



# HAWAII STATE ENERGY OFFICE STATE OF HAWAII

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## Testimony of **SCOTT J. GLENN, Chief Energy Officer**

before the  
**HOUSE COMMITTEE ON JUDICIARY**  
Thursday, February 13, 2020  
2:05 PM  
State Capitol, Conference Room 325

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

Chair Lee, Vice Chair San Buenaventura, 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, 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.<sup>1</sup>

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, and would like more information on the longitudinal study proposed in HD1. Specifically, it would be helpful to identify in the scope the number of wind energy facilities subject to study, the identification and coordination of the pool of “noise-exposed residents” from whom data would be collected, and possible next steps depending on the results. 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.

Thank you for the opportunity to testify.

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

<https://www.ncsl.org/research/energy/state-wind-energy-siting.aspx>



## **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  |
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| 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. <a href="#">§9-461 et seq.</a> ; <a href="#">§11-801 et seq.</a> | No state level approval is needed for siting wind facilities. Wind facilities must obtain siting and zoning approvals at the municipal or county level.  |

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| <b>Arkansas</b>    | Ark. Stat. Ann. <a href="#">§23-3-201 et seq.</a>  | Wind siting is conducted at the local level of government. Utility facilities providing a public service are authorized by the Public Service Commission  |
| <b>California</b>  | Cal. Government Code <a href="#">§65100-65107</a> ; <a href="#">§65893-65899</a> ; Cal. <a href="#">Public Resource Code §2100-21006</a> | 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 <a href="#">military facilities</a> .  |
| <b>Colorado</b>    | Colo. Rev. Stat. <a href="#">§30-28-106 (3)(a)(VI)</a> ; <a href="#">§40-5-101</a> ; <a href="#">§29-20-108 (2)</a>                      | 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.   |
| <b>Connecticut</b> | Conn. Gen. Stat. Ann. <a href="#">§ 16-50j</a> ; <a href="#">Connecticut Siting Council Wind Regulations</a>                             | 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.<br><br>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. |

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| <b>Delaware</b> | Del. Code Ann. tit. <a href="#">29 §80-8060</a>   | 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). |
| <b>Florida</b>  | Fla. Stat. Ann. <a href="#">§403.501-.518</a>   | 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.   |
| <b>Georgia</b>  | Ga. Code Ann. <a href="#">§ 36-70-1 et seq.</a>   | Georgia has no specific siting authority for wind generation. Local governments have primary authority over most types of siting.   |
| <b>Hawaii</b>   | Hawaii Rev. Stat. <a href="#">§201N</a>   | 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.   |
| <b>Idaho</b>    | Idaho Code <a href="#">§67-6504</a>   | Idaho has no specific siting authority for wind at the state level. Local governments, through city councils or county commissioners, have siting authority.  |
| <b>Illinois</b> | Ill. Rev. Stat. ch. <a href="#">55 §5/5-12020 (County); Ill. Rev. Stat. ch. 65 §5/11-13-26 (Municipality)</a> | 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.   |
| <b>Indiana</b>  | Ind. Code <a href="#">§36-7-1</a>   | Indiana has no specific siting authority for wind facilities at the state level. Local governments have authority to regulate siting.   |
| <b>Iowa</b>     | Iowa Code Ann. <a href="#">§476A.1 et seq.</a>  | 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.   |
| <b>Kansas</b>   | Kan. Stat. Ann. <a href="#">§12-741 et seq.</a> ; <a href="#">Kansas Energy Council Handbook</a>              | 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.   |
| <b>Kentucky</b> | Ky. Rev. Stat. <a href="#">§278.700 et seq.</a>   | 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.

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| <b>Louisiana</b>     | La. Rev. Stat. Ann. <a href="#">§33:101 et seq.</a>  | 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.   |
| <b>Maine</b>         | Me. Rev. Stat. Ann. tit. 38, <a href="#">§481-490; tit. 35A§3401-04; §3451-59; Maine Model Wind Facility Ordinance</a> | 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. |
| <b>Maryland</b>      | Md. Public Utility Code <a href="#">§7-207- 208</a>  | 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.  |
| <b>Massachusetts</b> | Mass. Ge. Laws Ann. ch. <a href="#">164, §69H; Massachusetts Model Bylaw</a>   | 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.  |
| <b>Michigan</b>      | Mich. Comp. Laws <a href="#">§125.3101 et seq.; Model Wind Ordinance</a>   | 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.  |
| <b>Minnesota</b>     | Minn. Stat. <a href="#">§216F; Minn. Admin. Rules §7854.0200</a>   | 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.   |
| <b>Mississippi</b>   | Miss. Code Ann. <a href="#">§17-1-1 et seq.</a>  | 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.   |



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| <b>Missouri</b>      | Mo. Rev. Stat. <a href="#">§89.010 et seq.</a>  | Local governments have authority in setting siting requirements for wind energy facilities.   |
| <b>Montana</b>       | Mont. Code Ann. <a href="#">§70-20;</a> <a href="#">§76-2-201;</a> <a href="#">§76-2-301</a>                                | For most purposes local governments in Montana control zoning. The Department of Environmental Quality may regulate certain components of siting, such as transmission.   |
| <b>Nebraska</b>      | Neb. Rev. Stat. <a href="#">§70-1001;</a> <a href="#">§66-913.</a>  | 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.  |
| <b>Nevada</b>        | Nev. Rev. Stat. Ann. <a href="#">§704.820 through 704.900;</a> <a href="#">§278.250(2)(n);</a> <a href="#">§ 278.02077</a>  | 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.  |
| <b>New Hampshire</b> | N.H. Rev. Stat. Ann. <a href="#">§162-H;</a> <a href="#">§674:63</a>  | <p>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.</p> <p>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.</p> |
| <b>New Jersey</b>    | N.J. Rev. Stat. <a href="#">§40:55D-4;</a> <a href="#">55D-55D-7;</a> <a href="#">55D-66.12;</a> <a href="#">55D-70(d).</a> | <p>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.</p> <p>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</p>   |

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.

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| <b>New Mexico</b>     | N.M. Stat. Ann. <a href="#">§62-9-3; §3-21-1</a>  | 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.  |
| <b>New York</b>       | N.Y. Pub. Ser. Law <a href="#">§160; N.Y. Energy Law §21-106; Wind Energy Model Ordinance</a> | 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.   |
| <b>North Carolina</b> | N.C. Gen. Stat. <a href="#">§143-215.115</a>  | North Carolina law prohibits the construction or operation of a wind energy facility without a permit from the Department of Environment and Natural Resources.  |
| <b>North Dakota</b>   | N.D. Cent. Code <a href="#">§49-22-16</a>   | 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 <a href="#">military facilities</a> . 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.   |
| <b>Ohio</b>           | Ohio Rev. Code Ann. <a href="#">§4906.13; §4906.20</a>  | 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. |

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| <b>Oklahoma</b>       | Okla. Stat. tit. 17 <a href="#">§160.11 through §160.19</a>  | 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.   |
| <b>Oregon</b>         | Or. Rev. Stat. <a href="#">§469.300 through §469.560; Model Ordinance</a>  | 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.   |
| <b>Pennsylvania</b>   | Pa. Cons. Stat. tit. <a href="#">53 §101 et seq.; Model Ordinance</a>  | 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   |
| <b>Rhode Island</b>   | R.I. Gen Laws <a href="#">§42-98-1; §45-24-27 et seq.</a>  | Rhode Island Energy Facility Siting Board licenses energy facilities 40 MW or greater. Local governments regulate the siting of smaller facilities.  |
| <b>South Carolina</b> | S.C. Code Ann. <a href="#">§58-33-10 et seq.; §6-29-310</a>  | The Public Utility Commission has licensing power over utility facilities greater than 75 MW. Local governments regulate the siting of smaller facilities.   |
| <b>South Dakota</b>   | S.D. Codified Laws Ann. <a href="#">§49-41B-2; 41B-4; 41B-25; 41B-35(3); §43-13-21 through 24; Model Ordinance</a> | 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.   |
| <b>Tennessee</b>      |  | 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.  |
| <b>Texas</b>          | Tex. Local Govt. Code Ann. <a href="#">§7-</a>   | In Texas, all zoning and siting is left to local government.   |

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|                         | <a href="#">A-211; §7-B-231-A</a>   |   |
| <b>Utah</b>             | Utah Code Ann. <a href="#">§10-9a-501; §17-27a-501; Model Wind Ordinance</a>  | In Utah, all zoning and siting is left to local governments. The state has developed a model ordinance for local governments  |
| <b>Vermont</b>          | Vt. Stat. Ann. tit. <a href="#">30 §248(2)(A); tit. 24 §4412(6)</a>   | 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. |
| <b>Virginia</b>         | Va. Code <a href="#">§56-265.1 to .9; §67.103</a>   | 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.   |
| <b>Washington</b>       | Wash. Rev. Code <a href="#">§80.50.020; §80.50.060</a>  | 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.   |
| <b>Washington, D.C.</b> |   | NCSL was unable to locate statutory authority for wind energy siting.   |
| <b>West Virginia</b>    | W. Va. Code <a href="#">§24-2-1</a>   | 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.  |
| <b>Wisconsin</b>        | Wis. Stat. <a href="#">§193.378(4g);</a><br>Public Service Commission <a href="#">Wind Siting Rules; Model Wind Ordinance</a> | 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

- Association of Fish and Wildlife Agencies, "Wind Power Siting, Incentives, and Wildlife Guidelines in the United States," (2007).
- Debora Donovan, "Wind Siting Regulations and Guidelines in Northeast, A Brief Update," Northeast Wind Resource Center (2015).
- 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).
- The National Association of Regulatory Utility Commissioners, "Wind Energy & Wind Park Siting and Zoning Best Practices and Guidance for States," (2012).
- Patricia E. Salkin, "[Renewable Energy and Land Use Regulation \(Part 2\),](#)" (2011).

**HB-2188-HD-1**

Submitted on: 2/12/2020 8:42:43 AM

Testimony for JUD on 2/13/2020 2:05:00 PM

| Submitted By | Organization  | Testifier Position | Present at Hearing |
|--------------|---------------|--------------------|--------------------|
| Sandie Wong  | Apollo Energy | Comments           | Yes                |

Comments:

Apollo Energy is a long time wind developer in the State of Hawaii and concurs with the testimony offered by the Hawaii State Energy Office on HB2188 during the February 4 hearing before the Committee on Energy and Environmental Protection.



# UNIVERSITY OF HAWAII SYSTEM

## Legislative Testimony

**LATE**

Testimony Presented Before the  
House Committee on Judiciary  
Thursday, February 13, 2020 at 2:05 p.m.

By

Jerris Hedges, MD, Dean  
James W. Hall III, PhD, Professor  
Department of Communication Sciences and Disorders  
John A. Burns School of Medicine

And

Michael Bruno, PhD  
Provost  
University of Hawai'i at Mānoa

### HB 2188 HD1 – RELATING TO WIND ENERGY FACILITIES

Chair Lee, Vice Chair San Buenaventura, and members of the committee:

Thank you for this opportunity to testify in **support** of HB 2188 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 Hawai'i 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 Hawai'i 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 Hawai'i 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 of HB 2188 HD1, provided that its passage does not impact the priorities as set forth in the University of Hawai'i Board of Regents' Approved Budget.



**Hawaiian  
Electric**

**TESTIMONY BEFORE THE HOUSE COMMITTEE ON  
JUDICIARY**

**H.B. 2188, HD1**

**Relating to Wind Energy Facilities**

Thursday, February 13, 2020  
2:05 p.m., Agenda Item #20  
State Capitol, Conference Room 325

**LATE**

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

Dear Chair Lee, Vice Chair Buenaventura, 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 proposes to amend Section 205-4.5 of the Hawaii Revised Statutes to  
establish a one-mile setback from the nearest existing farm dwelling or residential  
dwelling unit for wind energy facilities in agricultural districts. HD1 amends 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.

**HB-2188-HD-1**

Submitted on: 2/12/2020 12:35:29 PM

Testimony for JUD on 2/13/2020 2:05:00 PM

| Submitted By          | Organization | Testifier<br>Position | Present at<br>Hearing |
|-----------------------|--------------|-----------------------|-----------------------|
| melissa Kaonohi-Camit | Individual   | Support               | No                    |

Comments:

**HB-2188-HD-1**

Submitted on: 2/12/2020 3:06:38 PM

Testimony for JUD on 2/13/2020 2:05:00 PM

**LATE**

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

Comments:

Aloha,

I am a Kahuku resident and writing in strong support of HB 2188 HD 1 Relating To Wind Energy Facilities with recommendations.

As North Shore resident, I understand need for clean energy, but also understand that energy projects that can help Hawaii achieve its ambitious clean energy goals are not without impacts. Sometimes these impacts can be so great and poorly managed that they outweigh any benefit such a project might 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.

One of the main reasons the community was so upset was the poor siting done by the developer. Three of the 568 foot turbines being 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. 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.

Given the above, I would suggest HB 2188 HD 1 to call for a minimum set back of 1-mile for a for all large wind turbines, with all turbines over 350' tall to comply with a setback of 15' for each foot of vertical height. Increasing the set back from residential homes, schools, and farm dwellings is imperative to protect community members from harm.

Increasing the set back 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 wind industry claims that the science on health effects related to industrial wind turbines is conclusive, but this is incorrect. 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. It would be irresponsible and negligent to continue to allow residents of this state to act as guinea pigs against their will and possibly suffer health effects such as tinnitus, headaches, migraines, loss of sleep, increase epileptic seizures, nausea, dizziness and inability to focus. 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. 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.

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 jurisdictions scattered around the United States and Canada have adopted larger setbacks in recent years" ([lincoln.ne.gov](http://lincoln.ne.gov), 2015).

Given the above, 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.

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 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.

**HB-2188-HD-1**

Submitted on: 2/12/2020 10:19:17 PM

Testimony for JUD on 2/13/2020 2:05:00 PM

**LATE**

| Submitted By      | Organization | Testifier Position | Present at Hearing |
|-------------------|--------------|--------------------|--------------------|
| Sharlene Chun Lum | Individual   | Support            | No                 |

## Comments:

I strongly support HB2188 HD1, but ask that you please amend the bill to include urban and rural districts in the one mile setback as well. The recent situation in Kahaku must never happen again and should be corrected. No community should ever be put at risk from wind energy facilities. There are studies that call for further research regarding the link between wind turbines and its negative impact on people's health.