement in health status.

12.) Ambrose, S.E., R.W. Rand, and C.M.E. Krogh. 2012. Wind turbine acoustic investigation: Infrasound and low-frequency noise – a case study. Bulletin of Science, Technology & Society 32(2): 128-141. In an email to me yesterday, Dr. Rand highlighted the following - apparently in addition to the ear structures detecting the low-frequency sound pressure pulses, the nerve fibers are directly responding. Dr. Rand is very approachable and helpful and he takes phone calls in case you are interested in speaking with an expert – his contact information is in his signature line:

> Adverse impacts were associated to acoustic pulsations exceeding the Salt threshold for OHC triggering. Of note, and please read carefully, "low-frequency sounds produce a *biological* amplitude modulation of nerve fiber responses to higher frequency stimuli. This is different from the amplitude modulation of sounds detected by a sound level meter."
>
> If you have any questions, please contact me.
>
> Thank you kindly,
> Rob
>
> --
> Robert W. Rand, Member ASA, INCE (Member Emeritus)
> Rand Acoustics
> Tel: 207-632-1215
> Fax: 206-339-3441
> Web: http://randacoustics.com
>
> On 3/11/21 5:16 PM, Dawn Bruns wrote:

13.) Punch and James 2016 – review of literature https://drive.google.com/file/d/10JQcxsMC0j6XIrTyLzaM_M1IYtAPBLox/view?usp=sharing

14.) Smith et al. A laboratory study on the effects of wind turbine noise on sleep: results of the polysomnographic WiTNES study. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7487868/

15.) Our Sunset Beach measurements indicate the Kahuku Wind Farm Clipper turbines are causing us to chronically experience 50-60 db of 0.8 hz sound. This 0.8 hz is exactly the frequency know to cause insomnia: https://onlinelibrary.wiley.com/share/XDN9ZM4P3EIUKHSGXYM5?target=10.1111/j.1365-2869.2012.01039.x No wonder we can't sleep.

Any study failing to detect the considerable reduction in REM sleep in 10-30% of humans does so by failing to measure the turbine sound levels in relation to REM sleep, or by using small sample sizes with no Power, and lumping adversely affected subjects with the unaffected study participants. Impacts to what I estimate to be over 1,000 Sunset Beach residents are considerable and intolerable.

If you want to use wind turbines as a long-term clean energy generation source that won't be shut down by public nuisance litigation, keep wind turbines 1.25 miles from residences, schools, and hospitals, and shut them down at night to avoid being shut down in court.

My Sunset Beach Measurements: It only cost me $3,000 to purchase low-frequency (full-spectrum) microphones with calibration and notebook computer interface – it's very easy to measure low-frequency wind turbine sounds http://www.smart-technologies.co.nz/rapley.html At our Sunset Beach house three miles from the Kahuku Wind Farm, the fundamental frequency from the 12 original 2.5 MW Clipper wind turbines of the Kahuku Wind Farm is 0.8 Hz and the first two harmonics, at 1.6 Hz and 2.4 Hz are shown in Figure 1.

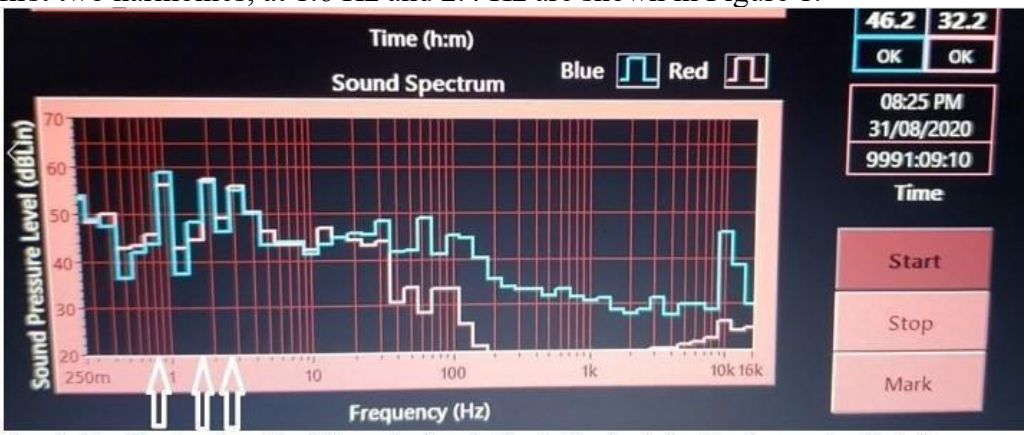


Figure A. Blue microphone Sunset Beach (three miles downwind from turbines), red microphone in garage "crypt" sleeping area (which does nothing to block 1 Hz, 2 Hz, and 3 Hz low-frequency air pressure pulses "low-frequency sound pressure" registering at 55 60 dB (see white arrows). Winds were 18 MPH, gusts to 26, from the east (92 degrees).

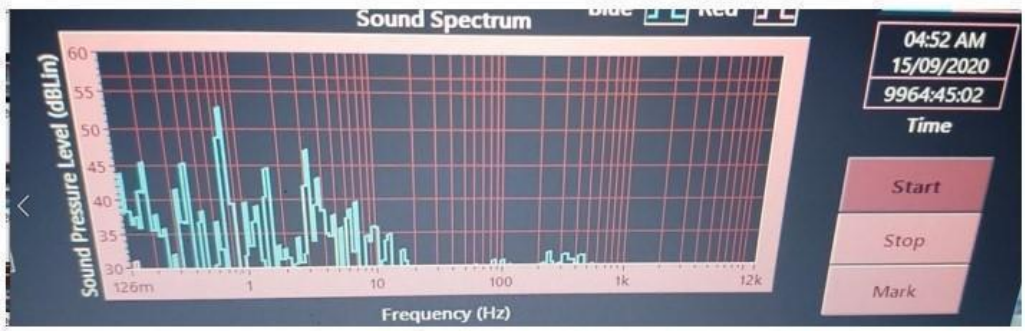


Figure B: Turbines on with light wind. This is the sound pressure level three miles downwind from Kahuku with about the lightest winds the turbines are allowed to operate during April through October nighttime (James Campbell Weather Station: winds 10, gusts to 13, 99-degrees/East wind). This 50-55 dB 1 Hz signal (and its 2 Hz and 3 Hz harmonics.

The difference in power between 55 decibels and 60 decibels is more than double the sound power because decibels are on a log scale. The decibel level of the 12 original 2.5 MW turbines in Kahuku, at 3 miles, in light 10 mph winds, is 53 decibels; the same turbines cause the low-frequency sound level to be 60 decibels here, three miles away, when wind is 18 mph (the

attenuation rate of 3 decibels per doubling of distance would mean it would be 57 decibels at 6 miles (REM sleep disturbance annoyance to a considerable number of residents, early cognitive decline from chronic, years, without enough REM sleep, relieved by periods traveling or sleeping away from the turbines); and it would be 54 decibels at 12 miles (so on windy nights, the safe setback distance would be farther than 5 miles).

When wind turbines are situated in high-wind areas such as Kahuku, low-frequency sound from the blades affects large areas of the island. Siting turbines in low-wind areas is much less problematic - my measurements 3 miles downwind from Kawailoa Wind Farm don't detect wind turbine sound, but the wind has always been light there when I've measured). Oahu is too small and densely populated to have industrial wind turbines operating at night in high-wind areas like Kahuku, Kailua, Diamondhead, and ridge lines, because high levels of low-frequency sound from large fast-spinning turbine blades prevents up to 30% of residents from getting needed REM sleep many miles away.

There is no difference between low-frequency wind turbine sound levels in versus outside our house, or in any other residential structure I've measured. The 0.8 hz sound is not stoppable (we've tried to construct a "crypt" to block the low-frequency sound with 10 layers of Sheetrock, tried industrial noise-cancelling earphones, earplugs, tried masking the sound with other frequencies (only the very large surf such as 16-second, 16-foot swells, produces sufficient decibel levels of white noise in the very low frequency range to mask out the wind turbine sound - my sleep is normal when surf is giant)). And we are unable to mitigate wind turbine sound-caused sleep loss, lack of rem sleep, and cognitive decline via prescription drugs, diet, exercise, meditation, binaural beats, PRMF, IR, and supplements. Even with two to three daily hours of concerted effort to do everything possible to get normal sleep, I fail, almost all nights in windy summer months and have to go sleep away from the turbines. When I sleep in my car or rent a room in Waialua and Mokuleia (being just as windy there as it is at our home), or elsewhere, away from these many and fast-spinning turbines, or on days the turbines are off, I wake refreshed and well-rested and accrue one day at a time of normal sleep. One night at a time, away, my brain can clear metabolites during rem sleep and I make gains in my cognition and short-term memory.

Tips for school children exposed to wind turbine sound: Bill 64's passage will not prevent us from having to cope with the turbines these next few years, so I feel for today's students. There really is no way to get needed sleep other than sleeping elsewhere, as noted above. But the following measures can help reduce the spinning turbines' learning deficit and migraine impacts: Because sounds below 20 hz are inaudible, the way to get the brain to get out of being entrained at 0.8 hz is when the normal brain frequencies "win". You can help the normal brain frequencies win using binaural beats or pulsed electromagnetic field (PEMF) at the frequencies associated with thinking and learning. I find a PEMF chair-mat https://higherdose.com/products/infrared-pemf-mat and binaural beats to help me think when it's windy when I work at my home. During the day, school children having difficulty concentrating and learning in the wind turbine low-frequency sound could try using headphones to listen to binaural beats in the Theta, Alpha, Beta, and Gamma frequencies (there are many apps for this. For years, I have relied on the Android phone app "Binaural Beats Therapy by Giorgio Regni". For iPhone there are also many including https://apps.apple.com/us/app/brainwave-sharp-mind/id308715234 and pre-recorded

tracks are abailable on Apple Music, and https://www.binauralbeatsmeditation.com/product/mind-master-pack/). It also helps to always (day and night when it's windy) play audible white noise nature sounds of rain or surf, or run fans or AC units that make audible sound. Students may get some easing of wind turbine-caused migraine using 10 hz frequencies on their PEMF or binaural beats devices, and if they're not already, try to get in with a neurologist to try different prerequisite things to qualify for the expensive prescriptions that work with few side effects like Pfizer Botox for migraine injections and, once they turn 18, CGRP receptor antibody injections (Merck, Lilly, etc., not without risks, but weighing the risks of not treating the migraines) (treatments cost a couple thousand dollars a month but are covered by HMSA and our other local insurance companies). Hang in there

I want to take this opportunity to be clear in providing the City and the wind developers with this notice that they can anticipate Sunset Beach residents will ensure the turbines are shut down at night via nuisance litigation if they operate at night beyond their current power purchase agreement dates. As the turbines have already resulted in harms to Sunset Beach residents in excess of $1 billion, we anticipate the wind farm would also experience bankruptcy in this litigation. I had been in ongoing contact with previous Kahuku Wind Farm owners to ensure they understood the harm they were doing to me and certainly now, a decade later, the wind farm owner would be well aware of the impacts their turbines are having to people like us, 3 miles downwind. Paying for (leveraging to get a loan for) brand new turbines given this nighttime shutdown for Sunset Beach resident sleep - I guess that's a business decision you'd want to pair with having a wind farm buyer lined up.

I forgive those who were involved in authorizing the 20-year operation of the Kahuku Wind Farm because I believe they were unaware of the effects turbines in such close proximity to towns would have. You now know better than to do it again.

Bill 64
WRITTEN TESTIMONY
Honolulu City Council, Committee on Planning & the Economy
Thursday, June 27, 2024
9:00 a.m.
CITY COUNCIL CHAMBER

Aloha Chair Kiaaina, Vice Chair Cordero, and members of the Committee on Planning & the Economy:

Mahalo for the opportunity to provide comments on Bill 64, which imposes much more stringent set back requirements on all horizontal-axis and ground-mounted vertical-axis wind machines (turbine generators) with a related capacity of 100 kilowatts or more.

Hawai‘i is a global leader in the transition to a 100% renewable future. With more than three decades of experience working in the state, AES Hawai‘i is committed to helping the state accelerate and responsibly transition toward a carbon-free energy future with a vast pipeline of renewable projects across the Hawaiian Islands. Currently, we have over 160 MW of solar, solar-plus-storage, and wind resources in operation and 198 MW in development or newly awarded. We've been working hard to deliver on our clean energy commitments to Hawai‘i, by providing solutions that work for Hawai‘i now and in the future.

Hawai‘i has one of the most ambitious renewable energy goals in the country, committing to 100% clean power by 2045. It will take innovative, diverse, and ambitious technologies to get there. The impacts of Bill 64 would severely restrict the amount of usable land for future wind power projects, as well as limit the ability to extend the life of current wind power projects. This bill would also create potential for O‘ahu to lose 123 MW of wind energy from its renewable energy portfolio. Hawai‘i will be unable to meet its renewable energy goals if we: (i) do not support further development of an array of renewable energy projects, and (ii) continue to seek policy changes that impose limitations on the portfolio of renewable opportunities available for use. As a state, it's critical that we stay nimble, open, and forward thinking to achieve our renewable goals.

While we understand that Bill 41 is intended to address the concerns of the affected communities with regards to wind energy projects, we would suggest replacing the last sentence of Section 2(a) in Bill 41 with the following language from the proposed CD2 version of Bill 10:

> The setback requirements only apply to new large wind energy generation facilities, and do not apply to the repair, maintenance, or component replacement of any existing facility covered by a power purchase contract with an electric public utility during the term of the contract (and any renewal or extension thereof).

Please do not hesitate to contact me if you have any questions or if I may be of assistance in any way.

Mahalo for your consideration.



Sandra Larsen
AES Hawai‘i President

Bill 64
WRITTEN TESTIMONY
Honolulu City Council, Committee on Planning & the Economy
Thursday, June 27, 2024
9:00 a.m.
CITY COUNCIL CHAMBER

Aloha Chair Kiaaina, Vice Chair Cordero, and members of the Committee on Zoning:

Mahalo for the opportunity to provide comments on Bill 64, which imposes much more stringent set back requirements on all horizontal-axis and ground-mounted vertical-axis wind machines (turbine generators) with a related capacity of 100 kilowatts or more.

Hawai‘i is a global leader in the transition to a 100% renewable future. With more than three decades of experience working in the state, AES Hawai‘i is committed to helping the state accelerate and responsibly transition toward a carbon-free energy future with a vast pipeline of renewable projects across the Hawaiian Islands. Currently, we have over 160 MW of solar, solar-plus-storage, and wind resources in operation and 198 MW in development or newly awarded. We've been working hard to deliver on our clean energy commitments to Hawai‘i, by providing solutions that work for Hawai‘i now and in the future.

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While we understand the concerns, AES Hawaii has worked diligently to alleviate impact within the community. This includes the donation of funds for community improvements, and continuing to keep open lines of communication with our neighbors.

Please do not hesitate to contact me if you have any questions or if I may be of assistance in any way.

Mahalo for your consideration.



Sandra Larsen
AES Hawai‘i President