UNIVERSITY OF HAWAIʻI SYSTEM
Legislative Testimony

Testimony Presented Before the
Senate Committee on Energy, Economic Development, and Tourism
Friday, March 13, 2020 at 2:45 p.m.
By
Jerris Hedges, MD, Dean
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Department of Communication Sciences and Disorders
John A. Burns School of Medicine
And
Michael Bruno, PhD
Provost
University of Hawaiʻi at Mānoa

HB 2188 HD1 – RELATING TO WIND ENERGY FACILITIES

Chair Wakai, Vice Chair Taniguchi, and members of the committee:

Thank you for this opportunity to testify in **support** of HB 2118 HD1, which, among other features, requests that the John A. Burns School of Medicine (JABSOM) conduct a study on the effects of noise production by wind energy facilities on the health of residents and students.

The Department of Communication Sciences and Disorders in JABSOM at the University of Hawaiʻi and administrative leadership in the John A. Burns School of Medicine fully support the proposed study to evaluate the risk of hearing loss and reported relevant health issues (e.g., noise annoyance, sleep disturbance, tinnitus) in an adequate sample of residents in multiple appropriately selected Hawaiʻi communities exposed to wind turbine noise. Findings based on analysis of data collected through the study will contribute importantly to evidence-based education of residents in communities potentially affected by wind farm development. Findings of the study will also provide guidance for planning purposes to the state of Hawaiʻi and its policymakers involved in decisions regarding proximity of wind turbines to homes and other occupied areas.

The three co-investigators in the proposed study, Drs. James W. Hall III, Samantha Kleindienst Robler, and Henry L. Lew, are faculty members in the Department of Communication Sciences and Disorders. Each is available and prepared to participate in the study as described in the formal proposal pending approval of the requested funding of $100,700.

Again, thank you for this opportunity to testify in support for HB 2188 HD1, provided that its passage does not impact the priorities in the University of Hawaiʻi Board of Regents' Approved Budget.

HAWAII STATE ENERGY OFFICE
STATE OF HAWAII

DAVID Y. IGE
GOVERNOR

SCOTT J. GLENN
CHIEF ENERGY OFFICER

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Testimony of
SCOTT J. GLENN, Chief Energy Officer

before the
SENATE COMMITTEE ON ENERGY, ECONOMIC DEVELOPMENT, AND TOURISM
Friday, March 13, 2020
2:45 PM
State Capitol, Conference Room 414

Comments in consideration of
HB 2188, HD1
RELATING TO WIND ENERGY FACILITIES.

Chair Wakai, Vice Chair Taniguchi, and Members of the Committee, the Hawaii State Energy Office (HSEO) offers comments on HB 2188, HD1, which establishes a one-mile setback from the nearest existing farm dwelling or residential dwelling unit for certain wind energy facilities in agricultural districts and requires a study on the effects of noise production by wind energy facilities on the health of residents and students.

HSEO's comments are guided by its mission to promote energy efficiency, renewable energy, energy resiliency, and clean transportation to help achieve a decarbonized economy. HSEO supports wind turbine setback requirements that balance human health, ecological, environmental, cultural, and economic considerations. Determining an appropriate setback requires considerable thought, information analysis, and stakeholder input. HSEO prefers a setback requirement for wind turbines that is set at a ratio of the height of the turbines (an approach taken in several other states) to more appropriately provide community protections while enabling wind energy to contribute towards Hawaii's renewable energy mandate. HSEO notes that three counties in Hawaii – the City and County of Honolulu, the County of Maui, and the County of Hawaii – require wind turbines in certain zones to be set back from the property line at least as far as the height of the turbines, or a 1:1 setback. Other ratios are used in different areas (examples of 1, 1.1, 1.5, 2.5, 3.1, and 5.5 are provided in the attachment). HSEO does not have a specific ratio to suggest at this time, but acknowledges that a 1:1 setback is likely insufficient in areas that are not vacant and notes special consideration is needed to account for proximity to homes, schools, emergency storm shelters, other occupied areas, important infrastructure, and less tangible local values of importance to communities.

HSEO believes that this is an important issue and looks forward to the discussion of appropriate setback requirements. A compilation of wind energy facility siting requirements in

other states, prepared by the National Conference of State Legislatures in 2016, is attached to this testimony for your information.[1]

Regarding the noise effects study in HD1, HSEO takes seriously the human and environmental health concerns expressed by Hawaii communities near large wind turbines. HSEO supports all efforts that will help inform and address the human and environmental impacts from large-scale renewable energy projects, especially to more sensitive populations such as children. HSEO recommends that the bill provide more specifics on the pool of "noise-exposed residents" from whom data would be collected. HSEO supports section 2 of the bill provided that its passage does not replace or adversely impact priorities indicated in the executive budget. HSEO defers to the relevant agencies on administration and implementation.

Generally, HSEO supports effective processes for communities to meaningfully participate in the planning of larger renewable energy projects with potential to negatively impact nearby communities.

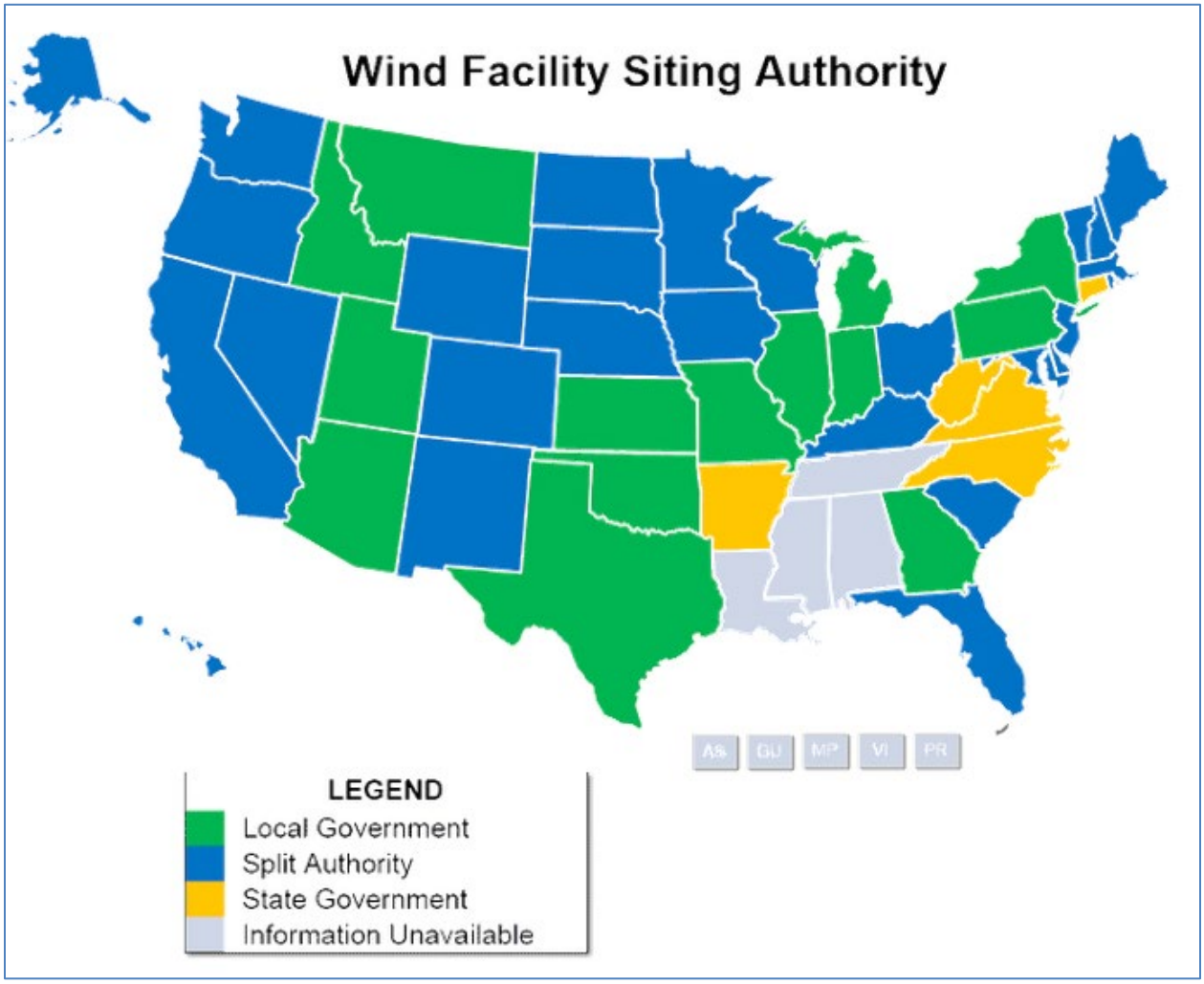
Thank you for the opportunity to testify.

[1] National Conference of State Legislatures, https://www.ncsl.org/research/energy/state-wind-energy-siting.aspx

National Conference of State Legislators
State Legislative Approaches to Wind Energy Facility Siting
Jesse Heibel and Jocelyn Durkay 11/1/2016

States are recognizing the benefits of wind energy as a renewable energy resource that can diversify energy portfolios, meet renewable portfolio standards and reduce greenhouse gas emissions. As wind continues to expand, wind turbines are getting closer to more property owners, leading to contentious debates in some communities. To address this situation, many states have investigated statewide wind siting requirements or guidelines to bring clarity and uniformity to the siting process, rather than leaving siting entirely in the hands of local jurisdictions. States approaches to wind facility siting vary widely but can be categorized by two general approaches.

- The first approach designates siting authority to state agencies—including public utility commissions or siting councils and boards—often in conjunction with local authorities. A majority of states that adopt this approach may limit local authority through state law, such as setting generating capacity thresholds before state regulatory involvement is authorized. In 25 states, the siting of wind facilities require approval by state or local government bodies depending on size while five states reserve the power to regulate the siting of all wind facilities, regardless of size.



- The second approach, most often found in "home rule" or "local control" states, cedes siting authority to local governments. In these states local governments have substantial autonomy to regulate the siting of most wind facilities through their traditional land use authority. Local governments in 20 states have substantial autonomy to regulate the siting of wind facilities, with 15 of those states having no process or legislation specifically addressing wind facilities.

In the absence of state legislation defining local government powers, the development of wind facility projects may be stifled due to an unintended regulatory maze created by a lack of uniform procedures and standards. Several states have addressed this issue by assigning siting responsibilities to local governments with specified content and limits to local regulation. For example, Connecticut, New Hampshire and Ohio have legislatively-directed siting boards and commissions to develop statewide regulations for wind siting that include standards for setbacks, wildlife, noise, decommissioning, ice throw and other issues.

Setback Requirements

States take several approaches to establishing a "setback" for wind turbines, which defines the minimum distance between wind turbines and neighboring structures or property lines. These differences largely depend on whether—and to what degree—state government is involved in the wind energy siting. Of the 20 states with substantial local autonomy, only two states have established a statewide setback. Additionally, 15 of those states have no statewide process or legislation specifically addressing wind facilities, and therefore have no statewide setback requirements. Localities, however, can adopt setback requirements. Dekalb County, Alabama, for example, requires turbines to be setback at least 2,500 feet from neighboring and adjacent property lines, as well as setback 1.5 times the height of the tower from any overhead powerlines and .5 times the height of the tower for underground powerlines (Ala. Code §45-25-260.05). In contrast, four states reserve all siting authority for wind energy and an additional 24 states have both state and local siting provisions. Of these states, 12 have statewide setback requirements for wind turbines and one state clarifies that any locally-established setback cannot be an unreasonable restriction on wind energy development.

Setbacks are calculated based on the height of the tower or the turbine (which includes the height of the blade) and often measured against adjacent property lines or structures.

Another tool states have employed for local government guidance on wind siting decisions are model ordinances. Ten states have adopted some form of model ordinances which details local land use regulation, considerations in siting wind facilities and examples of other local government actions.

State	Statute	Summary
Alabama		According to the American Wind Energy Association, there is no installed capacity in Alabama. NCSL was unable to locate statutory authority for statewide wind energy siting. State legislation has been adopted for DeKalb County wind energy siting.
Alaska		The Regulatory Commission of Alaska issues a Certificate of Convenience and Necessity to any utility or independent power producer serving 10 or more people. Depending on site land ownership and environmental impacts, permits for turbine siting are handled by some cities and municipalities or the Alaska Department of Natural Resources and Division of Wildlife.

Arizona	Ariz. Rev. Stat. Ann. §9-461 et seq.; §11-801 et seq.	No state level approval is needed for siting wind facilities. Wind facilities must obtain siting and zoning approvals at the municipal or county level.
Arkansas	Ark. Stat. Ann. §23-3-201 et seq.	Wind siting is conducted at the local level of government. Utility facilities providing a public service are authorized by the Public Service Commission
California	Cal. Government Code §65100-65107; §65893-65899; Cal. Public Resource Code §2100-21006	Land-use decisions, including wind siting, are determined by local governments. Additionally, the California Environmental Quality Act requires local governments to analyze wind generator environmental impacts. Counties are authorized to adopt an ordinance that provides for the installation of wind generators 5 megawatts (MW) or smaller, conditioned on maximum restrictions for tower high, parcel size, setbacks, public notice and noise level. While localities can adopt wind siting ordinances, the state has established that minimum setbacks can be no further from the property line than the system height. Further setbacks are authorized to comply with fire setback requirements. Additionally, the state has an extensive siting process for wind turbines and nearby military facilities.
Colorado	Colo. Rev. Stat.§30-28-106 (3)(a)(VI); §40-5-101; §29-20-108 (2)	In Colorado, both the local and state government permit the siting of wind facilities. The Public Utilities Commission issues a certificate before the construction of new facilities, which requires local permits to be obtained. If local governments deny a permit for a wind facility there is an option to appeal to the PUC.
Connecticut	Conn. Gen. Stat. Ann. § 16-50j; Connecticut Siting Council Wind Regulations	The Connecticut Siting Council has promulgated wind siting regulations that include provisions addressing tower height, distance, flicker, decommissioning, ice throw, noise and public hearings. The Siting Council also provides a certificate for all renewable electricity generating facilities 1 MW or larger. The legislatively-established Connecticut Siting Council has developed siting regulations for facilities 1 megawatt (MW) or larger. On setbacks specifically, facilities greater than 65 MW in total capacity must comply with the greater of 2.5 times the height of the turbine or the manufacturer's recommended setback from any property lines. Facilities less than 65 MW must comply with the greater of 1.5 times the height of the turbine or the manufacturer's recommended setback from any property lines. Note: facilities 65 MW in capacity are not designated in either category. Provides exceptions for this under specific circumstances.
Delaware	Del. Code Ann. tit. 29 §80-8060	The state prohibits local governments from passing restrictions that prohibit land owners from using wind systems on residential properties. Otherwise wind power generation is governed by local zoning ordinances. Establishes that setbacks are 1.0 times the height of the turbine (defined as the tower plus the length of one blade).

Florida	Fla. Stat. Ann. §403.501-.518	Florida does not have a statewide siting authority for wind facilities. Local governments have authority over most siting decisions, but the Siting Coordination Office has broad authority for certifications of power generating facilities over 75 MW.
Georgia	Ga. Code Ann. § 36-70-1 et seq.	Georgia has no specific siting authority for wind generation. Local governments have primary authority over most types of siting.
Hawaii	Hawaii Rev. Stat. §201N	In Hawaii, local government sites most wind facilities. The state authorizes renewable energy facilities, including wind, 5 MW or larger to pursue a streamlined permitting process through state agencies.
Idaho	Idaho Code §67-6504	Idaho has no specific siting authority for wind at the state level. Local governments, through city councils or county commissioners, have siting authority.
Illinois	Ill. Rev. Stat. ch. 55 §5/5-12020 (County); Ill. Rev. Stat. ch. 65 §5/11-13-26 (Municipality)	Illinois has no specific siting authority for wind at the state level. A county cannot require a wind tower or other renewable energy system that is used exclusively by an end user to be setback more than 1.1 times the height of the renewable energy system from the end user's property line.
Indiana	Ind. Code §36-7-1	Indiana has no specific siting authority for wind facilities at the state level. Local governments have authority to regulate siting.
Iowa	Iowa Code Ann. §476A.1 et seq.	In Iowa, zoning and permitting for facilities greater than 25 MW is under the jurisdiction of the Iowa Utilities Board. Facilities less than 25 MW are sited on a county or municipality level.
Kansas	Kan. Stat. Ann. §12-741 et seq.; Kansas Energy Council Handbook	In Kansas, local governments have authority to regulate wind siting through the state's planning and zoning statutes. The Kansas Energy Council has produced a handbook for local governments that includes regulations, considerations and examples.
Kentucky	Ky. Rev. Stat. §278.700 et seq.	Approval by the Kentucky State Board on Electric Generation and Siting or Public Service Commission is required for generating facilities that sell wholesale power with a generating capacity of 10 MW or greater. Facilities with lower generating capacity are sited on the local level. Requires facilities to be at least 1,000 feet from the property boundary of an adjoining property owner and 2,000 feet from any residential neighborhood, school, hospital or nursing home facility.
Louisiana	La. Rev. Stat. Ann. §33:101 et seq.	According to the American Wind Energy Association, there is no installed capacity in Louisiana. NCSL was unable to locate statutory authority for wind energy siting.
Maine	Me. Rev. Stat. Ann. tit. 38, §481-490; tit. 35A§3401-04; §3451-59 ; Maine Model Wind Facility Ordinance	All municipalities have the power to pass ordinances to regulate wind power projects within their boundaries. The Department of Environmental Protection regulates the construction of developments with a footprint exceeding 20 acres or over 10 MW generation capacity. The Maine Wind Energy Act also provides for expedited siting. It authorizes both the Maine Department of Environmental Protection and Land Use Regulation Commission to be the permitting authority at the state level only when there is no

		local, incorporated municipal government in the area. Maine has developed a model zoning law for local governments.
Maryland	Md. Public Utility Code §7-207-208	In Maryland, local governments have authority to regulate siting for wind facilities 70 MW or less, subject to limited interconnection approval from the Public Service Commission. Wind facilities greater than 70 MW require a Certificate of Public Convenience and Necessity from the Public Service Commission.
Massachusetts	Mass. Ge. Laws Ann. ch. 164, §69H; Massachusetts Model Bylaw	The Energy Facilities Siting Board regulates construction of power plants greater than 100 MW. Smaller energy projects are regulated by local governments. The State has developed model zoning by-laws that municipalities can enact.
Michigan	Mich. Comp. Laws §125.3101 et seq.; Model Wind Ordinance	Local governments manage land use and several have adopted ordinances regarding the siting of wind power specifically. The state has developed a model zoning law for local governments.
Minnesota	Minn. Stat. §216F; Minn. Admin. Rules §7854.0200	The Minnesota Public Utility Commission has permitting authority for wind facilities greater than 5 MW. Counties have siting authority for facilities 5 MW or less but can assume responsibility for facilities up to 25 MW subject to the PUC's specific set of requirements for siting.
Mississippi	Miss. Code Ann. §17-1-1 et seq.	According to the American Wind Energy Association, there is no installed capacity in Mississippi. NCSL was unable to locate statutory authority for wind energy siting.
Missouri	Mo. Rev. Stat. §89.010 et seq.	Local governments have authority in setting siting requirements for wind energy facilities.
Montana	Mont. Code Ann. §70-20; §76-2-201; §76-2-301	For most purposes local governments in Montana control zoning. The Department of Environmental Quality may regulate certain components of siting, such as transmission.
Nebraska	Neb. Rev. Stat. §70-1001; §66-913.	The local utility district must first approve wind power facilities in Nebraska. If the project is over 70 MW it is must also receive Power Review Board approval. Recent legislation modified this requirement for private developers to require notification, not receive approval, of projects. Local governments have authority to include considerations for the encouragement of wind energy in their zoning regulations and ordinances.
Nevada	Nev. Rev. Stat. Ann. §704.820 through 704.900; §278.250(2)(n); § 278.02077	Nevada requires local governments to promote wind systems and prohibit restrictions of private property owners from utilizing wind energy. The Public Utilities Commission issues permits for the construction of electrical facilities, including renewable energy generating facilities greater than 70 MW. States that a governing body shall not adopt regulations and ordinances that unreasonably restrict the development of wind energy.
New Hampshire	N.H. Rev. Stat. Ann. §162-H; §674:63	The New Hampshire Siting Evaluation Committee provides a certificate for energy facilities greater than 30 MW. Developers of facilities between 30 MW and 5 MW can opt-in to the SEC process to preempt local jurisdiction. All other wind facilities fall under local

		jurisdiction. State law also prohibits municipalities from adopting unreasonable ordinances or regulations relating to small wind generation. Prohibits localities from adopting ordinances that require setbacks more than 150 percent of the system height from property boundaries. Allows for individual project circumstances to be considered in modifying this requirement.
New Jersey	N.J. Rev. Stat. §40:55D-4; 55D-7; 55D-66.12; 55D-70(d).	Wind developers can gain variances to local zoning ordinances, as wind generation is defined as having an "inherently beneficial use." Local governments cannot adopt ordinances regulating small wind energy systems that unreasonably limit wind generation development. State laws authorize municipalities to adopt local ordinances, so long as they do not unreasonably limit or hinder small wind energy systems. Localities cannot restrict tower or system height through a generic ordinance or regulation that does not specifically address allowable tower height or system height of a small wind energy system. Localities cannot establish setbacks greater than 150 percent of the system height. This distance serves as the standard setback in absence of a local ordinance stating otherwise.
New Mexico	N.M. Stat. Ann. §62-9-3; §3-21-1	The New Mexico Public Regulation Commission has jurisdiction over electricity generating projects over 30 MW. Counties regulate wind power siting through zoning but can be preempted by the commission if finds it unreasonable restrictive.
New York	N.Y. Pub. Ser. Law §160; N.Y. Energy Law §21-106; Wind Energy Model Ordinance	Local governments manage land use, including wind energy development, through zoning permits or enacting wind power specific provisions in municipal code. Siting decisions are subject to environmental review regulations required by state law. The State Public Service Commission is responsible for approval of construction of facilities over 25 MW. The state has developed a model ordinance for local governments looking to site wind generation facilities.
North Carolina	N.C. Gen. Stat. §143-215.115	North Carolina law prohibits the construction or operation of a wind energy facility without a permit from the Department of Environment and Natural Resources. Establishes that turbines be setback at least .5 miles from the boundary of an adjacent property owner. Additionally, the state has an extensive siting process for wind turbines and nearby military facilities.
North Dakota	N.D. Cent. Code §49-22-16	North Dakota Public Service Commission regulates siting of wind power facilities greater than 500 kilowatts (kW) by providing a Certificate of Site Compatibility. This is the sole permit needed but cannot supersede local governments regulations or zoning.

Ohio	Ohio Rev. Code Ann. §4906.13; §4906.20	Ohio Power Siting Board preempts local jurisdiction and provides a certificate of environmental compatibility and public need for the construction of an "economically significant wind farm" (between 5-50 MW). Smaller facilities are subject to local jurisdiction. For "economically significant wind farms" (between 5 and 50 MW) setbacks must be at least 1.1 times the total height of the turbine, measured from the base to the tip of the highest blade, and at least 1,125 feet from a property line, measured from the turbine's blade nearest to the adjacent property. Wind facilities 50 MW in capacity or greater are designated as "major utility facilities" and subject to broader siting regulations.
Oklahoma	Okla. Stat. tit. 17 §160.11 through §160.19	In Oklahoma, siting for wind development is determined by local governments. A notice of intent must be filed with the state Corporation Commission. Aspects such as decommissioning, royalty payments and liability insurance are governed by the state. The state has setback requirements for facilities located near airports.
Oregon	Or. Rev. Stat. §469.300 through §469.560; Model Ordinance	Siting for wind generating facilities less than 35 MW are regulated by zoning laws of local government. Oregon's Energy Facility Siting Council has approval of site certificates for wind power plants 35 MW or greater. The state has developed a model ordinance for local governments.
Pennsylvania	Pa. Cons. Stat. tit. 53 §101 et seq.; Model Ordinance	Local government has the authority to plan and regulate land use including the siting of wind generation facilities. The state has developed a model ordinance for local governments
Rhode Island	R.I. Gen Laws §42-98-1; §45-24-27 et seq.	Rhode Island Energy Facility Siting Board licenses energy facilities 40 MW or greater. Local governments regulate the siting of smaller facilities.
South Carolina	S.C. Code Ann. §58-33-10 et seq.; §6-29-310	The Public Utility Commission has licensing power over utility facilities greater than 75 MW. Local governments regulate the siting of smaller facilities.
South Dakota	S.D. Codified Laws Ann. §49-41B-2; 41B-4; 41B-25; 41B-35(3); §43-13-21 through 24; Model Ordinance	In South Dakota, any construction of a wind facility greater than 5 MW must give notice to the Public Utility Commission of the facility's location, size and interconnection. The PUC has siting authority of facilities greater than 100 MW. Siting for facilities less than 100 MW are outside of the Commission's authority and instead lie with local governments. The state has developed a model ordinance for local governments. Turbines with towers smaller than 75 feet must be set back at least 1.1 times the height of the tower from any surrounding property line. All larger turbines must be set back at least 500 feet or 1.1 times the height of the tower, whichever is greater, from any surrounding property line.
Tennessee		According to the American Wind Energy Association, all installed wind capacity in Tennessee is contracted through the federally-

		owned Tennessee Valley Authority. NCSL was unable locate to statutory authority for wind energy siting.
Texas	Tex. Local Govt. Code Ann. §7-A-211; §7-B-231-A	In Texas, all zoning and siting is left to local government.
Utah	Utah Code Ann. §10-9a-501; §17-27a-501; Model Wind Ordinance	In Utah, all zoning and siting is left to local governments. The state has developed a model ordinance for local governments
Vermont	Vt. Stat. Ann. tit. 30 §248(2)(A); tit. 24 §4412(6)	The Vermont Public Service Board provides a certificate for all wind power facilities except where it is operated solely for on-site use. Municipalities and regional planning councils have the opportunity to engage in siting decisions with the Public Service Board. Local governments are required to regulate the height of wind turbines with blades less than 20 feet in diameter.
Virginia	Va. Code §56-265.1 to .9; §67.103	The Virginia State Corporation Commission provides a certificate for the siting of all new utility facilities including wind. State statute also establishes requirements for any local wind facility ordinances.
Washington	Wash. Rev. Code §80.50.020; §80.50.060	The Energy Facility Site Evaluation Council has regulatory authority over energy facilities greater than 350 MW and any sized renewable energy facilities that choose to participate in the EFSEC review process. Local governments permit smaller projects and those that choose not to go through the EFSEC review.
Washington, D.C.		NCSL was unable to locate statutory authority for wind energy siting.
West Virginia	W. Va. Code §24-2-1	The West Virginia Public Service Commission has sole authority to regulate all generation of electrical energy for service to the public. Siting wind facilities for on-site consumption would be regulated at by local governments.
Wisconsin	Wis. Stat. §193.378(4g); Public Service Commission Wind Siting Rules; Model Wind Ordinance	The Wisconsin Public Service Commission is tasked with promulgating rules, under the advice of the Wind Siting Council, for wind energy siting. No local government may impose any restriction on a wind system that is more restrictive than the PSC rules. The state has developed a model ordinance for local governments. Wind turbines must be located at least 3.1 times the maximum blade tip height from occupied community buildings and nonparticipating residences, and at least 1.1 times the maximum blade tip height from participating residences, nonparticipating property lines, public road right-of-way and overhead communication and electric transmission or distribution lines... Small wind energy systems (combined systems smaller than 300 kW or individual systems smaller than 100 kW) must be located at least 1.0 times the maximum blade tip height from overhead communication and electric transmission or distribution lines, occupied community buildings and nonparticipating residences and property lines…

Wyoming	Wyo. Stat. §18-5-501 through 504	Wyoming requires any wind facility of 500 kW or more to obtain a permit from the board of commissioners in the county where the facility is located. The statute also lists a number of "minimum standards" for siting determinations by county commissioners. The base of any tower must be located at least 110 percent of the maximum height of the tower from any property line adjacent to the facility or from any public road right-of-way. Any tower or other structure must be set back at least 5.5 times the maximum height of the tower (and at least 1,000 feet) from any subdivision. The base of any tower must be located at least 5.5 times the maximum height of the tower (and at least 1,000 feet) from a residential dwelling or occupied structure. The base of any tower must be located at least .5 miles away from the limits of any city or town.

References

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- Environmental Law Institute, "State Enabling Legislation for Commercial-Scale Wind Power Siting And The Local Government Role," (2001).
- Kevin McCarthy, "Standards In Other States for Siting Wind Projects," (2011).
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- Patricia E. Salkin, "Renewable Energy and Land Use Regulation (Part 2)," (2011).

TESTIMONY BEFORE THE SENATE COMMITTEE ON ENERGY, ECONOMIC DEVELOPMENT, AND TOURISM

H.B. 2188, HD1

Relating to Wind Energy Facilities

Friday, March 13, 2020
2:45 p.m., Agenda Item #3
State Capitol, Conference Room 414

Rebecca Dayhuff Matsushima
Director, Renewable Acquisition Division
Hawaiian Electric Company, Inc.

Dear Chair Luke, Vice Chair Cullen, and Members of the Committee,

My name is Rebecca Dayhuff Matsushima and I am testifying on behalf of Hawaiian Electric Company, Inc. (Hawaiian Electric) with **comments on H.B. 2188, HD1, Relating to Wind Energy Facilities.**

H.B. 2188, HD1 proposes to amend Section 205-4.5 of the Hawaii Revised Statutes to establish an unspecified setback from the nearest existing farm dwelling or residential dwelling unit for wind energy facilities in agricultural districts. HD1 amended the setback distance from one mile to an unspecified distance and adds a requirement for the University of Hawaii at Manoa John A. Burns School of Medicine to conduct or contract for a study on the effects of noise produced by certain wind energy facilities in Hawaii on the health of residents and students.

While we understand the concerns raised by some regarding the location and proximity of renewable energy projects, Hawaiian Electric notes this bill will have a potential impact on achieving the State's renewable energy goals. We will need to rely

on all viable technologies, including utility scale wind projects, to achieve the legislative mandate to reach 100% renewable energy. To achieve this goal, legislative policies must all be aligned in the same direction and the entire state of Hawaii must work together. Meeting the Legislature's mandate of 100 percent renewable energy by 2045 will require a significant amount of land. For example, on Oahu we have an active Request for Proposal to procure 1,300,000 MWh of renewable, dispatchable energy. If translated to solar, this would, for example, equal 594 MW of solar capacity, with an estimated footprint of 3,000 acres. This translates roughly to 29 Aloha Stadiums of land. Similar footprints would be needed for a mix of resources including solar and wind. Realistically, this will require a significant amount of land, which is challenging on a 600-square mile island with more than 1 million people. This is why it is important to make sure that our State's land-use policies, its economic development plans, and our renewable energy mandates are aligned. We encourage lawmakers to seek alignment of key energy, land use, and other policies, especially as communities have voiced concerns about siting of certain renewable energy projects.

Thank you for this opportunity to comment on H.B. 2188, HD1.

183 Pinana St., Kailua, HI 96734 • 808-262-1285 • info@350Hawaii.org

To: The Senate Committee on Energy, Economic Development, and Tourism
From: Brodie Lockard, Founder, 350Hawaii.org
Date: Friday, March 13, 2020, 2:45 pm

In support of HB 2188 HD1

Dear Chair Wakai, and members:

350Hawaii.org's 6,000 members support HB 2188 HD1.

Kahuku's wind farm was poorly planned and ignored the concerns of residents for years.

Living close to a wind farm can cause earaches, dizziness, fainting, migraines, and trouble sleeping, in addition to the nuisance noise levels and shadow flickers.

Like other NIMBY projects, wind farms tend to be sited near low-income communities and communities of color.

A "one-mile setback from the nearest existing farm dwelling or residential dwelling unit for certain wind energy facilities in agricultural districts" is a weak, half-done measure that only addresses a small piece of the problem.

But it's better than nothing.

Pass this bill and show at least a little respect for people having to deal with the effects of a wind farm.

Brodie Lockard
Founder, 350Hawaii.org

Testimony to the Committee on Energy, Economic Development, and Tourism
Friday, March 13, 2020
2:45 PM
Conference Room 414, Hawaii State Capitol
HB2188 HD1

Chair Wakai, Vice Chair Taniguchi, and members of the committee,

The Hawaii Clean Power Alliance (HCPA) offers **comments** on HB2188 HD1, which establishes a setback from the nearest existing farm dwelling or residential dwelling unit for certain wind energy facilities in agricultural districts and requires a study on the effects of noise production by wind energy facilities on the health of residents and students.

The Hawaii Clean Power Alliance is a nonprofit association organized to advance the development and sustainability of clean energy in Hawaii. Our goal is to support the state's policy goal of 100 percent renewable energy by 2045. Our members are commercial utility-scale independent power producers. Utility-scale renewable energy is critical to meeting the state's clean energy goals because it provides long-term stable costs for those drawing from the grid, thus hedging the volatility associated with the reliance on oil. We have also experienced communities which depend on and embrace the siting of renewable wind in their communities.

Wind projects across the state have been developed in compliance with county regulations, including rules that essentially set minimum setbacks for wind turbines at the height of the system. These rules, in Oahu, Maui, and Hawaii Island counties, establish the standard by which the industry has developed existing projects and is developing future ones.

Any contemplated changes to these standards would inhibit the siting of wind installations, thus removing cdiversified clean energy from the grid and adversely impacting the state's coninued work to meet its bold renewable energy policy goals.

We urge the legislature to codify these requirements to support renewable energy so that there is statewide consistency and clarity in this important energy sector and recommend the insertion on line 2 page 6:

2. more shall be located not less than one foot for every foot of height from

Thank you for the opportunity to testify today.

655 W. Broadway, Suite 950
San Diego, CA 92101

Testimony to the Committee on Energy, Economic Development, and Tourism

Friday, March 13, 2020
2:45 PM
Conference Room 414, Hawaii State Capitol
HB2188 HD1

Chair Wakai, Vice Chair Taniguchi, and members of the committee,

AEP Renewables offers **comments** on HB2188 HD1, which establishes a setback from the nearest existing farm dwelling or residential dwelling unit for certain wind energy facilities in agricultural districts and requires a study on the effects of noise production by wind energy facilities on the health of residents and students.

AEP Renewables is a subsidiary of American Electric Power Company, a major electric utility that serves customers in 11 states and owns the nation's largest electric transmission system. The parent company provides unparalleled support and energy industry expertise.

The AEP Renewables team has proven capabilities in the development, design, construction, and operation of renewable energy infrastructure. AEP, along with its partners, operates some of the largest wind farms in the United States with more than 1,300 megawatts of renewable energy generation. AEP Renewables provides energy for more than 340,000 homes while reducing carbon dioxide emissions by more than 3,000,000 tons, equal to removing 600,000 cars off the road. AEP Renewables works with development partners to provide quality and sustainable clean energy projects.

Auwahi Wind, located on the wind-rich Ulupalakua Ranch on the southeast coast of Maui, Hawaii, is a joint venture of AEP Renewables and BP Wind Energy. The 24 megawatt (MW) wind farm was completed in December 2012, bringing Hawaii closer to its goal of increasing its use of renewable energy. Auwahi Wind's eight turbines generate enough electricity to power approximately 14,500 typical Hawaii homes. The wind power from Auwahi Wind has been sold to Maui Electric Company under a 20-year contract.

Since its inception, the Auwahi project has built strong relationships with the community, landowners, and homesteaders of Kahiki Nui. We are significant supporters of the farming, agriculture, and cattle industries in the region, providing both financial and in-kind resources.

Auwahi was designed and built under the rules set forth by the Maui County zoning regulations, including the "minimum setback of one foot for each foot in height, from all property lines." We are now looking to further build out the development and take advantage of existing infrastructure we have

in place to drive the cost of renewable energy down for the ratepayers, and we continue to receive the support of the community.

Proposed changes to these zoning rules, including state mandates that may differ from county regulations, would have a chilling impact on future plans and development of wind farms.

On page 6, line 2

We urge you to adopt and insert the amendment of

Section 1 (a) (15)
…provided further that any wind energy facility that utilizes wind turbine generators and that has the capacity to generate one megawatt or more shall be located not less than one foot for every foot of height from the nearest farm dwelling or off-site residential dwelling unit in existence at the time of the application for necessary permits, measured from the center of the nearest wind turbine generator to the nearest exterior of the farm dwelling or residential dwelling unit;

Thank you for the opportunity to testify.

HB-2188-HD-1
Submitted on: 3/11/2020 7:47:48 PM
Testimony for EET on 3/13/2020 2:45:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
chai yoshimura	Testifying for Kahuku Ag Park Association	Support	No

Comments:

We, farmers are very simple and hardworking people who etch out a humble living by working on the land. Most of us work on the farm, live at the farm, rest at the farm and sleep at the farm. With the wind turbines there the audible and inaudible sound, infrasound, will greatly affect our health by denying us the need to have the much needed rest and repair to our bodies during sleep at night for another day's work. The audible sound will create havoc to our sleep which in turn will affect the total well being of our bodies. The infrasound will effect the cells of our bodies compromising the health of our organs especially our heart muscles. These are general effects that will diminish our health over time. It does not happen overnight but will negatively impact our health gradually. I am especially worried about the health impacts on the elderly, young and very young children and young men and women whose bodies will procreate in due time. Our bodies have to be kept in delicate balance. Who knows how their offsprings will be affected. And this will go on to the next generation and so forth.

For people who are not educated about the effects of audible and inaudible sounds will probably call me crazy. But I implore each of you, law makers and decision makers who were elected and hired to protect the people and the aina, please spend some time to google the ill effects of the turbines especially the infrasound which is not in everyone's daily vocabulary. Many countries throughout the world have had wind turbines in hope of going green, had experienced the ill effects of wind turbines to the citizens and have taken proper measures to rectify their problems created by turbines. Most have learned their lessons that it is inhumane to sacrifice a certain group of people as expendables. Are we farmers not citizens of Hawaii who should have the same rights as everyone else to live in a safe and healthy environment in pursuit of freedom and happiness for ourselves and our love ones.

AES Na Pua Makani's insistent stance that there will be no health effects to the residents is not sufficient for the project to proceed. Our government must insist that they must prove that there are no ill effects and if they are still very confident, then they need to notorize a statement to that effect and not wait to see if there are health effects on us. By then, our health would have deteriorated to the point of no return and they do not hold any responsibility for their wrongdoings. Also who will be responsible for our pain and sufferings and bills for medical attention. This must not happen in a country where human rights is highly valued and upheld.

The turbines are too big and too many and are not only close to our farms and homes, they are also way too close to Kahuku Elementary, Intermediate and High schools where our children are being educated.

We fully support the bill to mandate a minimum setback of one mile of turbines to farm and residential dwellings.

Respectfully yours,

Chai Yoshimura

HB-2188-HD-1
Submitted on: 3/10/2020 1:43:40 PM
Testimony for EET on 3/13/2020 2:45:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Dyson Chee	Testifying for Hawaii Youth Climate Coalition	Support	No

Comments:

HB-2188-HD-1
Submitted on: 3/11/2020 9:51:21 AM
Testimony for EET on 3/13/2020 2:45:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Regina Gregory	Testifying for EcoTipping Points Project	Support	No

Comments:

HB-2188-HD-1
Submitted on: 3/10/2020 1:31:37 PM
Testimony for EET on 3/13/2020 2:45:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
cheryl B.	Individual	Comments	No

Comments:

This is such a crucial issue and important in this time and space. I read what the wind companies and energy folks wrote. For me, it‘s important for us all to look for what is right for our islands. As soon as we stop thinking like we are a "STATE" of the US and begin to really look at who we are as islands in the middle of the Pacific, I believe we will begin to make better decisions for our communities and people. WHat happened in Kahuku, yes I‘ve seen, is ridiculous. It was bad enough having to hear the whirl, whirl at Waimea but for it to be right next to the school and so close to houses? We need to be better thought out.. It‘s not JUST about $$$ it‘s about people.

HB-2188-HD-1
Submitted on: 3/10/2020 8:01:53 PM
Testimony for EET on 3/13/2020 2:45:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Brenda O Watene	Individual	Support	No

Comments:

I support these motions for creating a setback from residential areas and conducting a study of the adverse health effects of the infrasound, shadow flicker and noise produced by turbines without bias or prejudice and submit that this bill be amended to prevent further use of current turbines within the proposed setback limits from operating until they are proven safe. The World Health Organization's Environmental Noise guidelines concludes that more studies need to be done on the health effects of Indistrial Wind Turbines there within confirming their unproven safety.

HB-2188-HD-1
Submitted on: 3/10/2020 9:17:51 PM
Testimony for EET on 3/13/2020 2:45:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Toagaifasa	Individual	Support	No

Comments:

I am in support of the above bill. Future communitys should not have to deal with these monstrosity next to their community. As a daily driver, I can say it's very difficult to focus on the road when it's shear size is districtacting. I propose the hosting community has a fair compensation package as they have to deal with the unforeseen consequences of Monster Turbines next to their community.

HB-2188-HD-1
Submitted on: 3/10/2020 11:54:36 PM
Testimony for EET on 3/13/2020 2:45:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Lia Kim	Individual	Support	No

Comments:

While advocating for clean energy in an era where mitigations to climate change must occur, the burden must not be placed on one of the more vulnerable communities in Hawai‘i.

HB-2188-HD-1
Submitted on: 3/11/2020 12:16:33 AM
Testimony for EET on 3/13/2020 2:45:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
christopher woodward	Individual	Support	No

Comments:

HB-2188-HD-1
Submitted on: 3/11/2020 9:50:08 AM
Testimony for EET on 3/13/2020 2:45:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Kamalani Keliikuli	Individual	Support	No

Comments:

I believe the setback requirements should be further due to the Turbine Malfunctions (fire/toxic fumes, blade throw, hurricane winds or etc.) that could occur especially the fact that the Vesta blades are known to break and with the current 12 turbines in place that has caught on fire 3 times after one year that the turbines were installed. There are no emergency plans in place for the students who attend Kahuku Elementary, Intermediate and High School should a malfunction occue. According to Emergency Responders the turbine fires that occurred from the current 12 turbines they weren't equipped to put out the fire and had to allow the fire to burn out completely before they were allowed to do anything. Please consider the lives of our children, kupuna and community. TOO BIG, TOO CLOSE!!!

HB-2188-HD-1
Submitted on: 3/11/2020 8:12:20 AM
Testimony for EET on 3/13/2020 2:45:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Andrea Anixt	Individual	Support	No

Comments:

Aloha,

This Bill supports the World Health Organization findings that anything less than 1 mile subjects children and seniors especially to health related problems potential from wind turbine activity. This United Nations World Health Organization information cited is what should be taken as much more important than any profit driven wind energy statements that no harm is caused that they know of if a study is done here.

Mahalo,

Andrea Anixt PO Box 646 Ka'a'awa, HI 96730

HB-2188-HD-1
Submitted on: 3/11/2020 12:05:40 PM
Testimony for EET on 3/13/2020 2:45:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Anela Evans	Individual	Support	No

Comments:

HB-2188-HD-1
Submitted on: 3/11/2020 12:06:15 PM
Testimony for EET on 3/13/2020 2:45:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Nathan Yuen	Individual	Support	No

Comments:

I strong support HB 2188 which creates a 1 mile set back for wind turbines and conducts a health study for audible noise. The study should be for more than just for audible sound -- it should include inaudible sound, shadow flicker, and other negative effects people who live close must tolerate. If wind energy is going to make up a significant part of the renewable energy for Hawaii, we must address their negative effects in the communities where they will be buil;t and reasonable set backs need to be established to reduce/eliminate their worst effects. Thank you for this opporunity to testify on this important matter.

HB-2188-HD-1
Submitted on: 3/11/2020 8:44:11 PM
Testimony for EET on 3/13/2020 2:45:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Charlotte Kamauoha	Individual	Support	No

Comments:

Aloha,

I strongly urge my legislators to pass HB 2188 to ensure at least a 1-mile setback for wind turbines that are built near residential, commercial, and agricultural lands that are occupied by farmers and their families. I also urge my legislators to enact a Comprehensive Health study that includes the impact of audible sound, infrasound, electromagnetic radiation, and sleep disturbance on residents of communities that are most impacted by wind turbines.

I am a mother of children with special needs. And while I care for the health and well-being of my whole community and neighboring communities, I am most concerned about the health and well-being of our special needs population who would be most severely impacted by the adverse effects of wind turbines. While windfarm corporations may tout studies that state no adverse effects of wind turbines, that cannot convince someone who lives with and sees their children suffer from sounds and stimulus that would mildly affect or have no effect on typical persons. My children no longer live in Kahuku and while I miss them very much, I cannot see putting them in harm's way by having them live with monster turbines in such close proximity.

The placement of the additional AES wind turbines are a monument to the socioeconomic Injustice on our Kahuku community. If you cannot stop the Injustice and restore justice to our community, I urge you to -- at the very least -- pass this bill in order to prevent harm and to protect future communities, especially poor rural communities from the ill effects of not only wind turbines but of corporate greed and political corruption.

Mahalo for your time and consideration,

Charlotte Kamauoha

56-132 Huehu Place, Kahuku, Hawaii 96731

HB-2188-HD-1
Submitted on: 3/11/2020 9:59:44 PM
Testimony for EET on 3/13/2020 2:45:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
John Nix	Individual	Support	No

Comments:

Dear Chair Wakai, and members:

As one of 350Hawaii's 6,000 members, I support HB 2188 HD1.

Kahuku's wind farm was poorly planned and ignored the concerns of residents for years.

Living close to a wind farm can cause earaches, dizziness, fainting, migraines, and trouble sleeping, in addition to the nuisance noise levels and shadow flickers.

Like other NIMBY projects, wind farms tend to be sited near low-income communities and communities of color.

A "one-mile setback from the nearest existing farm dwelling or residential dwelling unit for certain wind energy facilities in agricultural districts" is a weak, half-done measure that only addresses a small piece of the problem.

But it's better than nothing.

Pass this bill and show at least a little respect for people having to deal with the effects of a wind farm.

Dr. John and Debra Nix, Kihei

HB-2188-HD-1
Submitted on: 3/11/2020 10:16:02 PM
Testimony for EET on 3/13/2020 2:45:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Mariko Jackson	Individual	Support	No

Comments:

I am in support of HB2188. Multiple peer reviewed studies support over 1 mile setbacks because of the damage noise can have on human health. Especially when turbines are set on hills, residents report louder noise from turbines.
There are other safety reasons including blade throw, shadow flicker, and inaudible sound that can negatively affect human health. For whatever reason some people disregard this, but at the very least sound is understood to be something that can disturb everyone. Please pass this legislation to improve Hawaii's commitment to residents' health and happiness. Thank you for your time in this matter.

HB-2188-HD-1
Submitted on: 3/11/2020 11:30:26 PM
Testimony for EET on 3/13/2020 2:45:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
tlaloc tokuda	Individual	Support	No

Comments:

To: The Senate Committee on Energy, Economic Development, and Tourism
From: Tlaloc Tokuda
Date: Friday, March 13, 2020, 2:45 pm

In support of HB 2188 HD1

Dear Chair Wakai, and members:

As one of 350Hawaii's 6,000 members, I support HB 2188 HD1.

Kahuku's wind farm was poorly planned and ignored the concerns of residents for years.

Living close to a wind farm can cause earaches, dizziness, fainting, migraines, and trouble sleeping, in addition to the nuisance noise levels and shadow flickers.

Like other NIMBY projects, wind farms tend to be sited near low-income communities and communities of color.

A "one-mile setback from the nearest existing farm dwelling or residential dwelling unit for certain wind energy facilities in agricultural districts" is a weak, half-done measure that only addresses a small piece of the problem.

But it's better than nothing.

Pass this bill and show at least a little respect for people having to deal with the effects of a wind farm.

Mahalo for your consideration,

Tlaloc Tokuda

Kailua Kona HI. 96740

HB-2188-HD-1
Submitted on: 3/12/2020 1:41:07 AM
Testimony for EET on 3/13/2020 2:45:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Sunny	Individual	Support	No

Comments:

Dear Chair Wakai, Vice Chair Taniguchi, and fellow Committee members,

I am writing in strong support of HB 2188 HD 1 Relating To Wind Energy Facilities with recommendations. I recommend that the health study add the health effects of inaudible noise infrasound and apply this 1 mile set back regulation to any existing wind projects that are seeking to repower or to increase the height of turbines.

As North Shore resident, I understand the need for clean energy as our roads are falling into the ocean as we speak. However, renewable energy project must be done responsibly and not at the cost of the health, safety, and quality of life of host communities. When projects are poorly developed and managed, the impacts of these projects can be so great that they outweigh any benefit the project may provide. Unfortunately, the latest project, the Na Pua Makani wind project was so poorly developed that over 200+ members of the community were arrested protesting its construction due to concerns of Industrial scale wind turbines impact to the health, safety, and wellbeing of its residents.

One of the main reasons the community was so upset was because of the poor siting done by the developer. Standing 568 feet fall, these turbines are the largest land turbines in the United States and taller than the tallest building on Oahu sited less then 1,700 feet away from homes and schools. Existing farm dwellings are less than 700 ft away from these industrial scale wind turbines because the current set back regulations excludes homes of farmers on agricultural land. There has never been a residential zoned community to be placed in such close proximity to these industrial scale wind turbines as Kahuku. In addition, it has recently come to light that the City and County of Honolulu likely violated the law when approving a waiver for minimum setbacks placing them as close as 284 feet to property lines. These facts are very concerning to our community. It is clear that more regulation relating to the siting of wind turbines is needed and HB 2188 is a step in the right direction.

Increasing set back is imperative to protect our community from harm. Wind turbines generate excessive and persistent background noise, shadow flicker, EMF, and infrasound and close proximity increases our exposure and its negative impacts of noise pollution and these other risks and annoyances. We must increase our current set back regulation to at least one mile from residential homes, schools, and farm dwellings to

protect community members from harm and from the adverse health effects from industrial scale wind turbines.

I am a mother of three children. Two of them attend Kahuku Elementary and my youngest will attend in the next couple of years. The school is one of the closest structures to NPM wind turbines. I am one of many mothers in our community who are extremely concerned about how these industrial scale wind turbines towering over our school is set to threaten the safety, health, learning environment, and wellbeing of our children. Not only will our school will be subjected to wind turbine noise, our homes will also be plagued with the swooshing noises of the blades and constant buzzing noise from the motor. It is appalling to me that the various government agencies along with its developer couldn't place these industrial scale wind turbines at a far enough distance where we are not subjected to hearing these noises for the next 20 to 25 years. WHO states, "Environmental noise features among the top environmental risks to physical and mental health and well-being. ... It has negative impacts on human health and wellbeing." In addition, there are studies that show that wind turbine noise has distinguishing characteristics and the repetitive nature of the sound of the rotating blades can cause more than above average annoyance. (Schäffer et al., 2016) How will this noise effect our more susceptible children such as those with autism who are more sensitive to noise?

Audible noise is not the only concerns we have as a community. We are concerned about our safety. What happens when the wind turbine catches on fire? We already experienced multiple fires from the existing Kahuku Wind farms that emitted toxic fumes for days and nothing could be done. What about blade throw or tower collapse? There was a blade throw in 2016 in Auwahi wind farm in Maui and most recently in New York on February 21st, 2020. We have recently acquired a copy of Vestas "confidential safety manual" which is the same manufacturer of NPM wind turbines. On page 10 of this manual states that a radius of 1640 feet must be restricted in the event of a blade runaway for a 400 ft wind turbine. Yet, Kahuku has much taller wind turbines and yet homes and schools located within this restricted radius. How about hurricane season? Just in 2018 we were boarding up our windows in preparation for hurricane Lane and possibly more to come with climate change. These wind turbines are only equipped to withstand wind up to 94 mph according to their EIS. These safety risks must be understood and properly mitigated to secure health and safety of our residents.

As a mother, I am also very concerned on how the inaudible noise infrasound will affect my children's' health. Residents that live in close proximity to turbines from the U.S., Canada, European countries, New Zealand and Australia have been speaking out about the health effects they have been experiencing. Sleep disturbances, tinnitus, headaches, migraines, increase epileptic seizures, nausea, dizziness are adverse health effects that people who live near wind turbines experience. Their testimonies serve as a warning that more needs to be done to ensure the safety of residents first, in addition to the need for more research. The wind industry easily dismisses these claims and state that there are no detrimental health effects related to wind turbines simply because there are not enough scientific evidence to prove it. However, there are many

reports and studies, such as Ambrose, Rand and Krogh (2012), Bolin, Bluhm, Eriksson and Nilsson (2011), Nissenbaum, Aramini, and Hanning (2012), Jefferey (2013), Salt and Lichtenhan (2014), Salt and Hullar (2010), Alves-Pereira and Branco (2007), Phillips (2011), and Laurie (2015), that conclude that there are adverse health effects stemming from noise, infrasound, or shadow flicker from wind turbines. Even if wind turbine companies continue to dismiss these studies, the concept of international law and trade and environmental agreement is the Precautionary Principal which states that if scientific evidence is inconclusive it is always best to err on the side of human health. Doesn't my child and community deserve this consideration?

This NPM project would operate for the next 20 years. I have a kindergartner and 2nd grader. This means, that they would be exposed to infrasound and noise from wind turbines, their entire developmental period from childhood, adolescence, and into adulthood. What would be the health effects of this long- term exposure to this health hazard for the next 20 years. What if the wind industry is proven wrong after 10 years just like the tobacco industry? How could you compensate for the loss of health or maybe even death? Is the future of my children and all the residents in Kahuku to become human guinea pigs?

More studies need to be conducted not only in regard to audible noise but also the effects of inaudible infrasound. Therefore, it is my strong recommendation that the health study in HB 2188 HD 1 be amended to clarify noise as audible AND inaudible (infrasound) noise in the study proposed to be undertaken by the University of Hawaii at Manoa John A. Burns school of medicine.

Our Kahuku community is suffering. We are hurting. This NPM project is displacing our community. There are families that have already moved away and others currently planning on relocating. Some of us including my family can't afford to move. But most importantly, why did it have to come to this point where people who have lived here for generations or love living here have to face this dilemma? Renewable Energy projects must not come at the cost and destruction of human health and safety. It needs to have a more holistic approach and consider its impact on our communities, environment, ecosystem, and wildlife. We cannot continue to site renewable projects the way it was done in Kahuku. I invite you to come and see for yourself how big and close these wind turbines are to our school and homes. Hawaii's commitment to being 100% renewable energy powered by 2045 means that conflicts between utility scale energy projects and our unique and sensitive communities will only continue to grow in number. If these conflicts are to be prevented, decision makers must be open-minded and provide the framework and laws that prevent poor projects such as the Na Pua Makani wind project from being developed.

Therefore, I plead that you pass HB 2188 Relating To Wind Energy Facilities with the aforementioned recommendations requiring a minimum one mile setback and discussed additions to the proposed study, is the least the state can do to move towards safe, equitable and just implementation of its energy initiatives.

Thank you for this opportunity to testify.

Sincerely,

Sunny Unga

HB-2188-HD-1
Submitted on: 3/12/2020 1:47:22 AM
Testimony for EET on 3/13/2020 2:45:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Wilson Unga	Individual	Support	No

Comments:

Dear Chair Wakai, Vice Chair Taniguchi, and fellow Committee members,

I am writing in strong support of HB 2188 HD 1 Relating To Wind Energy Facilities with recommendations. I recommend that the health study add the health effects of inaudible noise infrasound and apply this 1 mile set back regulation to any existing wind projects that are seeking to repower or to increase the height of turbines.

As North Shore resident, I understand the need for clean energy as our roads are falling into the ocean as we speak. However, renewable energy project must be done responsibly and not at the cost of the health, safety, and quality of life of host communities. When projects are poorly developed and managed, the impacts of these projects can be so great that they outweigh any benefit the project may provide. Unfortunately, the latest project, the Na Pua Makani wind project was so poorly developed that over 200+ members of the community were arrested protesting its construction due to concerns of Industrial scale wind turbines impact to the health, safety, and wellbeing of its residents.

One of the main reasons the community was so upset was because of the poor siting done by the developer. Standing 568 feet fall, these turbines are the largest land turbines in the United States and taller than the tallest building on Oahu sited less then 1,700 feet away from homes and schools. Existing farm dwellings are less than 700 ft away from these industrial scale wind turbines because the current set back regulations excludes homes of farmers on agricultural land. There has never been a residential zoned community to be placed in such close proximity to these industrial scale wind turbines as Kahuku. In addition, it has recently come to light that the City and County of Honolulu likely violated the law when approving a waiver for minimum setbacks placing them as close as 284 feet to property lines. These facts are very concerning to our community. It is clear that more regulation relating to the siting of wind turbines is needed and HB 2188 is a step in the right direction.

Increasing set back is imperative to protect our community from harm. Wind turbines generate excessive and persistent background noise, shadow flicker, EMF, and infrasound and close proximity increases our exposure and its negative impacts of noise pollution and these other risks and annoyances. We must increase our current set back regulation to at least one mile from residential homes, schools, and farm dwellings to

protect community members from harm and from the adverse health effects from industrial scale wind turbines.

I am a father of three children. Two of them attend Kahuku Elementary and my youngest will attend in the next couple of years. The school is one of the closest structures to NPM wind turbines. I am one of many mothers in our community who are extremely concerned about how these industrial scale wind turbines towering over our school is set to threaten the safety, health, learning environment, and wellbeing of our children. Not only will our school will be subjected to wind turbine noise, our homes will also be plagued with the swooshing noises of the blades and constant buzzing noise from the motor. It is appalling to me that the various government agencies along with its developer couldn't place these industrial scale wind turbines at a far enough distance where we are not subjected to hearing these noises for the next 20 to 25 years. WHO states, "Environmental noise features among the top environmental risks to physical and mental health and well-being. ... It has negative impacts on human health and wellbeing." In addition, there are studies that show that wind turbine noise has distinguishing characteristics and the repetitive nature of the sound of the rotating blades can cause more than above average annoyance. (Schäffer et al., 2016) How will this noise effect our more susceptible children such as those with autism who are more sensitive to noise?

Audible noise is not the only concerns we have as a community. We are concerned about our safety. What happens when the wind turbine catches on fire? We already experienced multiple fires from the existing Kahuku Wind farms that emitted toxic fumes for days and nothing could be done. What about blade throw or tower collapse? There was a blade throw in 2016 in Auwahi wind farm in Maui and most recently in New York on February 21st, 2020. We have recently acquired a copy of Vestas "confidential safety manual" which is the same manufacturer of NPM wind turbines. On page 10 of this manual states that a radius of 1640 feet must be restricted in the event of a blade runaway for a 400 ft wind turbine. Yet, Kahuku has much taller wind turbines and yet homes and schools located within this restricted radius. How about hurricane season? Just in 2018 we were boarding up our windows in preparation for hurricane Lane and possibly more to come with climate change. These wind turbines are only equipped to withstand wind up to 94 mph according to their EIS. These safety risks must be understood and properly mitigated to secure health and safety of our residents.

I am also very concerned on how the inaudible noise infrasound will affect my children's' health. Residents that live in close proximity to turbines from the U.S., Canada, European countries, New Zealand and Australia have been speaking out about the health effects they have been experiencing. Sleep disturbances, tinnitus, headaches, migraines, increase epileptic seizures, nausea, dizziness are adverse health effects that people who live near wind turbines experience. Their testimonies serve as a warning that more needs to be done to ensure the safety of residents first, in addition to the need for more research. The wind industry easily dismisses these claims and state that there are no detrimental health effects related to wind turbines simply because there are not enough scientific evidence to prove it. However, there are many reports and studies,

such as Ambrose, Rand and Krogh (2012), Bolin, Bluhm, Eriksson and Nilsson (2011), Nissenbaum, Aramini, and Hanning (2012), Jefferey (2013), Salt and Lichtenhan (2014), Salt and Hullar (2010), Alves-Pereira and Branco (2007), Phillips (2011), and Laurie (2015), that conclude that there are adverse health effects stemming from noise, infrasound, or shadow flicker from wind turbines. Even if wind turbine companies continue to dismiss these studies, the concept of international law and trade and environmental agreement is the Precautionary Principal which states that if scientific evidence is inconclusive it is always best to err on the side of human health. Doesn't my child and community deserve this consideration?

This NPM project would operate for the next 20 years. I have a kindergartner and 2nd grader. This means, that they would be exposed to infrasound and noise from wind turbines, their entire developmental period from childhood, adolescence, and into adulthood. What would be the health effects of this long- term exposure to this health hazard for the next 20 years. What if the wind industry is proven wrong after 10 years just like the tobacco industry? How could you compensate for the loss of health or maybe even death? Is the future of my children and all the residents in Kahuku to become human guinea pigs?

More studies need to be conducted not only in regard to audible noise but also the effects of inaudible infrasound. Therefore, it is my strong recommendation that the health study in HB 2188 HD 1 be amended to clarify noise as audible AND inaudible (infrasound) noise in the study proposed to be undertaken by the University of Hawaii at Manoa John A. Burns school of medicine.

Our Kahuku community is suffering. We are hurting. This NPM project is displacing our community. There are families that have already moved away and others currently planning on relocating. Some of us including my family can't afford to move. But most importantly, why did it have to come to this point where people who have lived here for generations or love living here have to face this dilemma? Renewable Energy projects must not come at the cost and destruction of human health and safety. It needs to have a more holistic approach and consider its impact on our communities, environment, ecosystem, and wildlife. We cannot continue to site renewable projects the way it was done in Kahuku. I invite you to come and see for yourself how big and close these wind turbines are to our school and homes. Hawaii's commitment to being 100% renewable energy powered by 2045 means that conflicts between utility scale energy projects and our unique and sensitive communities will only continue to grow in number. If these conflicts are to be prevented, decision makers must be open-minded and provide the framework and laws that prevent poor projects such as the Na Pua Makani wind project from being developed.

Therefore, I plead that you pass HB 2188 Relating To Wind Energy Facilities with the aforementioned recommendations requiring a minimum one mile setback and discussed additions to the proposed study, is the least the state can do to move towards safe, equitable and just implementation of its energy initiatives.

Thank you for this opportunity to testify.

Sincerely,

Wilson Unga

HB-2188-HD-1
Submitted on: 3/12/2020 4:01:40 AM
Testimony for EET on 3/13/2020 2:45:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Robin Kaye	Individual	Support	No

Comments:

HB-2188-HD-1
Submitted on: 3/12/2020 5:43:42 AM
Testimony for EET on 3/13/2020 2:45:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Mary Morioka	Individual	Support	No

Comments:

Demonstrate that you are all wise and caring human beings, intent on cemonstrating your respect for people having to deal with the effects of a wind farm.

HB-2188-HD-1
Submitted on: 3/12/2020 6:00:59 AM
Testimony for EET on 3/13/2020 2:45:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Joanna Maile Pokipala	Individual	Support	No

Comments:

I support HB2188

HB-2188-HD-1
Submitted on: 3/12/2020 7:55:20 AM
Testimony for EET on 3/13/2020 2:45:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
donald erway	Individual	Support	No

Comments:

HB-2188-HD-1
Submitted on: 3/12/2020 7:55:57 AM
Testimony for EET on 3/13/2020 2:45:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Maiki Ann Mafi	Individual	Support	No

Comments:

Writing in support of HB2188. The latest turbine project in Kahuku resulted in more than 200 arrests. Laws should keep up with developing social norms of people protecting the aina, the people, it's more vulnerable, it's wildlife and their future. The mile setback will directly and indirectly alleviate the impacts on the people, the more vulnerable and their futures. It's the most reasonable thing to do given recent events surrounding wind turbines and Hawai'i communities. I also wish to request further study in the health effects of the infrasound that wind turbines produce. Thank you.

HB-2188-HD-1
Submitted on: 3/12/2020 9:20:43 AM
Testimony for EET on 3/13/2020 2:45:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Barbara Phillip	Individual	Support	No

Comments:

HB-2188-HD-1
Submitted on: 3/12/2020 9:53:43 AM
Testimony for EET on 3/13/2020 2:45:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Herb Chambers	Individual	Support	No

Comments:

Aloha Ka Kou!

Writing in support of Bill HB2188 on behalf of myself, my neighbors, classmates, & my future ohana. Kahuku needs this bill in action!

The school, the community, & the environent was once again placed below money on the priority list, by the very ones sworn in to serve. We we're not in favor of the original windmill project being put so close to our community, and we are definately not going to be silenced after the fact.

Bill HB2188 needs heavy concideration as it is a measure that is NEEDED for the protection of the people & environment from big companies looking to exploit its power via the government. Our actions have spoke loud enough, time for our leaders to listen & act!

Aloha!

HB-2188-HD-1
Submitted on: 3/12/2020 10:29:28 AM
Testimony for EET on 3/13/2020 2:45:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Henry boothe	Individual	Support	No

Comments:

Writing in support of HB 2188.

The latest turbine project in Kahuku resulted in more than 200 arrests. Laws should keep up with developing social norms of people protecting the aina, its people, it's more vulnerable, it's wildlife and their future. The mile setback will directly and indirectly alleviate the impacts on the people, the more vulnerable and their futures, (less proximity, less resistance, less arrests and hardship). It's the reasonable thing to do given recent events surrounding wind turbines and Hawaiʻi communities. I also wish to request further study in the health effects of the infrasound that wind turbines produce.

Thank you,

Henry Boothe

HB-2188-HD-1
Submitted on: 3/12/2020 10:33:35 AM
Testimony for EET on 3/13/2020 2:45:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Kananiloaanuenue Ponciano	Individual	Support	No

Comments:

Aloha,

My name is Kananiloaanuenue Ponciano and I SUPPORT HB 2188. I am a proud mother of two beautiful children Kamakani (8) and Kawahakui (14mos) and we have lived in Kahuku for five years. My husband, a 4th generation Kahuku born and raised plantation boy and his family, The Ponciano's, specifically his papa Mac was one of the first filipino "colored men" to live in the management/supervisors housing in Kahuku with his wife Patricia and their 11 children.

I have heard the beautiful stories of a time when all the women would go up into the mountains and harvest plants to make medicine for their camps, or the men and their sons when they would hunt for phesants or game to provide food for their families. Those times of gathering food and medicine from the mountains of Kahuku are now just a thing of the past, It is now home to massive industrial wind turbines built Too Big and Too Close to our people and community. Kahuku is our home, a place of refuge, love and protection for our families, but sadly, our home is no longer a place free of danger or trouble, we have been forced to make sacrifices for green energy by people who claim that having 568 foot industrial wind turbines just 1,750ft away from our schools, 1,648ft away from our homes and only 760 ft away from our farmers and their families is what they think is the right thing to do, it is the sacrifice they believe my children have to make because we need to meet 100% renewable energy. This forced decision upon Kahuku has caused great trauma and depression to myself, my children, my family and my entire community. There is not a day that goes by, that my 8 year old son looks at the turbines and says "mama those turbines are so big they can kill us." This is frightening to hear my 8yr old son living in fear as he looks out his bedroom window to see massive turbines and the blades or what he calls them, perpellors, planted in the soil right behind his house, making sure every morning when he wakes up and peers out the window that they are NOT turned on and moving.

Please help right the wrong that was done to Kahuku to potentially save and protect other communities from experiencing the same trauma we are experiencing. I strongly urge my legislators to pass HB 2188 to ensure a 1-mile setback for wind turbines that are built near residential, commercial, and agricultural lands that are occupied by farmers and their families. I also urge my legislators to enact a comprehensive health

study that includes the impact of audible sound, infrasound, electromagnetic radiation, and sleep disturbance on residents of communities that are most impacted by wind turbines.

Mahalo,

Kananiloaanuenue Ponciano

HB-2188-HD-1
Submitted on: 3/12/2020 10:59:32 AM
Testimony for EET on 3/13/2020 2:45:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Dreana Aiu	Individual	Support	No

Comments:

Aloha,

My name is Dreana Aiu and I am a wife, mother, child of God, wife, health professional, citizen and a home owner in Kahuku. I support pushing the windmills as far back as possible! It is shocking that we have evolved into a community of people where we ignore human rights to live in a clean and safe place/area in order to achieve the states "goals" of clean energy. Let's not run over pwople in the process of doing so. Also it seems so backwards that we would do an impact study of the windmills on people, animals and the environment after it is built. Shouldn't that have been done long before and very carefully because we are talking about people and the environment?!? Have we lost all reverance for nature and ourselves?? I have done my own personal studies of 5g, windmills and of pollution and I know that with modern technology there are also some challenges that come. I don't want to be apart of this live science experiment. I already have some health challenges just like you do as well and I don't appreciate that others decided that it was okay to put a windfarm near my house and community. I don't wish this upon anyone. I wouldn't want the windfarm to be near anyone elses home either. Think about if it was you, your elderly parents or your small children. How about for every large windmill in my back yard we put one up in your yard? You don't want that huh?! This is social economic injustice and this won't only hurt the people in this community but everyone. No chronic disease happens in isolation. The diabetic blood flows throught the entire body. The windfarms will be a ripling effect on many things overtime and in the end no one will win. Please reconsider and support pushing these large objects as far as possible away from people and look for other solutions. A lot of time nature can teach us what to do if we reconnect with it. Most of us never even touch the ground with our feet anymore. Thank you for your time, Dreana Aiu (Kahuku resident).

HB-2188-HD-1
Submitted on: 3/12/2020 11:16:30 AM
Testimony for EET on 3/13/2020 2:45:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Jessica dos Santos	Individual	Support	No

Comments:

Distinguished Senators,

I am writing in strong support for HB 2188 HD1 with recommendations. A minimum set back of 1-mile for a for all wind turbines is essential to protect our communities right to a healthy and safe living environment. In addition, we recommend that all turbines over 350' tall to comply with a setback of 15' for each foot of vertical height. I further recommend that HB 2188 HD 1 be amended to clarify noise as audible and inaudible (infrasound) noise in the study proposed to be undertaken by the University of Hawaii at Manoa John A. Burns school of medicine.

The current set back regulation, which is the height of the turbine, is completely inadequate and insufficient to protect human health and wellbeing. The closer people live to wind turbines, the greater the negative impacts on them because it increases exposure to noise pollution, and other risks and annoyances. Increasing the setback from residential homes, schools, and farm dwellings is imperative to protect community members from harm.

Wind turbines create both audible and inaudible noise. The audible noise emitted from wind turbines rotating blades are repetitive which is a source of greater annoyance and separates them from other environmental noises. (Schäffer et al., 2016) "The burden of environmental noise with wind turbines is not episodic or random: for the most part its effects are constant and unrelenting. nothing like an occasional aircraft over the house, nor the 70 plus dB experienced at a concert for a few hours. This is an undeniable health pressure of enormous magnitude."

This long term exposure to noise is a stressor that causes adverse health effects. This leads to auditory injuries such as hearing loss and tinnitus. Non auditory effects on health are psychological and physiological distress.

In addition, peer-reviewed scientific studies have proven the existence of inaudible noise infrasound from wind turbines. (McPherson). Although infrasound is inaudible, it is known to cause health problems. (Salt and Kaltenbach), (Salt and Lichtenhan). This is now being more established through sound studies in Brown County, Wisconsin and the Cape Bridgewater Wind Farm in Australia.

Many reports and studies, such as Ambrose, Rand and Krogh (2012), Bolin, Bluhm, Eriksson and Nilsson (2011), Nissenbaum, Aramini, and Hanning (2012), Jefferey (2013), Salt and Lichtenhan (2014), Salt and Hullar (2010), Alves-Pereira and Branco (2007), Phillips (2011), and Laurie (2015), conclude that there are adverse health effects stemming from noise, infrasound, or shadow flicker from wind turbines.

Residents that live in close proximity to turbines from the U.S., Canada, European countries, Japan and Australia have been speaking out about the health effects they have been experiencing. Sleep disturbances, tinnitus, headaches, migraines, nausea, dizziness, irritability, stress, increase epileptic seizures are detrimental health effects experienced by residents who live near wind turbines. Their testimonies serve as a warning that more safety precautions need to be made to ensure the safety of residents first, in addition to the need for more research.

Even if AES or wind turbine companies deny these facts, the concept of international law and trade and environmental agreement is the Precautionary Principle which states that if scientific evidence is inconclusive it is always best to err on the side of human health.

Furthermore, there are safety risks, such as blade throw and tower collapse (as was experienced by the Auwai wind farm on Maui in 2016), stray voltage, and toxic fires that cannot be extinguished (as was experienced by the Kahuku community in 2012) that must be understood and properly mitigated to secure health and safety of our residents. The City of Lincoln Nebraska noted, "Because of widespread concerns about health and safety, many jurisdiction scattered around the United States and Canada have adopted larger setbacks in recent years" (lincoln.ne.gov, 2015).

Increasing the setback from residential homes, schools, and farm dwellings is imperative to protect community members from harm and adverse health effects from industrial scale wind turbines. The only proven safety measure is to have a safe and adequate set back distance. Given that there is no current regulation and protection against infrasound, a greater set back distance is needed and we strongly believe that this bill is the step in the right direction.

As a North Shore resident, I understand the need for clean energy, but strongly believe that renewable energy projects should be implemented responsibly and must not come at the cost and destruction of human health and wellbeing.

Unfortunately, the latest project, the Na Pua Makani wind project was so poorly developed that over 200+ members of the community were arrested protesting its construction. One of the main reasons the community was so upset was the poor siting done by the developer. Three of the 568 feet turbines are sited less than 1,700 feet away from homes and schools. Existing farm dwellings are less than 700 ft away from these industrial scale wind turbines because the current set

back regulations excludes homes of farmers on agricultural land. Which subjects the community and children from the unrelenting noise from wind turbines. In addition, it has recently come to light that the City and County of Honolulu likely violated the law when approving a waiver for minimum setbacks, it is clear that more regulation relating to the siting of wind turbines is needed. HB 2188 is a step in the right direction.

I further suggest that HB 2188 HD 1 be amended to clarify noise as audible and inaudible (infrasound) noise in the study proposed to be undertaken by the University of Hawaii at Manoa John A. Burns school of medicine.

Therefore, I ask that you pass HB 2188 Relating To Wind Energy Facilities with the aforementioned recommendations requiring a minimum one mile setback and discussed additions to the proposed study, is the least the state can do to move towards safe, equitable and just implementation of its energy initiatives.

Thank you for this opportunity to testify.

http://www.euro.who.int/…/noise-guidelines-exec-sum-eng.pdf…

https://lincoln.ne.gov/…/w…/working-group-info/chapman-6.pdf

HB-2188-HD-1
Submitted on: 3/12/2020 11:43:37 AM
Testimony for EET on 3/13/2020 2:45:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
kalena Charlene Holani	Individual	Support	No

Comments:

HB-2188-HD-1
Submitted on: 3/12/2020 11:55:29 AM
Testimony for EET on 3/13/2020 2:45:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Mark K.Wilson III	Individual	Support	No

Comments:

HB-2188-HD-1
Submitted on: 3/12/2020 12:13:14 PM
Testimony for EET on 3/13/2020 2:45:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Ava Fedorov	Individual	Support	No

Comments:

Dear Chair Wakai, and members:

As one of 350Hawaii's 6,000 members, I support HB 2188 HD1.

Kahuku's wind farm was poorly planned and ignored the concerns of residents for years.

Living close to a wind farm can cause earaches, dizziness, fainting, migraines, and trouble sleeping, in addition to the nuisance noise levels and shadow flickers.

Like other NIMBY projects, wind farms tend to be sited near low-income communities and communities of color.

A "one-mile setback from the nearest existing farm dwelling or residential dwelling unit for certain wind energy facilities in agricultural districts" is a weak, half-done measure that only addresses a small piece of the problem.

But it's better than nothing.

Pass this bill and show at least a little respect for people having to deal with the effects of a wind farm.

Sincerely,

Ava Fedorov

HB-2188-HD-1
Submitted on: 3/12/2020 12:54:55 PM
Testimony for EET on 3/13/2020 2:45:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
sabrina batista	Individual	Support	No

Comments:

Writing in support of HB 2188. The latest turbine project in Kahuku resulted in more than 200 arrests. Laws should keep up with developing social norms of people protecting the aina, it's people, it's most vulnerable, it's wildlife and their future. The mile setback will directly and indirectly alleviate the impacts on the people, the more vulnerable and their futures, (less proximity, less arrests, less resistance, and less hardships). It's the reasonable thing to do given the recent events surrounding the wind turbines and Hawai'i communities. I also wish to request further studies on the Heath effects of the infrasound that the wind turbines produce. Thank you.

HB-2188-HD-1
Submitted on: 3/12/2020 1:16:16 PM
Testimony for EET on 3/13/2020 2:45:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
kelii ho	Individual	Support	No

Comments:

I support HB2188 HD1. I am concerned for the health and well being for my brothers & sisters living & working in Kahuku. I feel a 1 mile set back & a health study should be conducted. Mahalo

HB-2188-HD-1
Submitted on: 3/12/2020 1:41:15 PM
Testimony for EET on 3/13/2020 2:45:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Fisiipeau Drummondo	Individual	Comments	No

Comments:

I am not sure if the initial testimony I submitted minutes earlier was received due to a message stating the connection was lost??I am do not support or oppose HB 2188 I am against the 1 mile setback still too close as our aina is small and have no need for such huge wind turbines in any community in Hawaii. And I am against the effective date of 7/1/2050, too much time and allows the green$$$ sustainability$$$ gov ige plan to continue the developement of wind turbines while they figure anything out. Use the evidence from other communities that have been negatively affected by wind turbines, instead of recreating the wheel. America helped business men in old Hawaii to steal everything Hawaiian Aloha Aina and replaced it with a system$$$$$ that is falling apart before our very eyes. The Life of the Land is Perpetuated in Righteousness... YAHUSHA IS ALIVE <3

Mahalo Nui,

Fisiipeau Drummondo

Kawahineaukaiokamoana

HB-2188-HD-1
Submitted on: 3/12/2020 2:04:40 PM
Testimony for EET on 3/13/2020 2:45:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Tara Rojas	Individual	Support	No

Comments:

Hawai'i residents health, right now especially in Kahuku, takes precedence over anything else.

The turbines are TOO BIG, TOO CLOSE.

Additionally, the Bird Sanctuary as well as the Native Hawaiian ope'a bats = living creatures = also take precedence. Thus, the wind turbines placed right across the street and in their habitat is detrimental and honestly ridiculous.

Stop the AES turbines, dismantle them, and prevent future wind turbines in residential communities.

Health is everything - people and animals.

HB-2188-HD-1
Submitted on: 3/12/2020 2:23:47 PM
Testimony for EET on 3/13/2020 2:45:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Saleia Tuia	Individual	Support	Yes

Comments:

Aloha honorable Chair Glenn Wakai, honorable Vice Chair, Brian T. Taniguchi, and committee

I am writing in strong support of HB2188 with recommendations. A minimum set back of 1-mile for all wind turbines is essential to protect our communities' right to a healthy and safe living environment. In addition, I recommend that all turbines over 350 feet tall to comply with a set back of 18 ft for each foot of vertical height. I further recommend that HB2188 be amended to include a health study for audible and inaudible noise.

The current setback regulation, which is the height of the turbine, is completely unsafe and very dangerous for the communities that live near them. The perfect example of why this bill is important is because of the poorly developed wind project Na Pua Makani. The wind project is being built too big and too close to our homes, our schools, our communities. I've learned from their environmental impact statement that there are many potential dangers of living near a wind turbine and it's terrifying to know that all these health risks and dangers could happen to my family and other families in our community. I live 0.932 miles from the first Kahuku wind farm and am already feeling the negative effects. I've experienced the annoying shadow flickers and it's unbearable. The shadow flickers is when the sun shines through the spinning blade and casts a moving shadow. When the shadows move it feels like you're in strobe lights. Try blinking your eyes twice every 1 second. Imagine everything in your view flickering like that for almost an hour? It's very annoying and intolerable. It's hard to escape. You have to go indoors and close the curtains but even inside the house you get the flickering. In Na Pua Makanis EIS it says that "moving shadows have the potential to induce epilepsy seizures, annoyance, stress and safety concerns including vehicle driver distraction." The NPM wind turbines are being built 0.36 miles away from Kahuku Elementary and 0.4 miles away from Kahuku high school. If the shadow flickers can reach my house at 0.9 miles away, imagine how far the shadow flickers of the 568 ft turbines can reach. They have the potential of reaching Kahuku District Park where hundreds of our kids play and practice sports every day. Playing at the park won't be the same anymore. They have the potential of reaching Kamehameha Highway where thousands of people travel. Anyone near or on Kamehameha Higway could seriously get hurt.

Another negative effect I've experienced living near a wind turbine is the loud jet like noise it makes when it spins. I've heard the loud sounds standing 0.4 miles away from a turbine. I compare the noise to an airplane taking off over and over again. If the schools are only 0.36 and 0.4 miles away how will our kids be able to focus and learn if they're constantly hearing these loud annoying sounds? The answer is that they won't be able to focus or learn. They won't be able to grow their minds because the turbines will be spinning so loud. That's why I recommend that the bill includes a health study of noise because it's not right to rob our kids of a comfortable learning environment and rob our families of a healthy living environment. Just looking at the wind turbines is a distraction itself. My brother told me the other day that he was so distracted by the turbines that he almost hit someone walking on the road. You're forced to look at them because of how close they are and how humongous they are.

As a North Shore resident, I understand the need for clean energy, but strongly believe that renewable energy projects should be implemented responsibly and must not come at the cost and destruction of human health and wellbeing. I ask that you pass HB 2188 Relating To Wind Energy Facilities with the aforementioned recommendations requiring a minimum one mile setback and discussed additions to the proposed study, is the least the state can do to move towards safe, equitable and just implementation of its energy initiatives.

Thank You for the opportunity to testify.

HB-2188-HD-1
Submitted on: 3/12/2020 2:28:58 PM
Testimony for EET on 3/13/2020 2:45:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
T. Paul Gallagher	Individual	Support	Yes

Comments:

March 12, 2020

Senate Committee on Energy, Economic Development, and Tourism
Senator Glenn Wakai, Chair
Senator Brian T. Taniguchi, Vice Chair

State Capitol
415 South Beretania Street
Honolulu, HI 96813

Aloha Chair Wakai and Vice Chair Taniguchi,

I am a public middle school teacher and I am proud to support HB2188 HD1 because I am concerned about the impact of the wind energy facilities being situated close to farm and residential areas. As a science educator, I care immensely for not just the environment, but the safety and well being of students. The youth are responsible for the future of our society and thus should have the safest living environment as possible.

As an educator, I take responsibility to support students through their educational growth by providing a safe space for learning. However, I cannot control the environment they come home to. If students have to come home to a potentially harmful area because of the wind energy facilities, it makes it even harder for us as educators to support our students. I feel that we are doing communities a disservice if we do not have designated boundaries and restrictions on where wind energy facilities are placed. I support HB2188 HD1 because it will contribute to supporting the youth at home and even at school.

Mahalo,

Alika Masei

LATE

Email: communications@ulupono.com

SENATE COMMITTEE ON ENERGY, ECONOMIC DEVELOPMENT, & TOURISM
Friday, March 13, 2020 — 2:45 p.m. — Room 414

Ulupono Initiative respectfully opposes HB 2188 HD 1, Relating to Wind Energy Facilities.

Dear Chair Wakai and Members of the Committee:

My name is Amy Hennessey, and I am the Senior Vice President of Communications & External Affairs at Ulupono Initiative. We are a Hawai'i-based impact investment firm that strives to improve our community's quality of life by creating more locally produced food; increasing affordable clean renewable energy and transportation options; and better managing freshwater and waste resources.

Ulupono respectfully opposes HB 2188 HD 1, which establishes an unspecified setback from the nearest existing farm dwelling or residential dwelling unit for certain wind energy facilities in agricultural districts. This bill also requires a study on the effects of noise production by wind energy facilities on the health of residents and students.

Ulupono supports a diversified approach for the state in meeting its 100% renewable energy goal by 2045. Hawai'i must support all renewable energy sources, as one particular method will not be able to bring the state to its 100% goal. It will take a concerted effort across all viable renewable energy technologies, including utility scale wind projects, to meet the legislative mandate.

This bill creates an unspecified setback from the nearest farm dwelling or off-site residential dwelling unit. In its earlier form, this bill established a one-mile setback. While Ulupono supports ensuring the health and well-being of our community, developing a setback with an arbitrary distance will undoubtedly affect lands suitable for renewable energy projects and will directly go against the State's 100% renewable energy goal.

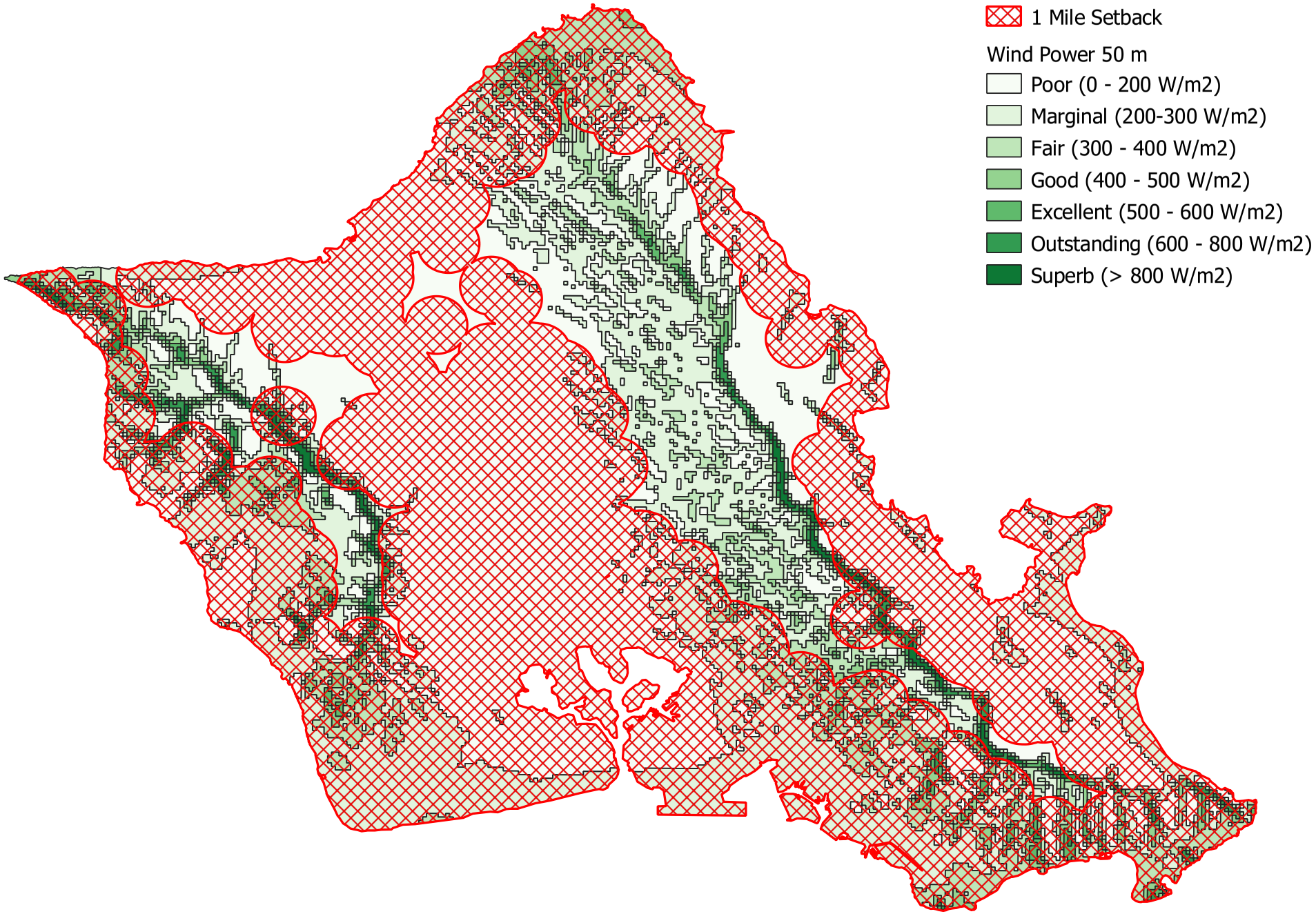
To better understand the potential impact of the proposed setbacks, we utilized GIS software to indicate what land would be restricted from wind power with a 1-mile setback from the nearest farm dwelling or off-site residential dwelling unit. As you'll see in the attached maps, though a 1-mile setback may seem reasonable, this distance essentially eliminates wind power across the state, except for a few small areas in the County of Hawai'i. Though some of the available dark green areas (indicating superb wind power)

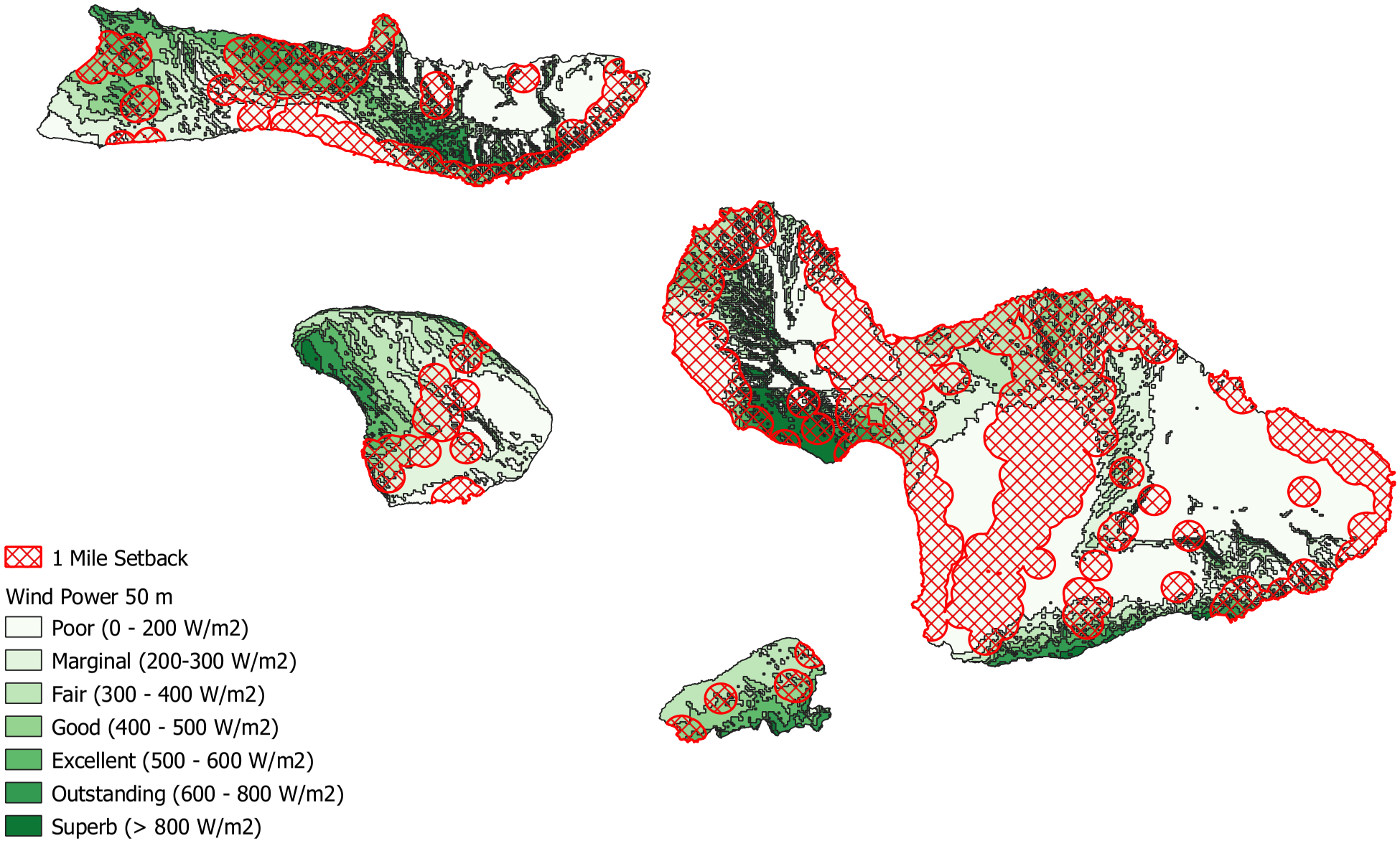
may seem viable outside of a 1-mile setback, in reality much of those dark green areas are on top of mountain ranges, designated conservation, or in very steep grade, which makes adding any renewable technology to that land not feasible. For example, the sufficient wind resources outside of the 1-mile setback on Oʻahu are nearly all on land that is conservation or simply on grades that are not feasible to build.

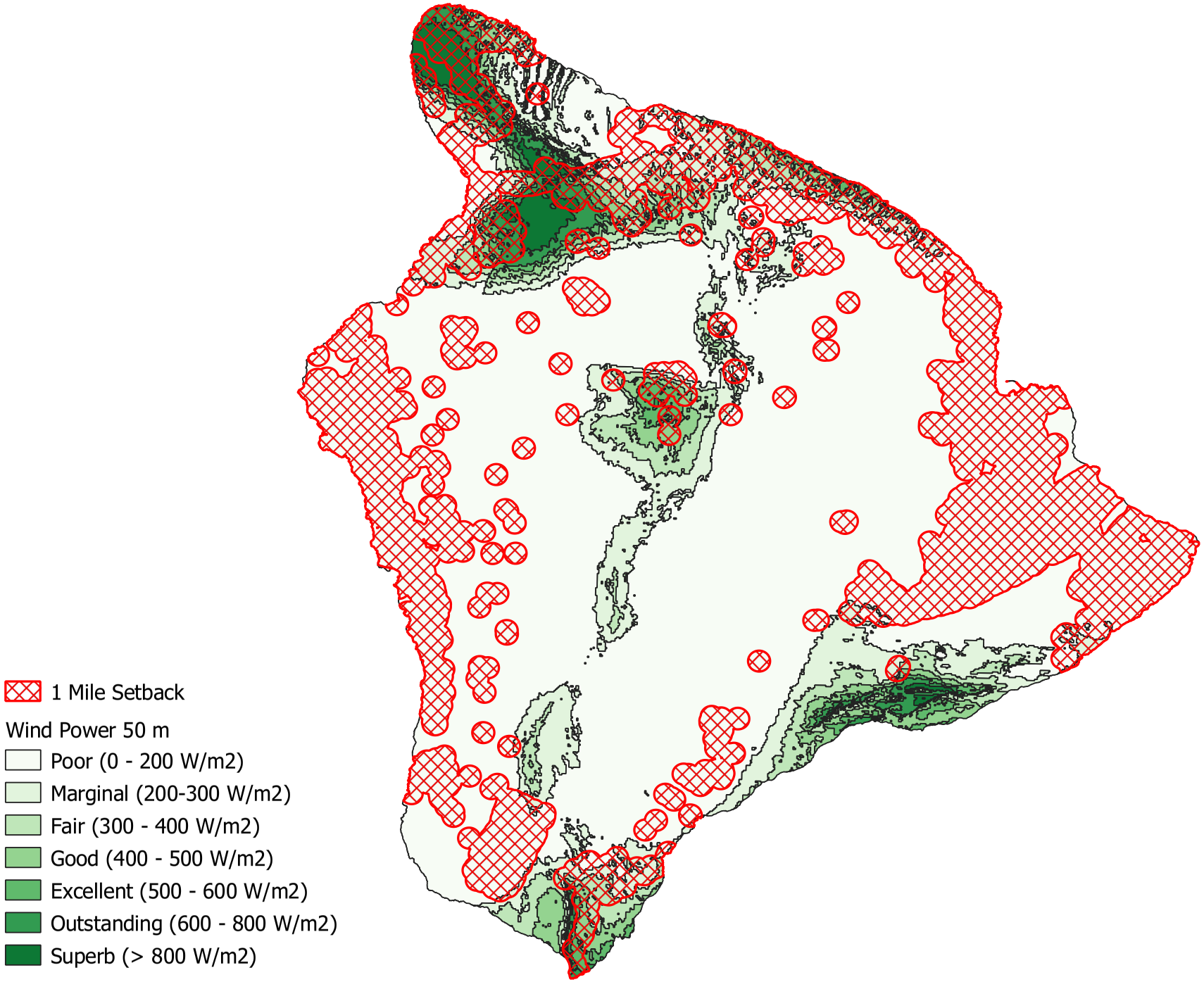
Thank you for this opportunity to testify.

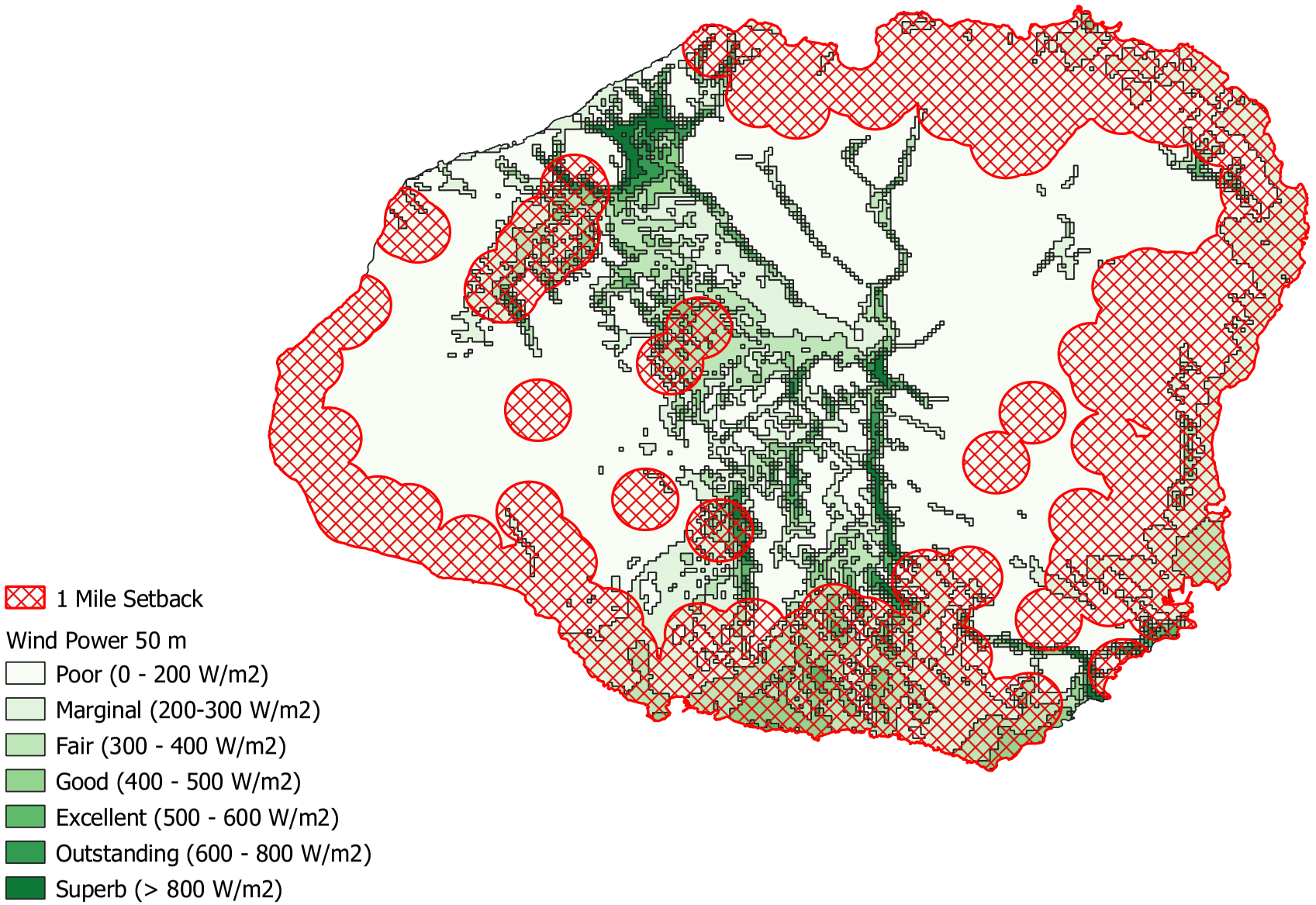
Respectfully,

Amy Hennessey, APR
Senior Vice President, Communications & External Affairs


1 Mile Setback
Wind Power 50 m
Poor (0 - 200 W/m2)
Marginal (200-300 W/m2)
Fair (300 - 400 W/m2)
Good (400 - 500 W/m2)
Excellent (500 - 600 W/m2)
Outstanding (600 - 800 W/m2)
Superb (> 800 W/m2)


1 Mile Setback
Wind Power 50 m
Poor (0 - 200 W/m2)
Marginal (200-300 W/m2)
Fair (300 - 400 W/m2)
Good (400 - 500 W/m2)
Excellent (500 - 600 W/m2)
Outstanding (600 - 800 W/m2)
Superb (> 800 W/m2)


1 Mile Setback
Wind Power 50 m
Poor (0 - 200 W/m2)
Marginal (200-300 W/m2)
Fair (300 - 400 W/m2)
Good (400 - 500 W/m2)
Excellent (500 - 600 W/m2)
Outstanding (600 - 800 W/m2)
Superb (> 800 W/m2)


1 Mile Setback
Wind Power 50 m
Poor (0 - 200 W/m2)
Marginal (200-300 W/m2)
Fair (300 - 400 W/m2)
Good (400 - 500 W/m2)
Excellent (500 - 600 W/m2)
Outstanding (600 - 800 W/m2)
Superb (> 800 W/m2)

HB-2188-HD-1
Submitted on: 3/12/2020 6:54:10 PM
Testimony for EET on 3/13/2020 2:45:00 PM

LATE

Submitted By	Organization	Testifier Position	Present at Hearing
katherine kazlauskas	Testifying for 350hawaii.org	Support	No

Comments:

To: The Senate Committee on Energy, Economic Development, and Tourism
From: **Katherine Kazlauskas**
Date: Friday, March 13, 2020, 2:45 pm

In support of HB 2188 HD1

Dear Chair Wakai, and members:

As one of 350Hawaii's 6,000 members, I support HB 2188 HD1.

Kahuku's wind farm was poorly planned and ignored the concerns of residents for years.

Living close to a wind farm can cause earaches, dizziness, fainting, migraines, and trouble sleeping, in addition to the nuisance noise levels and shadow flickers.

Like other NIMBY projects, wind farms tend to be sited near low-income communities and communities of color.

A "one-mile setback from the nearest existing farm dwelling or residential dwelling unit for certain wind energy facilities in agricultural districts" is a weak, half-done measure that only addresses a small piece of the problem.

But it's better than nothing.

Pass this bill and show at least a little respect for people having to deal with the effects of a wind farm.

Katherine Kazlauskas

LATE

Environmental Caucus of The Democratic Party of Hawai'i

Friday, March 13, 2020

House Bill 2188, HD 1
Testifying in Strong Support

Aloha Chair Wakai; Vice Chair Taniguchi; and Members of the Committee on Energy, Economic Development, and Tourism:

The Environmental Caucus of the Democratic Party of Hawaii stands in **STRONG SUPPORT** of HB 2188, HD 1. This measure establishes a one-mile setback from the nearest existing farm dwelling or residential dwelling unit for certain wind energy facilities on agricultural districts. This measure also requires a study on the effects of noise production by wind energy facilities on the health of residents and students and it appropriates funds.

This measure amends § 205-4.5 (a)(15) as follows: Wind energy facilities, . . . provided further that any wind energy facility that utilizes wind turbine generators and that has the capacity to generate one megawatt or more shall be located not less that [TBD] from the nearest farm dwelling or off-site residential dwelling unit in existence a the time of the application for necessary permits, measured from the center of the earest wind turbine generator to the nearest exterior of the farm dwelling or residential dwelling unit;

To meet the city's current setback requirement for clean-energy wind projects, the distance between a turbine and all property lies must be no closer than the blade-tip height measure of a project's tallest windmill. For the controversial Na Pua Maki project in Kahuku, the city has allowed construction of some of the nation's tallest windmills – eight turbines, each 568 feet in height. It was granted waivers allowing them as close as 284 feet from a property line – half the linear measure set by Honolulu's land use ordinance. Na Pua Makani's setback is just short of 100 yard, the length of a football field; this proximity raises valid nuisance and health-related concerns.

Resolution 19-305 was recently passed out of the Honolulu City Council Zoning Committee which would prohibit energy-producing windmills from being installed within 5 miles of any neighboring properties. Resolution 19-305 was introduced in response to the outcry in the Kahuku community over the development of the Na Pua Makani wind-power project. This Resolution instructs the Department of Planning and Permitting to draw up a bill to amend the Land Use Ordinance by requiring that any wind-power machines with a rated capacity of more than 100 kilowatts be set back a minimum of 5 miles from its own property line. If this Resolution is

adopted, then the proposed 5-mile distance would limit any property under DPP jurisdiction from hosting wind turbines, but it may allow farms on lands overseen by state agencies.

SB 2188 sets a 1-mile setback from the nearest farm or residential unit for certain wind-energy facilities on agricultural land. However, the linear measure of a reasonable setback for a wind project remains unclear.

With regard to Na Pua Makani, none of the research referenced in its EIS looked at effects of a windmill situated slightly less than 95 yards from residents. Only two states have set standards for setback distances (Wyoming and Wisconsin), and both, as well as most European countries, require greater setbacks than that of the windmills of Na Pua Makani. The difficulty in coming to a conclusion about the effects of windmills on human health is that none of the studies researched the effects of windmills located this close to human habitation. Most studies measure the effects on humans living within a one-half to 2-mile radius, so there is no solid information of the effects when a windmill is less than a half-mile away. One of the principal studies used for the project's EIS was Colby et al. (2009), and the data used for that study was based on people living within 1.5 miles of the turbines.

In addition, many studies report that wind farms may be likely factors of indirect health problems caused by stress arising from any of the wind farm's effects. The noise of the windmills is often likened to that of light traffic and studies of light traffic noise show that it can cause health-affecting stress in 8% - 10% of the population. A windmill built too close will generate excessive and/or persistent background noise, flicker from sunlight passing through the spinning blades, electromagnetic radiation, and infrasound (sound below the level human ears can detect).

HB 2188, HD 1, tasks the University of Hawai`i's John A. Burns School of Medicine with conducting or contracting for an examination of noise levels and upshot matters including potential noise-related health issues, such as headache, anxiety, and hearing loss. Many unanswered questions may be made clear through this study.

For these reasons, we urge you to vote favorably on this bill which establishes a 1-mile setback from the nearest existing farm dwelling or residential dwelling unit for certain wind energy facilities on agricultural districts; requires a study on the effects of noise production by wind energy facilities on the health of residents and students; and appropriates funds.

Mahalo for the opportunity to testify,

/s/ Melodie Aduja

Melodie Aduja
Co-Chair, Green New Deal Committee
Environmental Caucus
Democratic Party of Hawai`i
Email: legislativepriorities@gmail.com

https://www.staradvertiser.com/2019/12/30/editorial/our-view/editorial-review-permits-for-giant-turbines/

https://www.staradvertiser.com/2019/11/21/editorial/island-voices/health-effects-of-aes-turbines-inconclusive-caution-needed/

https://www.staradvertiser.com/2020/03/12/editorial/our-view/editorial-find-middle-way-on-wind-turbines/

https://www.staradvertiser.com/2020/03/08/hawaii-news/zoning-committee-decision-could-restrict-wind-farms-on-oahu/

LATE

HB-2188-HD-1
Submitted on: 3/13/2020 2:11:52 PM
Testimony for EET on 3/13/2020 2:45:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Kerrianne O'Malley	Individual	Support	No

Comments:

Aloha Chair Wakai and members of the Energy, Economic Development, and Tourism committee,

I am writing in strong support of this bill. My name is Kerrianne, I am currently a fourth-year student studying Marine Biology at Hawaii Pacific University. Although I was not born and raised in the islands, it feels like my heart and soul were born here. I believe that it is unjust to implement projects with the potential to cause harm to communities, wildlife, and the aina. It is absolutely necessary to conduct robust research on the effects of noise production by wind energy facilities on the health of residents and student. Without care and consideration for the Hawaiian peoples and their values, it seems to me that the age-old business model that knowingly exploits the land, the water, and indigenous communites is being perpetuated by those with the power and resposibility to make the necessary changes and restore justice for people and our planet. Laws should keep up with develpoing social norms of people protecting the aina, it's people, it's more vulnerable keiki, it's wildlife and their future. The mile setback will directly and indirectly alleviate the impacts on the people, the more vulnerable and their futures, (less proximity, less resistance, and less hardship). Mahalo for your time, again I testify strongly in support HB2188 HD1.

LATE

HB-2188-HD-1
Submitted on: 3/13/2020 3:15:01 PM
Testimony for EET on 3/13/2020 2:45:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Ramona Okimoto	Individual	Support	No

Comments:

HB 2188 HD1 – RELATING TO WIND ENERGY FACILITIES Chair Wakai, Vice Chair Taniguchi, and members of the committee:

Thank you for this opportunity to testify in support of HB 2118 HD1,

As a concerned resident living within 2 miles of the Na Pua Makani Industrial Wind Turbines, I feel that having at least a 1 mile set back is absolutely necessary. NPM project in Kahuku is affecting many families and the community in numerous negative ways. Having an additional 8 turbines added to the 12 turbines already in place impacts the safety, health, and quality of life that Kahuku residents are forced to bear.
Please study the effects of infrasound, audible noise and many other health effects noted from other towns across the continental US and throughout Europe.

These MASSIVE industrial wind turbines are TOO BIG and TOO CLOSE! Standing at 568 feet tall with blades that are 220 feet wide, they are TALLEST IN THE NATION. The First Hawaiian Bank is the tallest building in Honolulu at 429 feet. These industrial turbines will affect the Kahuku community of 2,500 people, threatening their health and depreciating their property for the next 20+ years.

The World Health Organization recommends a setback of 5280 feet but these turbines are built only 1750 feet away from the community, 1648 feet from the Elementary school and 750 feet to residential farmer's homes.

Imagine the families and keiki that are being FORCED TO LIVE with these MONSTER turbines, destroying the sanctuary of their homes and putting their health at risk. Noise, shadow flicker, stress, insomnia, headaches, tinnitus, vertigo and nausea are negative health effects that have reportedly been experienced by residents after wind turbine projects are placed in or near residential communities.

The endangered 'Å• pe'ape'a, (Hawaiian hoary bat) the state's official, and only endemic, land mammal is sacred and important to Hawaii's delicate ecosystem. O'ahu and Maui have already killed far more than the officially allowed total of 92 bats over 25 years, leading every wind company to request higher "take" (kill) licenses.

AES, the developer of this “green” project, is the single biggest polluter in Hawaii. They currently own and run the only coal fired energy power station plant in Kapolei, Hawaii. AES then got into windmills They are not interested in saving the world with green energy, they are interested in making a profit no matter the cost. AES Corporation, is a Fortune 500 multi-billion dollar company. Rural areas all across the nation have similar issues. Hawaii’s Governor Ige and Mayor Caldwell have been ignoring the voice of the people. Corruption in government occurs when they put PROFITS OVER PEOPLE. Follow the $$$ trail. Please remove this HEWA now!

We ask that the Senate Committee on Energy, Economic Development, and Tourism, the Department of Health, the Department of Education uphold their mission and request that they address the health concerns of our community pertaining to the industrial wind turbines proximity to our schools, residents, and hospital.

Ramona Okimoto

Concerned resident