County of Yolo

PLANNING AND PUBLIC WORKS DEPARTMENT

John Bencomo
DIRECTOR

292 West Beamer Street
Woodland, CA 95695-2598
(530) 666-8775 FAX (530) 666-8728
www.yolocounty.org

PLANNING COMMISSION STAFF REPORT **JULY 9, 2009**

FILE #2007-080: Amend the zoning regulations in the County Code (Title 8, Chapter 2) by adding Section 8-2.2418 (Small and Large Wind Energy Systems); and amending Sections 8.2.403, 8-2.603, 8-2.613, 8-2.704, 8-2.714, 8-2.1204, 8-2.1304, 8-2.1404, 8-2.1504, 8-2.1604, 8-2.1704, and 8-2.1804 to allow small and large wind energy systems with either a Site Plan Review, a Minor Use Permit, or a Major Use Permit.

APPLICANT: Yolo County

LOCATION: All parcels in the unincorporated Yolo County area zoned for Agricultural uses (the A-P, A-1, AGI zones), for Residential Suburban and Rural Residential use (the R-S and RRA zones), for Commercial uses (the C-1, C-2, C-3, and C-H zones), and Industrial uses (the M-L, M-1, and M-2 zones)

SUPERVISOR: all districts

ZONING: Agricultural zones (A-P, A-1, AGI zones); Residential Suburban and Rural Residential (the R-S and RRA zones); Commercial zones (the C-1, C-2, C-3, and C-H zones); and Industrial zones (the M-L, M-1, and M-2 zones)

GENERAL PLAN: Agricultural (AG); Rural Residential Agricultural (RRA), Residential, Very Low density (VLR); all Commercial designations (C, LC, HCS, NC, GC); and all Industrial designations (I, Li)

FLOOD ZONE: various

SOILS: various

FIRE ZONE: various

ENVIRONMENTAL DETERMINATION: Negative Declaration

REPORT PREPARED BY:

Eric Parfrey, Principal Planner

REVIEWED BY:

David Morrison, Assistant Director

RECOMMENDED ACTION

That the Planning Commission recommends the Board of Supervisors take the following actions:

1. **HOLD** a public hearing and consider public comments regarding the proposed Small and Large Wind Energy Systems Ordinance **(Attachment A)**;

2. **ADOPT** the Negative Declaration as the appropriate level of environmental review in accordance with the California Environmental Quality Act (CEQA) and Guidelines (**Attachment B**); and

3. **ADOPT** the Ordinance amending the County Code to add the Small and Large Wind Energy Systems Ordinance (**Attachment A**).

REASONS FOR RECOMMENDED ACTION

Previously enacted state law (California Government Code Section 65892.13), provided criteria for, and encouraged, the installation of small wind energy systems in order to reduce demands on public utilities. The previous state law set minimum design standards for wind energy systems that apply in the absence of local regulations. However, the original state legislation included a "sunset" provision, and the law was repealed in 2006. The State Legislature is now considering the adoption of an updated statute (Assembly Bill 45, Blakeslee) which, if enacted, would go into effect on July 1, 2010 (**Attachment C**). If AB 45 becomes law, local small wind energy ordinances adopted prior to July 1, 2010 would not be required to comply with the standards included in the State law. The proposed Yolo County ordinance for small wind energy systems is generally consistent with the most recent version of the proposed state law, and adds further design standards specific to the county.

The county ordinance has been developed to also regulate large utility-scale wind energy systems, which are not subject to state law or any proposed legislation. Large wind energy systems over 50 kilowatts in size are not regulated by the California Energy Commission or any other State agency, but are reviewed and approved by local, usually county, planning agencies. The potential for the establishment of large wind energy farms in Yolo County is judged to be low, based on meteorological (wind) data; however, the county should be prepared with design standards should an application be presented.

BACKGROUND

The Planning Commission held workshops on this item on March 12, 2009 and May 14, 2009. At the May 14 workshop, the commission heard from a representative of the California Wind Energy Collaborative at UC-Davis, and a group of professors and students in the Mechanical Engineering Department who work to encourage small and large scale wind systems.

Since the last workshop in May, staff has circulated an Initial Study/Negative Declaration analyzing the potential impacts of the new ordinance. The ordinance has been reviewed, and comments have been received by some of the county's citizens advisory committees. Staff has also completed more research of the avian collision/bird strike issues related to wind energy, an issue which is very important since Yolo County has significant wetlands and natural resources in the Yolo Bypass and elsewhere that support large bird populations.

Very few significant comments have been received to date on the proposed Small and Large Wind Energy Systems Ordinance and the associated environmental analysis. The Initial Study/Negative Declaration was circulated through the State Clearinghouse, but no responses were submitted by any State agencies. Staff has followed up however, with some discussions with the staff at the California Energy Commission on the bird strike issue (see below). Members of the California Wind Energy Collaborative at UC Davis have also submitted written comments, which are discussed at the end of this staff report under "Other Agency Involvement." Any additional late comments will be supplied to the Planning Commission on the date of the hearing.

Wind Energy Potential in Yolo County

As noted in the background materials presented in the previous two Planning Commission staff reports, the wind energy maps prepared by the California Energy Commission (CEC) indicate that

consistent wind speeds are greatest along the coast of California, and in several inland areas, such as the Altamont and San Gorgonio Passes, which are already developed with wind farms. Yolo County is adjacent to Solano County where some large scale wind energy development has occurred in the Rio Vista-Suisun area. However, Yolo County is not considered a likely candidate for large-scale wind energy systems because of the generally low wind speeds in most areas; although state officials have indicated it may be possible to capture wind along the top of the Capay Hills or Blue Ridge mountain ranges in western Yolo County. The proposed ordinance could allow such large wind systems, although turbines would be precluded from locating "below any major ridgeline visible from any designated scenic corridor listed by the state or in the Open Space Element of the County General Plan, unless they are designed to blend in with the surrounding environment in such a manner that they would not have a significant visual impact, as determined by the Zoning Administrator or Planning Commission."

Regarding wind resources for small turbines, according to the map and estimates prepared by CEC, two-thirds (66%) of Yolo County's 434,000 acres, experience average wind speeds of at least Class II levels (at least 10-12.5 miles per hour), that could power turbines. However, a much smaller portion of the county, only 1,577 acres, is considered "prime" for small wind development, which are those areas with average wind speeds of at least 13.3 miles per hour, at a height of 30 meters (approximately 100 feet) above ground. The CEC identifies three general zip code areas in western Yolo County as the "windiest": Zip Codes 95694 (including the City of Winters, and the remote lands westward to the Solano County line); 95627 (including Esparto, Hungry Hollow, and the farmlands and mountains west of Interstate 505 to the Capay Hills); and 95606 (including the Capay Valley).

To date, even though there are increasingly attractive Federal and State tax incentives, rebates, and other subsidies, for families that wish to construct small wind turbines, Yolo County has not issued any building permits for such systems. However, as noted above, staff anticipates that there will be increased interest from property owners to construct small wind turbines, and possibly large systems, in the unincorporated areas. New county regulations should be approved prior to any state law that may limit the county's ability to limit the height of turbines on relatively small parcels of one to two acres, and limit the ability to add custom regulations to protect unique county resources, such as bird gathering areas of the Yolo Bypass.

The need for local regulation of wind energy, especially small turbines, must be balanced by the perception that too much local restriction could seriously dampen interest in constructing turbines. A recent staff report prepared for the State Senate Committee on Local Government discussed this issue, and cited research prepared by the California Wind Energy Collaborative at UC Davis. The report noted that:

> "Concerns about energy costs and greenhouse gases continue to stimulate interest in small wind turbines that generate electricity. A 10-kilowatt wind turbine with 22-foot diameter blades sits on top of a tower that may be 60 to 140 feet tall. State officials say that 413 small wind energy systems that generate 2.5 megawatts of electricity have qualified for rebates under the California Energy Commission's Emerging Renewables Program....
>
> Manufacturers say that property owners are still having trouble getting local permits to install small wind energy systems. The California Wind Energy Collaborative at UC Davis surveyed wind turbine installers about their problems with obtaining local permits. Nine companies reported installing 64 small wind energy systems in 24 counties in 2008. The installers' most common complaints were inconsistent regulations, high fees, and the processing time. The UC Davis report recommended a statewide solution to these problems."

Staff has attempted to fashion a set of regulations that avoids applying an onerous discretionary Use Permit process for most small wind turbines, instead allowing them "by right" with the issuance of a Site Plan Review in the agricultural zones of Yolo County (see further description, below).

STAFF ANALYSIS

The attached ordinance adds a new section to the Yolo County Code (**Attachment A**), employing a tiered review process for small and large wind energy systems, based on the height of the wind tower, the size of the parcel, the zone district where it is to be located, and whether the wind system conforms to a list of specific design standards. Small wind systems (defined as over 35 feet in height) would be allowed in agricultural, rural residential, commercial, and industrial zones, and would be prohibited in urban residential zones. Wind turbines less than 35 feet in height would be allowed with a building permit only.

For large wind energy systems (generating more than 50 kilowatts), all applications would be subject to a Major Use Permit, and would be referred to the Planning Commission for approval. Large wind energy systems would be allowed only within agricultural zoning districts, and would be required to conform to more restrictive setback, and other regulations, than small energy systems.

Two of the most contentious issues associated with the permitting of wind energy involve the height of the system, and potential impacts to avian species (bird strikes). Both issues are discussed in some detail below.

Height Limits

The height of small wind energy systems is measured in "tower height," and "system height." The tower height is measured to the top of the tower, excluding the turbine and blades. The "system height" is measured to the tip of the turbine blade at the 12:00 position. Thus, the system height is usually the sum of the tower height (for example, 80 feet) plus the portion of the blade that extends above the top of the tower (for example, maybe one half of a 22 foot blade).

The height of a wind energy tower is very important, and local regulations that restrict heights must be cognizant of the economic effect of those restrictions. As one trade report (American Wind Energy Association, *In the Public Interest, How and Why to Permit fro Small Wind Systems*) notes:

> "A tall tower is the single most important factor in the economic viability of a small wind system. Tall towers enable turbines to access faster and better quality winds, and even small increases in wind speed translate to exponentially more energy the turbine can generate. In other words, a taller tower means far more - and cheaper - energy."

The draft Small and Large Wind Energy Systems Ordinance proposes that small wind turbines over 35 feet, and up to 100 feet in tower height and up to 160 feet in system height, would be allowed in all agricultural zones, and would be approved with a ministerial, "over the counter" Site Plan Review approval. Small wind systems in the agricultural areas would not require a public hearing, unless the application failed to meet the specific design standards set forth in the ordinance, in which case the application would be referred by staff to the Zoning Administrator, or the Planning Commission, for a hearing and issuance of a Minor or Major Use Permit. The design standards include minimum parcel size; height; setback distance to nearest property line; screening; adjacency to nearby residences and to any scenic corridors or resources; proposed design and colors; lighting; noise; adjacency to nearby wetlands or other bird gathering locations, and other issues.

Wind systems up to 100 feet in tower height, and up to 160 feet in system height, would also be allowed in rural residential, commercial, and industrial zones, upon issuance of either a Minor or Major Use Permit, again depending whether the application met the specific design standards.

These height limits are consistent with the most recent amendments to AB 45, the wind energy bill. As now written, AB 45 would require all local jurisdictions that have not adopted a wind energy ordinance by July, 2010, to allow small wind systems "by right" (no discretionary Use Permit required) if they are under 100 feet in tower height, and are located outside urban areas on parcels of at least five acres.

These height limits will also accommodate the heights of some of the most popular wind systems. For example, the Bergey Wind Excel model of wind turbine (7.5-10 kW) is usually mounted on a 60, 80, 100, 120, or 140 foot high tower. The Skystream 3.7 turbine (2.4 kW) comes on towers of 30 to 60 feet.

As proposed in the county ordinance, small wind energy systems would also be allowed on properties within non-agricultural areas that are zoned for rural residential, commercial, and industrial uses, through the issuance of a Minor or Major Use Permit. Specifically, small wind systems below 50 feet in tower height, or 100 feet in system height, would be permitted with approval of a Minor Use Permit, issued by the Zoning Administrator, after a public hearing, in areas zoned for Residential Suburban (R-S) uses, Rural Residential (RRA) uses, commercial uses (in the C-1, C-2, C-3, and C-H zones), and industrial uses (in the M-L, M-1, and M-2 zones). If an application for a small wind energy system is proposed in a rural residential, commercial, or industrial area on a small lot of less than two acres, or if the application fails to meet the design standards set forth in the regulations, the application would be referred to the Planning Commission for a public hearing and issuance of a Major Use Permit.

Bird Strike Issues

The issue of wind energy's impacts to birds and bats is among the most contentious issues that must be addressed when local jurisdictions regulate turbine approvals. In terms of biological impacts, the main concern is the fact that birds and bats, including protected species, do collide with wind energy towers, and result in fatalities. A key document, prepared by the California Energy Commission, and the Department of Fish and Game (The California Guidelines for Reducing Impacts to Birds and Bats from Wind Energy Development, October 2007, see http://www.energy.ca.gov/windguidelines/index.html), provides a methodology for assessing the risks wind energy systems pose for birds and bats, and identifies mitigation measures to minimize potential impacts. The report, however, does not offer any conclusive recommendations for setbacks between wind systems and bird gathering areas.

According to the staff member at the California Energy Commission who provides expertise on bird strike issues (Rick York), there is no "magic number" for an appropriate setback distance between a wind turbine and a wetland area, or other known areas where birds congregate. There are however, design characteristics of certain wind systems that are preferable in terms of reducing potential avian mortality. For example, biologists prefer monopole tower systems, as opposed to towers composed of lattice and/or towers anchored with guy wires. Lattice towers provide "perch opportunities" that encourage birds to perch on the lattice, thereby creating greater danger for collisions with the turbine blade. Guyed towers (towers supported by guy wires for support) are also more dangerous for birds, because of the potential for collisions with the guy wires.

Most small wind energy systems are sold in a variety of tower heights, and variety of tower construction designs that are a mix of guyed, lattice, and tubular (monopole) towers. For example, the popular Bergey Wind small home systems (www.bergey.com) that are 7.5 to 10 kW in size,

range from 60 to 140 feet in tower height, and consist of "standard guyed-lattice towers," "tilt-up tubular and guyed-lattice towers," "self-supporting lattice towers," and "self-supporting tubular towers." From the biologists' point of view, the self-supporting tubular (monopole) towers are the most preferable to reduce bird impacts, but these are also the most costly. A 90 foot tubular tower, with no lattice or guy wires, costs about $24,000, while a cheaper alternative, a 100-foot guyed-lattice tower costs about one half that much. The wind turbine portion of the system (without the tower) can cost between $25,000 to $30,000, so the cost savings if a lattice and/or guyed tower is chosen can make up a substantial portion of the total system cost.

Small turbines that meet the design standards included in the proposed ordinance, including the provisions to avoid biological impacts noted below in Section 8-2.2418.4(g), would be approved with a non-discretionary "over the counter" Site Plan Review approval. Applications that did not meet the design standards would be subject to discretionary review and further environmental analysis through the Use Permit process.

In the most recent version of the ordinance, the previous 1,000-foot setback for wetlands and other bird gathering areas has been reduced to 500 feet, except for public wildlife refuge lands. Wind systems can be permitted within the 500 foot setback area, if discretionary Use Permit review is provided and appropriate findings are adopted. The findings may include a provision that acknowledges that the design of the proposed tower will lessen potential impacts related to bird strikes. Specifically, additional language added to Section 8-2.2418.4(g) encourages the use of monopoles, as opposed to lattice or guyed-lattice towers, for wind systems that are proposed within 1,000 feet of publicly owned wildlife refuges (i.e., the Yolo Bypass Wildlife Refuge) or within 500 feet of privately owned lands that support sensitive resident or migratory bird populations. The changes to the ordinance (in strikeout and underline) are as follows:

> "Biological Impacts. Wind energy systems shall not be allowed in locations that support habitat for special status protected bird and bat species. To minimize the potential for special status birds and bats to collide with towers/turbines, wind energy systems shall not be located in the following general locations, as mapped or determined by the Natural Diversity Data Base, the Yolo County Natural Heritage Program, or similar programs, unless findings are adopted by the Zoning Administrator or Planning Commission, as described in (4), below.
>
> (1) Within ~~one thousand (1,000)~~ five hundred (500) feet of wetlands, staging areas, wintering areas, bat roosts, or rookeries documented as supporting birds or bats listed as endangered or threatened species under the federal or California Endangered Species Acts; or
> (2) Within migratory flyways documented by state or federal agencies; or
> (3) Within one thousand (1,000) feet of publicly owned wildlife refuges.
> (4) Small wind energy systems may be located in such areas described above in (1), (2), or (3), if discretionary Use Permit review is provided and the Zoning Administrator or Planning Commission adopts findings of fact, after consultation with the California Department of Fish and Game and U.S. Fish and Wildlife Service, as appropriate, and consistent with The California Guidelines for Reducing Impacts to Birds and Bats from Wind Energy Development, (October 2007, as amended), that determine installation of a small wind energy system in the proposed location will not have a significant impact on any protected birds and bats. In determining potential impacts, the design of the proposed tower shall be considered, and the use of monopoles, as opposed to lattice or guyed-lattice towers, shall be encouraged.

Large wind energy systems would also be required to meet the siting and other design criteria of Section 8-2.2418.4(g). Each application for a large wind energy system would be subject to a Major Use Permit, and the discretionary review would include environmental analysis of biological and other impacts.

OTHER AGENCY INVOLVEMENT

An Initial Study/Negative Declaration (**Attachment B**) has been prepared for the proposed ordinance. The Initial Study and a Notice of Intent to Adopt a Negative Declaration were circulated to a list of approximately 30 interested agencies and organizations, including the chairs of the citizens advisory committees, from April 27, 2009 to May 28, 2009. The Initial Study was also circulated through the State Clearinghouse, for review by state agencies, but no responses were submitted by any state agencies. Staff has followed up however, with some discussions with the staff at the California Energy Commission on the bird strike issue (see above). Members of the California Wind Energy Collaborative at UC Davis have also offered comments on the ordinance (see below).

Some of the county citizens advisory committees have reviewed the ordinance during May and June, and have offered comments. The Yolo-Zamora Citizens Advisory Committee reviewed the ordinance at their May 14 meeting and voted 6-0 to recommend approval as written. The only concerns raised involved wind turbines on Williamson Act contracted lands. The Capay Valley Area General Plan advisory committee reviewed the ordinance and asked if the permit fees for wind energy systems could be reduced by the county, as is done with solar energy systems.

The Esparto Citizens Advisory Committee (ECAC) reviewed the ordinance last year and commented in an October 27, 2008 letter. The ECAC letter requested that:

- A Use Permit be required for any wind energy systems proposed in the Esparto planning area;
- Any system tall enough to require a light per FAA requirements require a Use Permit;
- Any wind energy systems over 50 decibels require a Use Permit;
- Sec. 8-2.2418.7(a) be modified to increase the number of months a wind energy system can be idle from 12 to 24 months with an option for an extension to allow for contractor, weather, and repair variables;
- Add the following to end of Sec. 8-2.2418.7(c): "...to recover costs associated with removal for structures deemed a public hazard"; and
- Delete Sec. 8-2.2418.7(d), because ECAC feels that the potential cost of a "removal bond" would be detrimental to the intent of wind energy recovery and its economic gain within Yolo County.

Staff's response to each of the ECAC requests follows in order:

- Staff is not inclined to require that all wind energy systems, regardless of the size of the parcel or which zoning district they are located in, be subject to a discretionary permit in only one part of the county (Esparto);
- Any wind energy tower tall enough to require FAA review and a light (more than 200 feet high) would automatically go through a Use Permit process;
- The ECAC was concerned that wind turbines that generate more than 50 decibels in noise could affect neighbors in the developed part of Esparto. However, turbines would not be an allowed use in the urban parts of Esparto, which are generally zoned R-1 or R-2. The proposed ordinance requires that any small wind energy system "not generate noise levels exceeding 60 decibels or any existing maximum noise levels applied pursuant to the Noise Element of the General Plan, or noise ordinance, for the applicable zoning district, as measured at the nearest property line";
- The text of Sec. 8-2.2418.7(a) has been modified to specify that a small wind energy system is considered abandoned if it is not operating for 18 months;
- The text of Sec. 8-2.2418.7(c) has been modified to include the recommended phrase;

- The text of Sec. 8-2.2418.7(d) has been modified so that a "removal bond" is only required for large wind energy systems.

Members of the California Wind Energy Collaborative (CWEC) at UC-Davis have also offered comments on the ordinance, in a letter dated July 1, 2009 (**Attachment D**). The CWEC discusses the following issues, and includes the following recommendations for changes to the proposed ordinance:

- Modify the definition of "small" wind energy system and modify height limit;
- Delete or modify the requirement that turbines must be located to "take maximum advantage of the screening afforded by any existing trees, topography and structures to minimize the system's visibility."
- Delete or modify the requirement for a system to be a "color appropriate to the background."

Regarding the first issue, CWEC notes that "Modern wind power has changed dramatically since its emergence in the early 1980's. 50 kW is no longer considered large, but twenty-five years ago, it was a utility-scale wind turbine. Today, typical utility-scale machines are 1.5 MW to 3.0 MW." Thus, CWEC recommends changes to the small wind system definitions and/or regulations that would potentially allow for (1) slightly larger capacity turbines and (2) taller systems that could reach better wind resources.

CWEC specifically recommends that small turbines be defined as "rotor swept area of 200 m2 or less, or "certified to the AWEA standard"; or that total system height limit be eliminated or increased to 200 feet; or that the hub/tower height limit be eliminated; or that the restriction (definition) of the capacity for small turbines (50 kW or less) be deleted or increased "so that the capacity limit does not conflict with the above two criteria."

Staff accepts the validity of the CWEC recommendations and proposes that further research be conducted to determine how other jurisdictions are addressing this issue. In the meantime, staff proposes the following modifications of the small and large wind energy definitions:

> Sec. 8-2.299.6.5. Large wind energy system.
> "Large wind energy system" shall mean a utility-scale wind energy conversion system consisting of several wind turbines, towers, and associated control or conversion electronics, which <u>generally</u> have a rated capacity of more than ~~50~~ <u>500</u> kilowatts per customer site and that will be used to produce utility power to off-site customers.
>
> Sec. 8-2.299.6.5. Small wind energy system.
> "Small wind energy system" shall mean a wind energy conversion system consisting of a wind turbine, a tower, and associated control or conversion electronics, which has a rated capacity of not more than ~~50~~ <u>500</u> kilowatts per customer site consistent with the requirements of paragraph (3) of subdivision (b) of Section 25744 of the Public Resources Code and that will be used to reduce net onsite consumption of utility power. Such uses are accessory to a primary use on the site.

At this time, staff is not inclined to revise the proposed height regulations for small wind energy systems, pending further discussions with CWEC representatives, State legislative staff members, and other interested parties.

Regarding the second "screening" issue and the third "color" issue, staff also agrees with the points raised by the CWEC and proposes the following modifications in the ordinance:

(d) Measures to minimize aesthetic impacts.

(1) Use of existing site features for screening. Wind energy systems ~~shall~~ should be located to take ~~maximum~~ advantage of the screening afforded by any existing trees, topography and structures to minimize the system's visibility from dwellings on adjacent property and public roads, but without significantly compromising ~~consistent with~~ viable system performance. Screening should not significantly block or reduce the wind reaching the turbine and should not increase the turbulence (gustiness) of the wind to the turbine. Priority for appropriate screening shall be given (in descending order) to minimizing visibility from existing dwellings on adjacent properties and across the roadway from the wind energy system, public rights-of-way, and public parks and open spaces. At the discretion of staff, ~~A~~applicants proposing wind energy systems in locations that ~~cannot be~~ are not at least partially screened by any existing trees, topography or structures must submit documentation as to why locations which would provide screening are not available or technically feasible due to wind speeds or other characteristics.

(2) Colors and finish. Wind energy system components shall have a nonglare/non-reflective finish (e.g., galvanized metal) or ~~color~~ appropriate color of neutral white or light gray. On smaller turbines, darker neutral colors (dark gray, black, unfinished metal) are usually also acceptable. Logos and advertising to be explicitly prohibited. ~~to the background against which they would be primarily viewed (e.g., green or brown to the tree line and gray or light blue above), as determined by the Zoning Administrator or Planning Commission, unless it is not technically possible to do so.~~

ATTACHMENTS

A: Ordinance Adding Provisions to the Yolo County Code Relating to Small and Large Wind Energy Systems
B: Initial Study/Negative Declaration
C: Assembly Bill 45 (Blakeslee)
D: Letter dated July 1, 2009 from California Wind Energy Collaborative at UC-Davis

ATTACHMENT A

ORDINANCE NO. 2009-_____

(An Ordinance Adding Provisions of the Yolo County Code
Relating to Small and Large Wind Energy Systems)

[Note: Changes to the previous May, 2009 draft ordinance are in ~~strikeout~~ and underline.]

The Board of Supervisors of the County of Yolo hereby ordains as follows:

Section 1. Purpose.

The purpose of this Ordinance is to add regulations relating to the permitting of small and large wind energy systems. The ordinance is consistent with pending State law that encourages the construction of small wind systems to conserve energy. These changes are also necessary to improve and enhance public welfare and safety, and to implement the Yolo County General Plan.

Section 2. Revisions to Title 8, Chapter 2, of the Yolo County Code.

A. New Definitions. The following definitions shall be added to Article 2 of Chapter 2 of Title 8 of the Yolo County Code, together with appropriate revisions to the table of contents to Chapter 2 of Title 8 to reflect the inclusion of new definitions:

Sec. 8-2.243.5. Wind energy, free air zone.
"Wind energy, free air zone" shall mean that the bottom of the turbine's blades are at least 10 feet above any structure or object that is within 300 feet.

Sec. 8-2.299.6.5. Large wind energy system.
"Large wind energy system" shall mean a utility-scale wind energy conversion system consisting of several wind turbines, towers, and associated control or conversion electronics, which have a rated capacity of more than ~~50~~ 500 kilowatts per customer site and that will be used to produce utility power to off-site customers.

Sec. 8-2.280.1. Wind energy, on-site.
"Wind energy, on-site" shall mean only the parcel upon which a small wind energy system and its associated accessory structure(s) are located and the location upon which the electrical power generated is primarily used.

Sec. 8-2.299.6.5. Small wind energy system.
"Small wind energy system" shall mean a wind energy conversion system consisting of a wind turbine, a tower, and associated control or conversion electronics, which has a rated capacity of not more than ~~50~~ 500 kilowatts per customer site consistent with the requirements of paragraph (3) of subdivision (b) of Section 25744 of the Public Resources

Code and that will be used to reduce net onsite consumption of utility power. Such uses are accessory to a primary use on the site.

Sec. 8-2.299.13.5 Wind energy, system height.
"Wind energy, system height" shall mean the height above existing grade of the fixed portion of both a small or large wind energy system tower, and the height to the tip of the blade or the highest point of the system at the 12:00 position.

Sec. 8-2.204.15.5 Wind energy, tower height.
"Wind energy, tower height" shall mean the height above existing grade of the fixed portion of a small or large wind energy system tower, excluding the wind turbine.

Section 3. Addition of Section 8-2.2418 to Title 8, Chapter 2, of the Yolo County Code.

Section 8-2.2418 shall be added to Chapter 2 of Title 8 of the Yolo County Code, and shall read in full as follows:

Sections:

8-2.2418.1 Purpose
The purposes of this section are as follows:

(a) To provide for the placement of small, accessory wind energy systems to enable generation of electricity from the wind, primarily for on-site use, thereby reducing the consumption of electricity supplied by utility companies.

(b) To provide regulations to process applications for utility-scale large wind energy systems that generate electricity from the wind primarily for off-site customers.

(c) To minimize potential adverse impacts associated with wind energy systems on area residents, historic sites, aesthetic quality and wildlife through careful siting, design and screening, consistent with state law.

(d) To avoid or minimize public safety risks associated with wind energy systems by providing standards for the placement, design, construction, modification and removal of such systems, consistent with federal, state and local regulations.

8-2.2418.2 Applicability.
The provisions of this section apply to small wind energy systems that generate more than one (1) kilowatt of electricity, or are greater than thirty-five (35) feet in height, or have rotors one (1) meter or more in diameter. Small wind energy systems over these size criteria require the issuance of a Site Plan Review, Minor Use Permit, or Major Use Permit approval, as set forth below. The installation of any wind energy system below these size criteria is allowed in any zone district and requires issuance of a building permit only. The provisions of this section also apply to large wind energy systems that generate more than fifty (50) kilowatts of electricity

8-2.2418.3 Locations, Minimum Parcel Size, Number of Systems Allowed, and Approvals Required

(a) Permitted Locations. Small wind energy systems used to reduce onsite consumption of electricity may be installed and operated in the following districts: agricultural districts (the Agricultural Preserve (A-P) Zone, the Agricultural General (A-1) Zone, and the Agricultural Industry (AGI) Zone); rural residential districts (the Rural Residential (RRA) Zone and the Residential Suburban (R-S) Zone); commercial districts (the Neighborhood Commercial (C-1) Zone, the Community Commercial (C-2) Zone, the General Commercial (C-3) Zone, and the Highway Commercial (C-H) Zone); and industrial districts (the Limited Industrial (M-L) Zone, the Light Industrial (M-1) Zone, and the Heavy Industrial (M-2) Zone). Large utility scale wind energy systems used to produce electricity for off-site customers may be installed and operated in the following districts: agricultural districts (the Agricultural Preserve (A-P) Zone, the Agricultural General (A-1) Zone, and the Agricultural Industry (AGI) Zone).

(b) Prohibited Locations. Small and large wind energy systems may not be allowed or permitted ~~in the following locations or anywhere they are~~ where otherwise prohibited by any of the following:
   (1) Sites listed in the National Register of Historic Places or the California Register of Historical Resources pursuant to Section 5024.1 of the Public Resources Code.
   (2) A comprehensive land use plan and any implementing regulations adopted by an airport land use commission pursuant to Article 3.5 (commencing with Section 21670) of Chapter 4 of Division 9 of Part 1.
   (3) The terms of an open-space easement entered into pursuant to the Open-space Easement Act of 1974, Chapter 6.6 (commencing with Section 51070) of Division 1 of Title 5 of the Government Code.
   (4) The terms of an agricultural conservation easement entered into pursuant to the California Farmland Conservancy Program Act, Division 10.2 (commencing with Section 10200) of the Public Resources Code.
   (5) The terms of a contract entered into pursuant to the Williamson Act, Chapter 7 (commencing with Section 51200) of Division 1 of Title 5 of the Government Code.
   (6) The terms of any easement entered into pursuant to Chapter 4 (commencing with Section 815) of Division 2 of Part 2 of the Civil Code.).

(c) Minimum Parcel Size. All small wind energy systems shall be located on parcels of at least one (1) acre in size. All large wind energy systems shall be located on parcels of at least twenty (20) acres in size, subject to a Major Use Permit being issued, as required below.

(d) Number of Systems Allowed. On parcels containing large agricultural operations, up to a maximum of one small wind energy system for every ten (10) acres may be allowed, provided that each of the systems meet the definition of small wind energy systems contained in Section 8-

(e) Approvals Required. The following types of approvals are required:

(1) Construction of small wind energy systems on rural lands zoned for agricultural uses (including the Agricultural Preserve (A-P) zone, the Agricultural General (A-1) zone, and the Agricultural Industry (AGI) zone) may be approved through the issuance of a Site Plan Review approval by staff. This approval is a ministerial, "over the counter" approval like a building permit, and does not require a public hearing, unless the application fails to meet the specific Design Standards set forth in Section 8-2.2418.4(e), below, in which case the application may be referred by staff to the Zoning Administrator or the Planning Commission for a hearing and decision to issue a Minor or Major Use Permit, consistent with Sections 8-2.3203 or 8-2.2804.

(2) Construction of small wind energy systems located on properties within non-agricultural or urban areas that are zoned for rural residential, commercial, and industrial uses are also allowed through the issuance of a Minor or Major Use Permit, depending on the application's consistency with all of the Design Standards set forth in Section 8-2.2418.5, below. Specifically, wind systems are permitted with approval of a Minor Use Permit, issued by the Zoning Administrator after a public hearing, consistent with Section 8-2.3203, on lots of two acres or more, and which meet all of the Design Standards set forth in Section 8-2.2418.5, below, in areas zoned for Residential Suburban (R-S) uses, Rural Residential (RRA) uses, commercial uses (in the C-1, C-2, C-3, and C-H zones), and industrial uses (in the M-L, M-1 and M-2 zones). If the application for a small wind energy system is proposed on a small lot of less than two acres, or if the application fails to meet any of the Design Standards, the application may be referred by staff to the Planning Commission for a public hearing and issuance of a Major Use Permit, consistent with Section 8-2.2804.

(3) Construction of large wind energy systems on rural lands zoned for agricultural uses (including the Agricultural Preserve (A-P) zone, the Agricultural General (A-1) zone, and the Agricultural Industry (AGI) zone) shall be approved in all cases through the issuance of a Major Use Permit.

8-2.2418.4 Design Standards, Small Wind Energy Systems

Design Standards. Applications for small wind energy systems shall meet all of the following standards and any permit issued for such a system shall be conditioned to meet the standards, unless findings of fact to justify a waiver of any of the standards are adopted by the Zoning Administrator or the Planning Commission:

(a) Maximum tower and system height. Any system application shall include evidence that the proposed height does not exceed the height recommended by the manufacturer or distributor of the system. In no case shall the system height exceed any limits established by applicable Federal Aviation Administration requirements. ~~The height of small wind energy systems shall not exceed a maximum height of one hundred (100) feet for the tower and one hundred seventy five (175) feet for the system, except as allowed under (2) and (3), below:~~

(1) On agricultural (A-P, A-1, AGI) zoned parcels of one acre to five acres, the height of small wind energy systems shall not exceed a maximum height of ~~one hundred (100)~~ sixty (60) feet for the tower and ~~one hundred seventy five (175)~~ eighty (80) feet for the system.

(2) On agricultural (A-P, A-1, AGI) zoned parcels of more than five acres, the height of small wind energy systems shall not exceed a maximum height of one hundred (100) feet for the tower and one hundred ~~seventy five (175)~~ sixty (160) feet for the system unless the applicant can demonstrate that such height is not in the free air zone. In no case shall the system height exceed any limits established by applicable Federal Aviation Administration requirements.

(3) Small wind energy systems proposed on agricultural (A-P, A-1, AGI) zoned parcels with heights greater than those specified in (1) and (2), above, may be permitted through the issuance of either a Minor Use Permit or a Major Use Permit, to be determined by county staff.

(4) On parcels of two (2) acres or more within the Residential Suburban (R-S) and Rural Residential (RRA) zones, the commercial (C-1, C-2, C-3, and C-H) zones, and the industrial (M-L, M-1 and M-2) zones, the height of small wind energy systems shall not exceed a maximum height of fifty (50) feet for the tower and one hundred (100) feet for the system, and the systems may be permitted through the issuance of a Minor Use Permit. Wind energy systems on parcels between one (1) and two (2) acres within the Residential Suburban (R-S) and Rural Residential (RRA) zones, the commercial (C-1, C-2, C-3, and C-H) zones, and the industrial (M-L, M-1 and M-2) zones, and wind energy systems between fifty (50) and one hundred (100) feet in height for the tower, and between one hundred (100) feet and one hundred ~~seventy five (175)~~ sixty (160) feet in height for the system, may be permitted through the issuance of a Major Use Permit;

(5) Notwithstanding the height limits in (1), (2), and (3), above, all allowed and permitted wind energy towers located on properties adjacent to an Airport (AV) Zone that are within a designated aviation safety zone and/or which are regulated by an applicable airport master or land use plan, shall comply with applicable Federal Aviation Administration (FAA) safety height requirements and/or the applicable adopted airport master or land use plans.

(b) Setbacks. The minimum setback from any property line to the base of wind energy system shall be equal to the system's height. The setbacks required by this subsection shall be measured from the base of the tower to the property line of the parcel on which it is located; provided that where guy wire supports are used, setbacks shall be measured from where the guy wire is anchored to the ground, rather than the base of the tower. The Zoning Administrator or Planning Commission may allow reduced setbacks if s/he determines it would result in better screening of the system, i.e., closer spacing would allow greater screening from trees, structures, or topography or otherwise reduce the systems' visual impact, provided that the owner of the neighboring property agrees in writing.

(c) Lattice and/or guyed towers shall not be allowed within five hundred (500) feet of a residential district (R-1, R-2, R-3, or R-4 districts), excluding Residential Suburban (R-S) and Rural Residential (RRA) districts.

(d) Measures to minimize aesthetic impacts.

(1) Use of existing site features for screening. Wind energy systems ~~shall~~ should be located to take ~~maximum~~ advantage of the screening afforded by any existing trees, topography and structures to minimize the system's visibility from dwellings on adjacent property and public roads, but without significantly compromising ~~consistent with~~ viable system performance. Screening should not significantly block or reduce the wind reaching the turbine and should not increase the turbulence (gustiness) of the wind to the turbine. Priority for appropriate

screening shall be given (in descending order) to minimizing visibility from existing dwellings on adjacent properties and across the roadway from the wind energy system, public rights-of-way, and public parks and open spaces. At the discretion of staff, ~~A~~applicants proposing wind energy systems in locations that ~~cannot be~~ are not at least partially screened by any existing trees, topography or structures must submit documentation as to why locations which would provide screening are not available or technically feasible due to wind speeds or other characteristics.

(2) Colors and finish. Wind energy system components shall have a nonglare/non-reflective finish (e.g., galvanized metal) or ~~color~~ appropriate color of neutral white or light gray. On smaller turbines, darker neutral colors (dark gray, black, unfinished metal) are usually also acceptable. Logos and advertising to be explicitly prohibited. ~~to the background against which they would be primarily viewed (e.g., green or brown to the tree line and gray or light blue above), as determined by the Zoning Administrator or Planning Commission, unless it is not technically possible to do so.~~

(3) Signals, Lights and Signs. No signals, lights or signs shall be permitted on a small wind energy system unless required by the Federal Aviation Administration (FAA). If lighting is required, the County shall review the available lighting alternatives acceptable to the FAA and approve a design that it determines would cause the least impact on surrounding views. Such permitted wind systems shall be of a height that does not require installation of a flashing light or signal in compliance with FAA regulations, unless the lights/signals are screened from view of motorists, pedestrians, and occupants of adjacent structures, consistent with FAA requirements; or the applicant demonstrates that the alternative locations for the system would also require a light/signal and would be no less visible from the surrounding area than the proposed location. However, in documented migratory bird flyways, preference shall be given to white strobe lights operating at the longest interval allowed per FAA requirements.

(e) Crop Dusting. In the event a wind energy system is proposed to be sited in an agricultural area that may have pest control aircraft operating at low altitudes, the applicant and County shall take reasonable steps to notify and solicit comments from pest control aircraft pilots registered to operate in the county. Wind energy systems shall not be allowed where the Zoning Administrator or Planning Commission determines they would pose a risk for pilots spraying fields.

~~(f) Military airspace authority. Wind energy systems shall not be sited on land within a restricted military airspace unless adequate notice and opportunity to comment has been provided to the governing authority of that air space.~~

~~(g)~~(f) Biological Impacts. Wind energy systems shall not be allowed in locations that support habitat for special status protected bird and bat species. To minimize the potential for special status birds and bats to collide with towers/turbines, wind energy systems shall not be located in the following general locations, as mapped or determined by the Natural Diversity Data Base, the Yolo County Natural Heritage Program, or similar programs, unless findings are adopted by the Zoning Administrator or Planning Commission, as described in (4), below:

(1) Within ~~one thousand (1,000)~~ five hundred (500) feet of wetlands, staging areas, wintering areas, bat roosts, or rookeries documented as supporting birds or bats listed as endangered or threatened species under the federal or California Endangered Species Acts; or
(2) Within migratory flyways documented by state or federal agencies; or
(3) Within one thousand (1,000) feet of publicly owned wildlife refuges.
(4) Small wind energy systems may be located in such areas described above in (1), (2), or (3), if discretionary Use Permit review is provided and the Zoning Administrator or Planning Commission adopts findings of fact, after consultation with the California Department of Fish and Game and U.S. Fish and Wildlife Service, as appropriate, and consistent with *The California Guidelines for Reducing Impacts to Birds and Bats from Wind Energy Development*, (October 2007, as amended), that determine installation of a small wind energy system in the proposed location will not have a significant impact on any protected birds and bats. In determining potential impacts, the design of the proposed tower shall be considered, and the use of monopoles, as opposed to lattice or guyed-lattice towers, shall be encouraged.

~~(h)~~(g) Views and scenic corridors. Wind energy systems shall not be located where they would substantially obstruct views of adjacent property owners and shall be placed or constructed below any major ridgeline visible from any designated scenic corridor listed by the state or in the Open Space Element of the County General Plan, unless they are designed to blend in with the surrounding environment in such a manner that they would not have a significant visual impact, as determined by the Zoning Administrator or Planning Commission.

~~(i)~~(h) Slopes. Construction of a wind energy system on any slopes steeper than four to one (4:1) is prohibited.

~~(j)~~(i) Noise. The proposed system shall not generate noise levels exceeding 60 decibels or any existing maximum noise levels applied pursuant to the Noise Element of the General Plan, or noise ordinance, for the applicable zoning district, as measured at the nearest property line, except during short-term events such as utility outages and severe wind storms.

~~(k)~~(j) Climbing apparatus. Climbing apparatus shall be located at least twelve (12) feet above the ground, and the tower shall be designed to prevent climbing within twelve (12) feet of the ground.

~~(l)~~(k) Site access and on-site roads. Construction of on-site roads to install and maintain wind energy systems shall be minimized. Temporary access roads used for initial installation shall be regraded and revegetated to a natural/preconstruction condition after completion of installation.

~~(m)~~(l) Turbine certification. Wind energy system turbines shall be approved by the California Energy Commission or certified by a national program (i.e., National Electrical Code (NEC), American National Standards Institute (ANSI) and Underwriters Laboratories (UL)).

~~(n)~~(m) Building, engineering, and electrical codes. The system shall comply with the California Building Code and be certified by a professional mechanical, structural, or civil engineer licensed by the state. However, a wet stamp shall not be required, provided that the applicant demonstrates that the system is designed to meet the:
(1) UBC requirements for wind exposure D;
(2) UBC requirements for Seismic Zone 4;
(3) Requirements for soil strength of not more than 1,000 pounds per square foot; or

(4) Other relevant conditions required by the county to protect public safety.
(5) Electrical components of the system shall conform to the National Electric Code.

8-2.2418.5 Design Standards, Large Wind Energy Systems

Design Standards. Applications for large wind energy systems shall meet all of the following standards and any Major Use Permit issued for such systems shall be conditioned to meet the standards, unless findings of fact to justify a waiver of any of the standards are adopted by the Planning Commission:

(a) Large wind energy systems shall comply with subsections (e) through ~~(m)~~(l) of Section 8-2.2418.4, above.

(b) Maximum tower and system height. Any system application shall include evidence that the proposed height does not exceed the height recommended by the manufacturer or distributor of the system.

(c) Setbacks. The following setbacks shall be required for large wind energy systems:
(1) The minimum setback from the base of any large wind energy system to any adjacent property line where the adjacent parcels contain less than forty (40) acres shall be equal to two (2) times the overall system's height, or five hundred (500) feet, whichever is less;
(2) The minimum setback from the base of any large wind energy system to any adjacent property line where the adjacent parcels contains more than forty (40) acres shall be equal to one and one-half (1.5) times the overall system's height, or five hundred (500) feet, whichever is less;
(3) The minimum setback from the base of any large wind energy system to any off-site residence(s) on adjacent parcels shall be three (3) times the overall system's height, or seven hundred fifty (750) feet, whichever is less;
(4) The Planning Commission may allow a reduction in the setbacks in (1), (2) or (3), above, not to exceed a minimum setback of one (1) times the overall wind system's height, if a letter of consent from the owner(s) of record of adjacent parcels is filed with the county. The Planning Commission may also allow a reduction or waiver of the setbacks in (1) or (2), above, if the project exterior boundary is a common property line between two (2) or more approved wind energy projects and the property owner of each affected property has filed a letter of consent to the proposed setback reduction with the county.
(5) The minimum setback from the base of any large wind energy system to any on-site residence(s) and accessory structures designed for human occupancy shall be equal to one and one-half (1.5) times the overall system's height, or five hundred (500) feet, whichever is less;
(6) The minimum setback from the base of any large wind energy system to any publicly maintained public highway or street, any public access easement, including any public trail, pedestrian easement, or equestrian easement, or railroad right-of-way, shall be equal to one and one-half (1.5) times the overall system's height, or five hundred (500) feet, whichever is less.

(d) Wind generator setbacks (spacing) within the project boundary shall be in accordance with accepted industry practices pertaining to the subject machine.

(e) Fencing shall be erected for each wind machine or on the perimeter of the total project. Wind project facilities shall be enclosed with a minimum four- (4-) foot-high security fence constructed

of four (4) strand barbed wire or materials of a higher quality. Fencing erected on the perimeter of the total project shall include minimum eighteen- (18-) inch by eighteen- (18-) inch signs warning of wind turbine dangers. Such signs shall be located a maximum of three hundred (300) feet apart and at all points of site ingress and egress. Where perimeter fencing is utilized, the Planning Commission may waive this requirement for any portion of the site where unauthorized access is precluded due to topographic conditions.

(f) All on-site electrical power lines associated with wind machines shall be installed underground within one hundred fifty (150) feet of a wind turbine and elsewhere when practicable, excepting therefrom "tie-ins" to utility type transmission poles, towers, and lines. However, if project terrain or other factors are found to be unsuitable to accomplish the intent and purpose of this provision, engineered aboveground electrical power lines shall be allowed.

(g) Colors and finish. Wind energy system components shall have a nonglare/non-reflective finish (e.g., galvanized metal) or color appropriate to the background against which they would be primarily viewed ~~(e.g., green or brown to the tree line and gray or light blue above)~~, as determined by the Planning Commission, unless it is not technically possible to do so.

(h) Signals, Lights and Signs. No signals, lights or signs shall be permitted on a ~~small~~ wind energy system unless required by the Federal Aviation Administration (FAA). If lighting is required, the County shall review the available lighting alternatives acceptable to the FAA and approve a design that it determines would cause the least impact on surrounding views. However, in documented migratory bird flyways, preference shall be given to white strobe lights operating at the longest interval allowed per FAA requirements.

(i) Noise. Where a sensitive receptor such as a residence, school, church, public library, or other sensitive or highly sensitive land use, as identified in the Noise Element of the County General Plan, is located within one-half ~~(1)~~ (1/2) mile ~~in a prevailing downwind direction or within one-half (1/2) mile~~ in any ~~other~~ direction of a project's exterior boundary, a noise or acoustical analysis shall be prepared by a qualified acoustical consultant prior to the issuance of any Major Use Permit. The report shall address any potential noise impacts on sensitive or highly sensitive land uses, and shall demonstrate that the proposed wind energy development shall comply with the following noise criteria:

(1) Audible noise due to wind turbine operations shall not be created which causes the exterior noise level to exceed forty-five (45) dBA for more than five (5) minutes out of any one- (1-) hour time period, or to exceed fifty (50) dBA for any period of time, when measured within fifty (50) feet of any existing residence, school, hospital, church, or public library.

(2) In the event that noise levels, resulting from a proposed development, exceed the criteria listed above, a waiver to said levels may be granted by the Planning Commission provided that: written consent from the affected property owners has been obtained stating that they are aware of the proposed development and the noise limitations imposed by this code, and that consent is granted to allow noise levels to exceed the maximum limits allowed; and a permanent noise impact easement has been recorded on the affected property.

(j) A toll-free telephone number shall be maintained for each wind energy project and shall be distributed to surrounding property owners to facilitate the reporting of noise irregularities and equipment malfunctions.

(k) Fire Protection. Any Major Use Permit issued for a large wind energy system project shall include fire control and prevention measures stated in the Conditions of Approval which may include, but are not limited to, the following:
(1) Areas to be cleared of vegetation and maintained as a fire/fuel break as long as the wind system is in operation, such as thirty (30) feet around the periphery of the system base and around all buildings (access driveways and roads that completely surround the project may satisfy this requirement); and ten (10) radius feet around all transformers.
(2) All buildings or equipment enclosures of substantial size containing control panels, switching equipment, or transmission equipment, without regular human occupancy, shall be equipped with an automatic fire extinguishing system of a Halon or dry chemical type, as approved by the applicable Fire Department.
(3) Service vehicles assigned to regular maintenance or construction at the wind energy system shall be equipped with a portable fire extinguisher of a 4A40 BC rating.
(4) All motor driven equipment shall be equipped with approved spark arrestors.

(l) Erosion and Sediment Control. Any Major Use Permit issued for a large wind energy system project shall include erosion and sediment control measures stated in the Conditions of Approval which may include, but are not limited to, necessary re-soiling, proposed plant species, proposed plant density and percentage of ground coverage, the methods and rates of application, sediment collection facilities. The soil erosion and sedimentation control plan shall be consistent with the applicable requirements of the California Regional Water Quality Control Board pertaining to the preparation and approval of Storm Water Pollution Prevention Plans.

(m) Monitoring. Upon reasonable notice, county officials or their designated representatives may enter a lot on which a large wind energy system permit has been granted for the purpose of monitoring noise environmental impacts, and other impacts which may arise. Twenty-four hours advance notice shall be deemed reasonable notice.

(n) Building, engineering, and electrical codes. The system shall comply with the California Building Code and be certified by a professional mechanical, structural, or civil engineer licensed by the state. A wet stamp shall be required.

8-2.2418.6 Application Materials, Large Wind Energy Systems
An application for a large wind energy system shall include all of the application requirements for a Major Use Permit, in addition to these detailed site plan materials:

(a) Existing topography and drainage channels.
(b) Direction and velocity of prevailing winds across the project site, at various elevations.
(c) Location, height, and dimensions of all existing structures.
(d) Distance to all residences or other sensitive receptors located within two (2) miles of the exterior project boundary.
(e) Manufacturer and model designation, rated KW capacity, overall machine height (grade level to highest tip extension), total blade diameter, hub height, rated maximum rotor RPM,

location of proposed structures and buildings and, upon request of the Planning Director, manufacturer's production record.

(f) Location, grades, and dimensions of all roads and parking areas, both existing and proposed.

(g) Location and extent of known archaeological resources.

(h) Location and type of project security fencing.

(i) . Location of site by longitude and latitude coordinates within ten (10) feet and elevation of site above mean sea level within ten (10) feet.

(j) A plan of proposed project phasing.

(k) Any and all technical reports which may be required to prove consistency with applicable policies and design standards listed in this section, and which may be used as the basis for implementing mitigation measures incorporated into the environmental document adopted for the project, such as noise, biological resources, scenic resources, geotechnical and other studies.

(l) A certificate signed by a registered civil engineer or licensed land surveyor stating that area encompassed by the project has been surveyed under his supervision or that a previous survey was performed by a registered civil engineer or licensed land surveyor and that sufficient monuments have been placed to accurately establish the exterior project boundaries.

(m) A certificate signed by a registered civil engineer or licensed land surveyor stating that the proposed development is in full compliance with the requirements of this chapter. The Director of the Planning and Public Works Department may require the submittal of additional documentation of compliance when deemed necessary.

(n) A soil erosion and sedimentation control plan, including revegetation plan.

(o) If the application includes any wind energy system tower with a total height over 200 feet or any system which is located within 20,000 feet of the runway of any airport, the application shall be accompanied by a copy of written notification to the Federal Aviation Administration.

(p) An application including any wind energy system located within two miles of any microwave communications link shall be accompanied by a copy of a written notification to the operator of the link.

(q) An application including any wind energy system located within a 100-year flood plain area, as such flood hazard areas are shown on the maps designated by the county or the Federal Emergency Management Agency, shall be accompanied by a detailed report which shall address the potential for wind erosion, water erosion, sedimentation and flooding, and which shall propose mitigation measures for such impacts.

(r) Such additional information as shall be required by the Planning Director.

8-2.2418.7 Abandonment and Financial Surety.

(a) A <u>small</u> wind energy system that ceases to produce electricity on a continuous basis for <u>eighteen</u> ~~(12)~~ <u>18</u> months shall be considered abandoned. A <u>large</u> wind energy system that ceases to produce electricity on a continuous basis for twelve (12) months shall be considered abandoned. Facilities deemed by the county to be unsafe and facilities in violation of this chapter shall also be deemed abandoned. The code enforcement officer, who shall have the right to request documentation and/or affidavits from the system owner/operator regarding the system's usage, shall make a determination as to the date of abandonment.

(b) Upon a determination of abandonment, the county shall send a notice hereof to the owner/operator, indicating that the responsible party shall remove the wind energy system and all associated facilities, and remediate the site to its approximate original condition within ninety

(c) In the event that the responsible parties have failed to remove the wind energy system and/or restore the facility site within the specified time period, the county may remove the wind energy system and restore the site and may thereafter initiate judicial proceedings against the responsible parties to recover costs associated with the removal of structures deemed a public hazard.

(d) Financial Surety. Prior to the issuance of a building permit authorizing installation of a large wind energy system, the applicant shall provide a demolition surety in a form and amount deemed by the county to be sufficient to remove and dispose of the wind energy system and restore the site to its approximate preconstruction condition. The county shall draw upon this surety in the event the responsible party fails to act in accordance with the provisions of this section within ninety (90) days of termination of operations, or upon determination by the county that the wind energy system is unsafe, has been abandoned, or is in violation of this chapter. The surety shall remain in effect until the wind energy system is removed.

Section 4. Revisions to Articles 4, 6, 6.1, 7, 7.1, 12, 13, 14, 15, 16, 17, and 18 of Title 8, Chapter 2, of the Yolo County Code.

Revisions to Article 4 of Title 8, Chapter 2 (Agricultural Preserve Zone). The following provisions contained in the current version of Article 4 of Chapter 2 of Title 8 of the Yolo County Code shall be revised as follows:

Sec. 8-2.403. Accessory uses (A-P). *Revise subsection (a) to read as follows:*
(a) Small and large wind energy systems, consistent with Section 8-2.2418;

Sec. 8-2.405. Height regulations (A-P). *Revise to read as follows:*
There shall be no height regulations in the AP Zone except where required for conditional uses and as set forth in Section 8-2.2605, Section 8-2.2418, and Article 34 of this Chapter.

Add other zoning district revisions (A-1, AGI, C-1, C-2, C-3, M-L, M-1, M-2)…

Section 5. Revisions to Section 8-2.2605 of Title 8, Chapter 2, of the Yolo County Code.

Revisions to Section 8-2.2605 of Title 8, Chapter 2 (Height regulations). The following provisions contained in the current version of Section 8-2.2605 of Chapter 2 of Title 8 of the Yolo County Code shall be revised as follows:

Sec. 8-2.2605. Height regulations.
The maximum height limitation regulations set forth in this Chapter for each particular zone shall be modified as follows:
(a) In any zone, other than the Agricultural Preserve Zone (A-P), the Agricultural General Zone(A-1), the Agricultural Exclusive Zone (AE), the Agricultural Industry Zone (AGI), the Airport Zone (AV), and the Special Height Combining Zone (H), and other than properties adjacent to an AV Zone within a designated aviation safety zone and/or which are regulated by an applicable airport master or land use plan, the following structures may extend not more

than thirty (30') feet above the height limits set forth in such zone; provided, however, applicable State and Federal regulations shall govern wherever conflicts occur: chimneys, church spires, flagpoles, monuments, water towers, fire and hose towers, observation towers, distribution lines and poles, communication equipment buildings, ~~windmills~~, smokestacks, ~~radio towers~~, television towers, radar towers, masts, aerials, television antennas, outdoor theater screens (provided such screens contain no advertising matter other than the name of the theater), equipment penthouses and cooling towers, grain elevators, farm equipment and storage barns, silos, and gas holders.

(b) In the Agricultural Preserve Zone (A-P), the Agricultural General Zone(A-1), the Agricultural Exclusive Zone (AE), and the Agricultural Industry Zone (AGI), there shall be no height limits, except for small wind energy systems, as specified in Section 8-2.2418.

(c) In the Airport Zone (AV), and the Special Height Combining Zone (H), and for those properties adjacent to an AV Zone that are within a designated aviation safety zone and/or which are regulated by an applicable airport master or land use plan, height limits shall be as set forth by the applicable Federal Aviation Agency height safety standards and/or by the applicable airport master or land use plan.

~~(b)~~(d) Upon the approval of the Planning Commission, the structures set forth in subsection (a) of this section and all structures normally permitted in such zones may be permitted to further exceed the height limits for the particular zone when the Planning Commission finds that such additional height is necessary for the normal operation of a permitted use and will not be injurious to neighboring properties or detrimental to the public health, safety, and welfare.

~~(c)~~(e) Churches, schools, and other permitted public and semi-public buildings may exceed the height limits of the zone in which they are located in accordance with the terms and conditions of an approved use permit.

~~(d)~~(f) In any zone, other than the Airport Zone (AV) and Special Height Combining Zone (H), public utility transmission lines may exceed the height limits of the zone in which they are located. (§ 27.05, Ord. 488, as amended by §10, Ord. 1244, eff. February 3, 2000)

ATTACHMENT B
Initial Study/Negative Declaration

YOLO COUNTY
PLANNING & PUBLIC WORKS DEPARTMENT

INITIAL STUDY/ NEGATIVE DECLARATION
ZONE FILE # 2007-080

SMALL AND LARGE WIND ENERGY
SYSTEMS ORDINANCE

April, 2009

Initial Environmental Study/Negative Declaration

1. **Project Title:** Zone File #2007-080

2. **Lead Agency Name and Address:**
   Yolo County Planning and Public Works Department
   292 West Beamer Street
   Woodland, CA 95695

3. **Contact Person, Phone Number, E-Mail:**
   Eric Parfrey, Principal Planner
   (530) 666-8043 eric.parfrey@yolocounty.org.

4. **Project Location:** The project would apply to all unincorporated properties in the agricultural, rural residential, commercial and industrial zoning districts in Yolo County

5. **Project Sponsor's Name and Address:**
   Yolo County Planning and Public Works Department
   292 West Beamer Street
   Woodland, CA 95695

6. **General Plan Designation(s):** Applies in unincorporated Yolo County within the following land use designations: Agricultural and Agricultural Exclusive; Rural Residential Agricultural and Residential, very Low Density; Commercial, Commercial, Low density, Highway Service Commercial, Neighborhood Commercial, General Commercial, Central Business District, and Commercial Multi-Family; and Industrial, Light Industrial, and Industrial, Planned Development

7. **Zoning**: Applies in unincorporated Yolo County within all agricultural districts (the Agricultural Preserve (A-P) Zone, the Agricultural General (A-1) Zone, and the Agricultural Industry (AGI) Zone); the rural residential districts (the Rural Residential (RRA) Zone and the Residential Suburban (R-S) Zone); all commercial districts (the Neighborhood Commercial (C-1) Zone, the Community Commercial (C-2) Zone, the General Commercial (C-3) Zone, and the Highway Commercial (C-H) Zone); and in all industrial districts (the Limited Industrial (M-L) Zone, the Light Industrial (M-1) Zone, and the Heavy Industrial (M-2) Zone)

8. **Project Summary:** The Small and Large Wind Energy Systems Ordinance would amend the Yolo County Zoning Ordinance to provide an updated set of procedures and standards for the review and permitting of wind energy systems located on unincorporated lands.

9. **Surrounding Land Uses and Setting:** Not applicable (applies to many of the unincorporated properties in Yolo County)

10. **Other public agencies whose approval is required:** None

11. **Other Project Assumptions:** The Initial Study assumes compliance with all applicable State, Federal, and Local Codes and Regulations including, but not limited to, County of Yolo Improvement Standards, the California Building Code, the State Health and Safety Code, and the State Public Resources Code.

Project Description:

The attached ordinance adds a new section to the County Code (**Attachment A**), employing a tiered review process for small and large wind energy systems, based on the height of the wind tower, the size of the parcel, the zone district where it is to be located, and whether the wind system conforms to a list of design standards. Small wind systems (defined as over 35 feet in height) would be allowed in agricultural, rural residential, commercial, and industrial zones, and would be prohibited in urban residential zones. Wind turbines under 35 feet in height would be allowed with a building permit only.

For large wind energy systems (generating more than 50 kilowatts), all applications would be subject to a Major Use Permit and be referred for approval to the Planning Commission. Large wind energy systems would be allowed only within agricultural zoning districts and would be required to conform to more restrictive setback and other regulations than small energy systems.

The height of wind energy systems is measured in "tower height" and "system height." The tower height is measured to the top of the tower, excluding the turbine and blades. The "system height" is measured to the tip of the turbine blade at the 12:00 position.

Small wind turbines over 35 feet and up to 100 feet in tower height (and up to 175 feet in system height) would be allowed in all agricultural zones and would be approved with a ministerial, "over the counter" Site Plan Review approval, consistent with the requirements of the pending State legislation. Small wind systems in the agricultural areas would not require a public hearing, unless the application failed to meet the specific design standards set forth in the ordinance, in which case the application would be referred by staff to the Zoning Administrator or the Planning Commission for a hearing and issuance of a Minor or Major Use Permit. Wind systems up to 100 feet in tower height and up to 175 feet in system height would be allowed in rural residential, commercial, and industrial zones, upon issuance of either a Minor or Major Use Permit, again depending whether the application met the specific design standards.

As noted above, large wind energy systems would be allowed in agricultural zones only and would be subject to a Major Use Permit. Large utility-scale wind operations would also be required to meet specific design standards intended to address all potential impacts related to wind energy systems. The impacts of the systems are generally related to: aesthetic/compatibility issues; biological impacts (bird collisions); public safety concerns; and noise.

State Law

By 2010, twenty percent of the electricity sold in California is supposed to come from renewable energy resources (Senate Bill 107, Chapter 464, Statutes of 2006). In addition, the California Energy Commission's 2004 Integrated Energy Policy Report Update recommends that 33 percent of the State's energy demands be met with renewable energy sources by 2020. Wind energy is expected to play a key role in

reducing the consumption of non renewable energy, according to the California Energy Commission.

Previously enacted State law provided criteria for, and encouraged, the installation of small wind energy systems in order to reduce demands on public utilities. The previous State law, repealed in 2006, set minimum design standards for wind energy systems that apply in the absence of local regulations. The State Legislature is now considering the adoption of an updated statute (AB 45, Blakeslee) which, if enacted, would go into effect on January 1, 2010. The proposed Yolo County ordinance for small and large wind energy systems is consistent with the most recent version of the proposed state law, and adds design standards specific to the county.

Amount of Land Suitable for Wind Energy in Yolo County

The U.S. Department of Energy ranks wind strength according to seven classifications, with Class 1 winds the weakest. Small wind energy turbines are generally cost-effective when installed in areas with at least Class 2 or Class 3 wind, where winds average at least 10-12.5 miles per hour at a height of 33 feet above ground. The primary map and data used to predict the performance and economics of small wind energy systems in the state is published by the California Energy Commission (CEC).

According to the map and estimates prepared by CEC, two-thirds (66%) of Yolo County's 434,000 acres has wind speeds of at least Class 2. However, a much smaller portion of the county, only 1,577 acres, is considered "prime" for small wind development, which are those areas with average wind speeds of at least 13.3 miles per hour at a height of 30 meters (approximately 100 feet) above ground. The CEC identifies three general zip code areas in western Yolo County as the "windiest": zip code 95694 (including the City of Winters and the remote lands westward to the Solano County line); 95627 (including Esparto, Hungry Hollow and the farmlands and mountains west of Interstate 505 to the Capay Hills); and 95606 (including Capay Valley).

Existing Yolo County regulations require the issuance of building permits and, possibly, Use Permits, for the construction of wind turbines. To date, Yolo County has received questions from interested landowners about wind energy permitting but the county has not processed or issued permits for any wind systems.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is still "Potentially Significant Impact" (after any proposed mitigation measures have been adopted) as indicated by the checklist on the following pages.

☐ Aesthetics	☐ Agricultural Resources	☐ Air Quality
☐ Biological Resources	☐ Cultural Resources	☐ Geology / Soils
☐ Hazards & Hazardous Materials	☐ Hydrology / Water Quality	☐ Land Use / Planning
☐ Mineral Resources	☐ Noise	☐ Population / Housing
☐ Public Services	☐ Recreation	☐ Transportation / Traffic
☐ Utilities / Service Systems	☐ Mandatory Findings of Significance	

DETERMINATION: (To be completed by the Lead Agency)

On the basis of this initial evaluation:

☒ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☐ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to the earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

_____ _____

Planner's Signature Date

PURPOSE OF THIS INITIAL STUDY

This Initial Study has been prepared consistent with CEQA Guidelines Section 15063, to determine if the project as described herein may have a significant effect upon the environment.

EVALUATION OF ENVIRONMENTAL IMPACTS

1. A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g. the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

2. All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3. Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect is significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

4. "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from Section XVII, "Earlier Analyses," may be cross-referenced).

5. A determination that a "Less Than Significant Impact" would occur is appropriate when the project could create some identifiable impact, but the impact would be less than the threshold set by a performance standard or adopted policy. The initial study should describe the impact and state why it is found to be "less than significant."

6. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration, pursuant to Section 15063 (c)(3)(D) of the California Government Code. Earlier analyses are discussed in Section XVII at the end of the checklist.

7. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g. general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

8. Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.

I. AESTHETICS

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☒	☐
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☒	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☐	☒

Discussion of Impacts

(a, (b), (c) Less than Significant Impact. The ordinance would allow the construction of wind turbine systems in rural agricultural and other areas which could affect scenic resources. However, Section 8-2.2418.4 of the ordinance sets specific Design Standards that must be met, which would avoid or mitigate any potential impacts upon scenic vistas or visual resources in the unincorporated area.

The ordinance's design standards require that any wind energy systems "shall not be located where they would substantially obstruct views of adjacent property owners and shall be placed or constructed below any major ridgeline visible from any designated scenic corridor listed by the state or in the Open Space Element of the County General Plan, unless they are designed to blend in with the surrounding environment in such a manner that they would not have a significant visual impact, as determined by the Zoning Administrator or Planning Commission."

The ordinance contains the following additional measures to minimize aesthetic impacts:

> (1) Use of existing site features for screening. Wind energy systems shall be located to take maximum advantage of the screening afforded by any existing trees, topography and structures to minimize the system's visibility from dwellings on adjacent property and public roads, consistent with viable system performance. Priority shall be given (in descending order) to minimizing visibility from existing dwellings on adjacent properties and across the roadway from the wind energy system, public rights-of-way, and public parks and open spaces. Applicants proposing wind energy systems in locations that cannot be at least partially screened by existing trees, topography or structures must submit documentation as to why locations which would provide screening are not available or technically feasible.
>
> (2) Colors and finish. Wind energy system components shall have a nonglare/non-reflective finish (e.g., galvanized metal) or color appropriate to the background against which they would be primarily viewed (e.g., green or brown to the tree line and gray or light blue above), as determined by the Zoning Administrator or Planning Commission, unless it is not technically possible to do so.

(d) Less than Significant Impact. Small wind systems would not normally be fixed with outdoor lighting. The ordinance includes safeguards to reduce potential impacts of lighting that is required by other agencies: "Signals, Lights and Signs. No signals, lights or signs shall be permitted on a small wind energy system unless required by the Federal Aviation Administration (FAA). If lighting is required, the County shall review the available lighting

alternatives acceptable to the FAA and approve a design that it determines would cause the least impact on surrounding views."

II. AGRICULTURAL RESOURCES:

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☒	☐
(b) Conflict with existing zoning for agricultural use or a Williamson Act contract?	☐	☐	☒	☐
(c) Involve other changes in the existing environment which due to their location or nature, could result in conversion of farmland, to non-agricultural use?	☐	☐	☐	☒

Discussion of Impacts

(a)(b) *Less than Significant Impact.* The proposed ordinance would allow wind energy systems in agricultural areas, on prime and non-prime lands, and on lands under Williamson Act contracts. The amount of land that could be converted from farmland to wind energy use is expected to be a relatively small portion of the total amount of agricultural land in the county, based on average wind speed data published by the the California Energy Commission (CEC). The CEC estimates that 1,577 acres are considered "prime" for small wind development, with average wind speeds of at least 13.3 miles per hour at a height of 30 meters (approximately 100 feet) above ground. The windiest areas include the Winters, Esparto, Hungry Hollow, Capay Valley, and Capay Hills areas of western Yolo County.

Individual small wind turbines occupy a relatively small footprint (a base measuring approximately 15 feet by 15 feet, or 225 square feet). Many of the small wind energy turbines expected to be sited under these new regulations would be placed on agricultural parcels that already have one or two home sites and accompanying agricultural structures, which would receive the benefit of the electrical generation. It is anticipated that the agricultural areas that would be converted from farming to a base for a new wind turbine would be minimal. To date, Yolo County has received questions from interested landowners about turbine permitting but the county has not processed or issued permits for any wind systems.

Agricultural impacts of large wind energy systems are more difficult to predict, as the systems could number dozens or even hundreds of individual turbines spread over hundreds or thousands of acres of farmland or grazing lands. Each application for a large wind energy system would be subject to a Major Use Permit and the discretionary review would include environmental analysis of agricultural and other impacts.

Under the proposed ordinance, small and large wind energy systems would be allowed as an accessory use in the agricultural zoning districts, including lands under Williamson Act contract. The Williamson Act allows local agencies to define uses that are allowed on lands under Williamson Act contract so long as the use is consistent with the agricultural or open space goals of the contract. However Section 8-2.2418.3(b) of the proposed ordinance prohibits wind energy systems from being allowed on lands subject to the terms of an agricultural conservation

easement or a contract entered into pursuant to the Williamson Act, if the easement or contract specifically forbids such accessory uses.

California Department of Conservation staff indicate that the establishment of small wind energy turbines on prime or non-prime lands as an accessory use to the main farming operations would be considered compatible with the Williamson Act (Grewal, 2009). Small and large wind systems located on non-prime lands would also be compatible. However, the Department is concerned that the permitting of large wind systems on prime lands could result in the conversion of prime soils lands to non-farming use, which would not be consistent with the Act.

(c) No impact. The wind energy ordinance would not allow the construction of any other structures or development, other than the turbine systems and the access roads that may be required to reach the turbines. A section of the ordinance specifically requires that "construction of on-site roads to install and maintain wind energy systems shall be minimized. Temporary access roads used for initial installation shall be regraded and revegetated to a natural/preconstruction condition after completion of installation." This requirement would minimize the permanent conversion of farmland.

III. AIR QUALITY:

Where applicable, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☒
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☒	☐
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☐	☒
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☐	☒

Discussion of Impacts

Thresholds of Significance:

The Yolo Solano Air Quality Management District (YSAQMD) has published a set of recommendations that provide specific guidance on evaluating projects under CEQA relative to the above general criteria (YSAQMD, 2002). The Guidelines identify quantitative and qualitative long-term significance thresholds for use in evaluating the significance of criteria air pollutant emissions from project-related mobile and area sources. These thresholds include:

Reactive Organic Gases (ROG)	82 pounds per day (ppd)
Oxides of Nitrogen (NOx)	82 ppd
Particulate Matter (PM_{10})	150 ppd
Carbon Monoxide (CO)	550 ppd

Development projects are considered cumulatively significant if:

1. The project requires a change in the existing land use designation (i.e., general plan amendment, rezone); and

2. Projected emissions (ROG, NOx, or PM_{10}) of the project are greater than the emissions anticipated for the site if developed under the existing land use designation.

Impact analysis:

a) *No Impact.* The wind energy ordinance would not substantially conflict with or obstruct implementation of the Yolo Solano Air Quality Management District Air Quality Attainment Plan (1992), the Sacramento Area Regional Ozone Attainment Plan (1994), or the goals and objectives of the County's General Plan. Wind energy could have a beneficial impact by helping to reduce the county's and the state's reliance on power generation from polluting sources of energy such as natural gas or coal.

b), c) *Less than Significant Impact.* The Yolo-Solano Region is a non-attainment area for state particulate matter (PM_{10}) and ozone standards, and the Federal ozone standard. Development of wind energy systems would not contribute significantly to air quality impacts, but could generate some small amount of PM_{10}, during grading of the site for the turbine pads and construction of access roads, etc.

d) *No Impact.* Adoption of the recommended changes in the Zoning Ordinance to allow permitting of individual small wind energy systems would not have the potential to expose any sensitive receptors to any substantial increase in pollutant levels, since setback requirements would preclude any site clearing or grading within proximity of nearby homes.

e) No Impact. The wind turbines would not generate any new odors.

IV. BIOLOGICAL RESOURCES

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☒	☐
b) Have a substantial adverse effect on any riparian habitat or sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☒	☐
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☒	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native residents or migratory wildlife corridors or impede the use of native wildlife nursery sites?	☐	☐	☐	☒
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒

f)	Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☒	☐

Discussion of Impacts

a), b), c), f) *Less than Significant Impact.* The proposed regulations include several restrictions that would preclude the development of wind energy on sensitive lands with important biological resources. Section 8-2.2418.3(b) of the proposed ordinance prohibits wind energy systems from being allowed on lands subject to the terms of an open-space or other easement, if the easement specifically forbids such accessory uses.

Section 8-2.2418.4(g) of the proposed ordinance also prohibits or tightly regulates the location of wind turbines in areas within or adjacent to natural and biological resources areas. The ordinance states:

> "Biological Impacts. Wind energy systems shall not be allowed in locations that support habitat for special status protected bird and bat species. To minimize the potential for special status birds and bats to collide with towers/turbines, wind energy systems shall not be located in the following general locations, unless findings are adopted by the Zoning Administrator or Planning Commission, as described in (d), below:
>
> (a) Within one thousand (1,000) feet of wetlands, staging areas, wintering areas, bat roosts, or rookeries documented as supporting birds or bats listed as endangered or threatened species under the federal or California Endangered Species Acts; or
> (b) Within migratory flyways documented by state or federal agencies; or
> (c) Within one thousand (1,000) feet of publicly owned wildlife refuges.
> (d) Small wind energy systems may be located in such areas described above in (a), (b), or (c), if the Zoning Administrator or Planning Commission adopts findings of fact, after consultation with the California Department of Fish and Game and U.S. Fish and Wildlife Service, as appropriate, and consistent with *The California Guidelines for Reducing Impacts to Birds and Bats from Wind Energy Development*, (October 2007, as amended), that determine installation of a small wind energy system in the proposed location will not have a significant impact on any protected birds and bats.

As noted above under "Agricultural Resources," individual small wind turbines occupy a relatively small footprint and many of the small wind energy turbines expected to be sited under these new regulations would be placed on agricultural parcels that already have one or two home sites and accompanying agricultural structures. It is anticipated that the agricultural areas that would be converted from farming to a base for a new wind turbine would be minimal. Small turbines that meet the design standards included in the proposed ordinance, including the provisions to avoid biological impacts noted above in Section 8-2.2418.4(g), would be approved with a non-discretionary "over the counter" Site Plan Review approval. Applications that did not meet the design standards would be subject to discretionary review and further environmental analysis through the Use Permit process.

Large wind energy systems would also be required to meet the siting and other design criteria of Section 8-2.2418.4(g). Each application for a large wind energy system would be subject to a Major Use Permit and the discretionary review would include environmental analysis of biological and other impacts.

The Yolo County Heritage Program, a Joint Powers Agency composed of the county, the cities, and other entities, is in the process of preparing a Natural Communities Conservation Plan/Habitat Conservation Plan (NCCP/HCP) for Yolo County. The NCCP/HCP will focus on protecting habitat of terrestrial (land, non-fish) species. In the interim, the program has signed an agreement with California Department of Fish and Game to implement a mitigation program for a

main species of concern, the Swainson's hawk. The agreement requires that local agencies review all discretionary applications for potential impacts to the hawk or hawk habitat, and either pay a per-acre in-lieu fee or purchase a conservation easement to mitigate for loss of habitat. Thus, under the Swainson's hawk mitigation program, individual wind turbine applications that would be subject to discretionary review would be assessed for impacts to habitat, and could be required to mitigate for loss of habitat (primarily row crops used for foraging by the hawk).

(d)(e) *Less than Significant Impact.* As noted above, the proposed wind energy ordinance would require all applications that do not meet the biological criteria of the design standards to undergo discretionary review, which would include environmental assessment and mitigation of any biological impacts. Individual small turbine construction would not be anticipated to disrupt or affect any wildlife corridors. All large wind energy applications would be assessed for potential impacts to sensitive birds and bats according to *The California Guidelines for Reducing Impacts to Birds and Bats from Wind Energy Development.*

The county does not have any other conservation ordinances, except for a voluntary oak tree preservation ordinance that seeks to minimize damage and require replacement when oak groves are affected by development.

V. CULTURAL RESOURCES

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☐	☐	☐	☒
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☐	☐	☒
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☒
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☐	☒

Discussion of Impacts

a) *No impact.* The proposed ordinance specifically excludes wind turbines from "sites listed in the National Register of Historic Places or the California Register of Historical Resources pursuant to Section 5024.1 of the Public Resources Code."

b), c), d) *No impact.* The ordinance would allow construction of wind turbines which could require some amount of ground clearing to prepare the pad for the machine. No impacts on archaeological, or paleontological resources, or on human remains, would be anticipated. Standard county conditions attached to all Site Plan Review and Use permit approvals require construction to be halted, and appropriate authorities notified, if any resources or remains are discovered during excavation. Also, applications for large wind energy systems are required to submit information related to "location and extent of known archaeological resources," so they can be avoided.

VI. GEOLOGY AND SOILS

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:	☐	☐	☐	☒
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known Fault? Refer to Division of Mines and Geology Special Publication 42.				
ii) Strong seismic ground shaking?				
iii) Seismic-related ground failure, including liquefaction?				
iv) Landslides?				
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☐	☒
c) Be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☐	☒
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☐	☒
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒

Discussion of Impacts

(a) to (e) *No impact.* The proposed wind energy ordinance would not be expected to result in any new impacts related to geology, erosion, or soils. Existing requirements for erosion control, stability of the building site and building code compliance would remain in effect. The ordinance requires that any permitted turbine must comply with all building and electrical codes, and requires that applications for all large wind energy developments must submit detailed grading, geotechnical, erosion and sediment control plans.

VII. HAZARDS AND HAZARDOUS MATERIALS

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☐	☒
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☐	☒
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒

d)	Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e)	For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
f)	For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working within the project area?	☐	☐	☐	☒
g)	Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
h)	Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☐	☒

Discussion of Impacts

a) to (d) *No impact.* Wind turbines do not use or emit any hazardous materials, other than small amounts of lubricating oil. The proposed ordinance would allow wind turbines in primarily rural agricultural areas, and would involve minimal ground disturbance, so no buried hazardous materials would be encountered. Turbines allowed in commercial and industrial urban areas which could have hazards would be required to undergo environmental review as part of a Use Permit process, so identification and mitigation of potential impacts would occur.

e), f) *No impact.* The wind energy ordinance includes provisions that requires compliance with Federal Aviation Administration safety height requirements review and that prohibits wind systems in areas that would be deemed inappropriate for such development by any comprehensive airport land use plan or any implementing regulations adopted by an airport land use commission, so no safety impacts to public airports would be anticipated. The ordinance also requires compliance by wind systems adjacent to a Airport (AV) Zone to any height limits in a private airport plan, so no impacts to private airports would occur.

g) *No Impact.* The location of wind energy systems would not affect any emergency response plan.

h) *Less than Significant Impact.* Section 8-2.2418.5, Design Standards, of the proposed wind energy ordinance addresses wildland fire issues for large wind developments by requiring the following measures to reduce fire risk:

> (k) Fire Protection. Any Major Use Permit issued for a large wind energy system project shall include fire control and prevention measures stated in the Conditions of Approval which may include, but are not limited to, the following:
> (1) Areas to be cleared of vegetation and maintained as a fire/fuel break as long as the wind system is in operation, such as thirty (30) feet around the periphery of the system base and around all buildings (access driveways and roads that completely surround the project may satisfy this requirement); and ten (10) radius feet around all transformers.
> (2) All buildings or equipment enclosures of substantial size containing control panels, switching equipment, or transmission equipment, without regular human occupancy, shall be equipped with an automatic fire extinguishing system of a Halon or dry chemical type, as approved by the applicable Fire Department.

(3) Service vehicles assigned to regular maintenance or construction at the wind energy system shall be equipped with a portable fire extinguisher of a 4A40 BC rating.
(4) All motor driven equipment shall be equipped with approved spark arrestors.

VIII. HYDROLOGY AND WATER QUALITY

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements?	☐	☐	☐	☒
b) Significantly deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☐	☒
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	☐	☐	☐	☒
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	☐	☐	☒
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☐	☒
f) Otherwise substantially degrade water quality?	☐	☐	☐	☒
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☐	☒
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☐	☒
j) Inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒

Discussion of Impacts

(a) to (f) *No impact.* The proposed wind energy ordinance would not allow any structures that could affect drainage patterns, increase runoff, and affect water quality. No major new areas of impervious surface would be constructed with the wind turbines.

g), h) *No impact.* No housing is proposed. The ordinance contains specific requirements for wind energy systems that may be proposed in flood prone areas, to mitigate flooding impacts. "An application including any wind energy system located within a 100-year flood plain area, as such flood hazard areas are shown on the maps designated by the county or the Federal Emergency Management Agency, shall be accompanied by a detailed report which shall address the

potential for wind erosion, water erosion, sedimentation and flooding, and which shall propose mitigation measures for such impacts."

h), i) *No impact.* Wind turbines would not be expected to be located in any areas affected by dam failure, seiche, tsunami, or mudflow. Turbines could be sited on agricultural lands adjacent to sloughs or other waterways that my be subject to levee failure. The wind systems would be required to comply with the provisions of the ordinance for a detailed flood study noted in g), above.

IX. LAND USE AND PLANNING

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Physically divide an established community?	☐	☐	☐	☒
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☒	☐

Discussion of Impacts

a) *No Impact.* The wind turbine development would not divide any established community.

a) *No Impact.* The proposed ordinance would add regulations involving accessory structures in agricultural and other areas. The ordinance would add clarity and certainty to the zoning code.

b) *Less Than Significant Impact.* The County does not have an adopted HCP or NCCP, although a draft plan is now being prepared by the Yolo Natural Heritage Joint Powers Agency. See discussion in Section II, Biological Resources, above.

X. MINERAL RESOURCES

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

Discussion of Impacts

a), b) No impact. The proposed ordinance changes would not affect areas designated as significant aggregate deposits, as classified by the State Department of Mines and Geology. Most aggregate resources in Yolo County are located along Cache Creek in the Esparto-Woodland area, which is not an area defined by the California Energy Commission as experiencing windy enough conditions to support large scale wind development.

XI. NOISE

Would the project result in:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☐	☒
b) Exposure of persons to or generation of excessive groundborne vibration noise levels?	☐	☐	☐	☒
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	☒
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	☒
e) For a project located within an airport land use plan or, where such a plan has not been adopted within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

Discussion of Impacts

(a) to (f) *No Impact.* The proposed ordinance includes requirements to ensure that wind turbines do not generate excessive noise or increase the ambient noise level. Section 8-2.2418.4(j) requires that small wind systems "shall not generate noise levels exceeding 60 decibels or any existing maximum noise levels applied pursuant to the Noise Element of the General Plan, or noise ordinance, for the applicable zoning district, as measured at the nearest property line, except during short-term events such as utility outages and severe wind storms."

For large wind systems, Section 8-2.2418.5(i) of the ordinance requires much more extensive documentation to prove that no adjacent sensitive receptors, such as rural homes, will be impacted by increased noise, as follows:

> "Where a sensitive receptor such as a residence, school, church, public library, or other sensitive or highly sensitive land use, as identified in the Noise Element of the County General Plan, is located within one (1) mile in a prevailing downwind direction or within one-half (1/2) mile in any other direction of a project's exterior boundary, a noise or acoustical analysis shall be prepared by a qualified acoustical consultant prior to the issuance of any Major Use Permit. The report shall address any potential noise impacts on sensitive or highly sensitive land uses, and shall demonstrate that the proposed wind energy development shall comply with the following noise criteria:
>
> (1) Audible noise due to wind turbine operations shall not be created which causes the exterior noise level to exceed forty-five (45) dBA for more than five (5) minutes out of any one- (1-) hour time period, or to exceed fifty (50) dBA for any period of time, when measured within fifty (50) feet of any existing residence, school, hospital, church, or public library.
>
> (2) In the event that noise levels, resulting from a proposed development, exceed the criteria listed above, a waiver to said levels may be granted by the Planning Commission provided that: written consent from the affected property owners has been obtained stating that they are aware of the proposed development and the noise limitations imposed by this code, and that consent is granted to allow noise

levels to exceed the maximum limits allowed; and a permanent noise impact easement has been recorded on the affected property."

XII. POPULATION

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
Induce substantial population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through the extension of roads or other infrastructure)?	☐	☐	☐	☒
Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Discussion of Impacts

(a) to (c) *No Impact.* The proposed ordinance would not result in increases in population and would not displace any existing housing or current residents.

XIII. PUBLIC SERVICES

Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service rations, response time or other performance objectives for any of the public services:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Fire protection?	☐	☐	☐	☒
b) Police Protection?	☐	☐	☐	☒
c) Schools?	☐	☐	☐	☒
d) Parks?	☐	☐	☐	☒
e) Other public facilities?	☐	☐	☐	☒

Discussion of Impacts

(a) to (e) *No Impact.* The proposed amendments to the Zoning Ordinance involve permitting of wind turbines that would not increase the need for any public services.

XIV. RECREATION

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have been an adverse physical effect on the environment?	☐	☐	☐	☒

Discussion of Impacts

a) *No Impact.* The proposed ordinance would not require the construction of additional recreational facilities nor substantially increase the use of existing recreational facilities.

b) *No Impact.* The proposed ordinance changes would not include nor require the construction of additional recreational facilities.

XV. TRANSPORTATION/TRAFFIC

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase on either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?	☐	☐	☐	☒
b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?	☐	☐	☐	☒
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
e) Result in inadequate emergency access?	☐	☐	☐	☒
f) Result in inadequate parking capacity?	☐	☐	☐	☒
g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	☐	☐	☐	☒

(a) to (g) *No Impact.* The proposed ordinance would allow the construction of wind turbines which could require a limited number of truck trips to deliver and assemble turbine parts to the site. A small number of employees could be involved in the construction of individual turbines, and for periodic maintenance. The number of trips generated during the construction period would not be expected to be substantial in relation to existing traffic loads, and would not exceed any levels of service standards of nearby roads or intersections. Wind development would not affect air traffic, access, or parking capacity.

XVI. UTILITIES AND SERVICE SYSTEMS

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒

c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☐	☒
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☐	☒
g) Comply with federal, state, and local statutes and regulations related to solid waste.	☐	☐	☐	☒

Discussion of Impacts

(a) to (g) *No Impact.* The proposed ordinance would have no new affects related to utilities or service systems because turbines do not rely on any of these services.

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XVII. MANDATORY FINDINGS OF SIGNIFICANCE --				
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plan or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☐	☐	☒
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probably future projects)?	☐	☐	☐	☒
c) Does the project have environment effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☐	☒

Discussion of Impacts

a) *No Impact.* Based on the information provided in this Initial Study, no potential environmental impacts would result from the project. No important examples of major periods of California history or prehistory in California were identified; and the habitat and/or range of any special status plants, habitat, or plants would not be substantially reduced or eliminated.

b) *No Impact.* Based on the analysis provided in this Initial Study, the project would have no significant cumulative impacts. As noted in the Project Description, wind energy development may play a key role in reducing the consumption of non renewable energy in the California, and wind development in Yolo County could contribute to that beneficial cumulative impact to reduce greenhouse gases.

c) *No Impact.* Based on the analysis provided in this Initial Study, no impacts to human beings would result from the proposed project. The project as proposed would not have substantial adverse effects on human beings, either directly or indirectly.

REFERENCES

- American Wind Energy Association, "Permitting Small Wind Turbines: A Handbook," September, 2003
- California Energy Commission, California Guidelines for Reducing Impacts to Birds and Bats from Wind Energy Development, (October 2007, as amended)
- California Energy Commission Web site on small wind energy (
- Grewal, Sharon, California Department of Conservation, e-mail and telephone call with Eric Parfrey, April 21, 2009.
- Scott Johnson, Scott Larwood, and C.P. (Case) van Dam, California Wind Energy Collaborative, UC-Davis, "Permitting Fees for Small Wind Turbines in California Counties" and "Small Wind Permitting Challenges," both March, 2009
- Staff experience and knowledge
- Yolo County Code, Title 8, Chapter 2 (the Zoning Ordinance)
- Wind energy zoning regulations from Kern County, San Bernardino County

ATTACHMENT C
ASSEMBLY BILL 45

BILL NUMBER: AB 45 AMENDED
BILL TEXT

AMENDED IN SENATE JUNE 23, 2009
AMENDED IN SENATE JUNE 10, 2009
AMENDED IN ASSEMBLY APRIL 13, 2009

INTRODUCED BY Assembly Member Blakeslee

DECEMBER 1, 2008

An act to add ~~Article 2.11 (commencing with Section 65893) to~~ *and repeal Article 2.11 (commencing with Section 65893) of* , and to repeal the heading of Article 2.11 (commencing with Section 65892.13) of, Chapter 4 of Division 1 of Title 7 of the Government Code, relating to land use.

LEGISLATIVE COUNSEL'S DIGEST

AB 45, as amended, Blakeslee. Distributed generation: small wind energy systems.

The California Renewables Portfolio Standard Program requires that an electrical corporation, as defined, procure a specified minimum percentage of electricity generated by eligible renewable energy resources, as defined, in any given year as a specified percentage of total kilowatthours sold to retail end-use customers each calendar year (renewables portfolio standard), subject to specified limits. The renewables portfolio standard requires each retail seller to increase its total procurement of eligible renewable energy resources by at least an additional 1% of retail sales per year so that 20% of its retail sales are procured from eligible renewable energy resources no later than December 31, 2010.

This bill would authorize a local agency to provide, by ordinance, for the installation of small wind energy systems, as specified, and to establish a process for the issuance of conditional use permits for these systems. The bill would also authorize a local agency to impose conditions on the installation of these systems, but would prohibit the local agency from imposing conditions relating to specified aspects of these systems that are more restrictive than certain specified requirements of, and conditions upon, these systems. ~~The~~

This bill would require a local agency that has not adopted an ordinance providing for the installation of these systems, and receives an application for the installation of a small wind energy system after July 1, 2010, but before it adopts an ordinance providing for the installation of these systems, to approve the application through a ministerial permit. The *bill would specifically exempt ordinances approved prior to July 1, 2010, from the provisions of this article.*

This bill would authorize a local agency to require as a condition of approval that a small wind energy system be removed if

it remains inoperable for 12 consecutive months, and the small wind energy system, at that time, would be subject to nuisance codes and code enforcement action. The bill would declare that it is the policy of the state to promote and encourage the use of distributed renewable energy systems and to limit obstacles to their use.

The bill would require the State Energy Resources Conservation and Development Commission to submit, on or before January 1, 2016, to the Assembly and Senate Committees on Local Government, a report containing specified information, including the number of applications for small wind energy systems received and approved by local agencies on or after July 1, 2010.

This bill would provide that its provisions would be repealed on January 1, 2017.

Vote: majority. Appropriation: no. Fiscal committee: ~~no~~ *yes* . State-mandated local program: no.

THE PEOPLE OF THE STATE OF CALIFORNIA DO ENACT AS FOLLOWS:

SECTION 1. The heading of Article 2.11 (commencing with Section 65892.13) of Chapter 4 of Division 1 of Title 7 of the Government Code is repealed.

SEC. 2. Article 2.11 (commencing with Section 65893) is added to Chapter 4 of Division 1 of Title 7 of the Government Code, to read:

Article 2.11. Wind Energy

65893. (a) The Legislature finds and declares all of the following:

(1) Wind energy is an abundant, renewable, and nonpolluting energy resource.

(2) Wind energy, when converted to electricity, reduces our dependence on nonrenewable energy resources, reduces air and water pollution that result from conventional sources burning fossil fuels, and reduces emissions of greenhouse gases.

(3) Distributed generation small wind energy systems also enhance the reliability and quality of electricity delivered by the electrical grid, reduce peak power demands, increase in-state electricity generation, diversify the state's energy supply portfolio, and make the electricity supply market more competitive by promoting consumer choice.

(4) Small wind energy systems designed for onsite home, farm, and small commercial use are recognized by the Legislature and the Energy Commission as an excellent technology to help achieve the goals of increased in-state electricity generation, reduced demand on the state electrical grid, increased consumer energy independence, and nonpolluting electricity generation.

(5) It is the intent of the Legislature to encourage local agencies to support the state's ambitious renewable energy procurement requirements by developing and adopting ordinances that facilitate the installation of small wind energy systems and do not unreasonably restrict the ability of homeowners, farms, and small businesses to install small wind energy systems in zones in which they are authorized by local ordinance.

(6) It is the intent of the Legislature to facilitate the implementation of consistent statewide standards to achieve the timely and cost-effective installation of small wind energy systems.

65894. For purposes of this article, the following terms shall

have the following meanings:

(1) "Energy Commission" means the State Energy Resources Conservation and Development Commission.

(2) "Small wind energy system" means a wind energy conversion system consisting of a wind turbine, a tower, and associated control or conversion electronics that has a rated capacity of not more than 50 kilowatts per customer site, consistent with the requirements of paragraph (3) of subdivision (b) of Section 25744 of the Public Resources Code, and that will be used primarily to reduce onsite consumption of utility power.

(3) "System height" means the higher of either the height of the tower and the system measured to the top of the blade at the 12 o' clock position or the highest point of the system extended above the existing grade when being operated.

(4) "Tower height" means the height above grade of the fixed portion of the tower, excluding the wind turbine.

(5) "Urbanized area" has the same meaning as set forth in Section 65944.

65895. (a) A local agency that has not adopted an ordinance providing for the installation of small wind energy systems located outside an urbanized area, but within the local agency's jurisdiction, by July 10, 2010, may adopt such an ordinance at a later date, but the ordinance shall be in accordance with Section 65896. Ordinances adopted prior to July 1, 2010, are exempt from this article.

(b) A local agency may establish a process for the issuance of conditional use permits for small wind energy systems, subject to all of the following conditions:

(1) A local agency shall review an application for a small wind energy system pursuant to the timelines established in the Permit Streamlining Act (Chapter 4.5 (commencing with Section 65920)).

(2) Fees charged by a local agency to review an application for a small wind energy system shall be determined in accordance with Sections 66014 and 66016.

(3) An application for the installation of a small wind energy system submitted between July 1, 2010, and the date of the local agency's adoption of an ordinance that meets the requirements and conditions of subdivision (b) of Section 65896 shall be approved through a ministerial permit by the local agency.

65896. (a) A local agency may by ordinance, provide for the installation of small wind energy systems outside an urbanized area, but within the local agency's jurisdiction.

(b) The ordinance may impose conditions on the installation of small wind energy systems that include, but are not limited to, notice, tower height, setback, view protection, aesthetics, aviation, and design-safety requirements. However, the ordinance shall not require conditions on notice, tower height, setback, noise level, visual effects, turbine approval, tower drawings, and engineering analysis, or line drawings that are more restrictive than the following requirements and conditions:

(1) The parcel where the system is located shall be at least one acre in size and located outside an urbanized area.

(2) Tower heights of not more than 80 feet shall be allowed on parcels between one and five acres. Tower heights of not more than 100 feet shall be allowed on parcels above five acres. All tower heights shall not exceed the applicable limits established by the Federal Aviation Administration. An application shall include evidence that the proposed height of a tower does not exceed the

height recommended by the manufacturer or distributor of the system.

(3) Setbacks for the system tower shall be no farther from the property line than the system height, provided the system also complies with applicable fire setback requirements set forth in Section 4290 of the Public Resources Code.

(4) Decibel levels for the system shall not exceed the lesser of 60 decibels (dBA), or any existing maximum noise levels applied pursuant to the noise element of a general plan for the applicable zoning classification in a jurisdiction, as measured at the nearest property line, except during short-term events, such as utility outages and severe windstorms.

(5) Notice of an application for installation of a small wind energy system shall be provided to property owners within 300 feet of the property on which the system is to be located.

(6) The system shall not substantially obstruct views of adjacent property owners and shall be placed or constructed below any major ridgeline when visible from any scenic highway corridor designated pursuant to Article 2.5 (commencing with Section 260) of Chapter 2 of Division 1 of the Streets and Highways Code or any scenic highway corridor designated by a local agency general plan.

(7) The system shall use a wind turbine that has been approved by the Energy Commission as qualifying under its Emerging Renewables Program pursuant to Section 25744 of the Public Resources Code or has been certified by a national program recognized and approved by the commission.

(8) The application shall include standard drawings and an engineering analysis of the system's tower, showing compliance with the current version of the California Building Standards Code and certification by a professional mechanical, structural, or civil engineer licensed by this state. A wet stamp, however, shall not be required if the application demonstrates that the system is designed to meet the most stringent wind requirements (Uniform Building Code wind exposure D), the requirements for the worst seismic class (Seismic 4), and the weakest soil class, with a soil strength of not more than 1,000 pounds per square foot, or other relevant conditions normally required by a local agency.

(9) The system shall comply with all applicable Federal Aviation Administration requirements, including Subpart B (commencing with Section 77.11) of Part 77 of Title 14 of the Code of Federal Regulations regarding installations close to airports, and the State Aeronautics Act (Part 1 (commencing with Section 21001) of Division 9 of the Public Utilities Code). A system that complies with this subdivision shall be deemed to meet the applicable health and safety requirements regarding civil aviation.

(10) The application shall include a line drawing of the electrical components of the system in sufficient detail to allow for a determination that the manner of installation conforms to the National Electric Code.

(11) If required by the local agency, the applicant shall provide information demonstrating the system will be used primarily to reduce onsite consumption of electricity. The local agency may also require the application to include evidence, unless the applicant does not plan to connect the system to the electricity grid, that the electric utility service provider that serves the proposed site has been informed of the applicant's intent to install an interconnected customer-owned electricity generator.

~~(12) If the governing authority of the restricted military airspace known as "R-2515" files a detailed diagram of that~~

~~restricted military airspace with a local agency, and if a local agency receives an application to install a small wind energy system on a site that is within that restricted military airspace, then the local agency shall promptly forward a copy of that application to the governing authority of that restricted military airspace. If the governing authority of the restricted military airspace known as "R 2515" provides written comments regarding that application, the local agency shall consider those comments before acting on the application.~~

(12) If a local agency receives an application in install a small wind energy system on a site that is within 1,000 feet of a military installation, or within special use airspace or beneath a low-level flight path as defined by Section 21098 of the Public Resources Code, then the local agency shall promptly comply with Section 65944. If the governing authority of any military installation, special use airspace, or low-level flight path provides written comments regarding that application, the local agency shall consider those comments before acting on the application.

(13) If a small wind energy system is proposed to be sited in an agricultural area that may have aircraft operating at low altitudes, the local agency shall take reasonable steps, concurrent with other notices issued pursuant to this subdivision, to notify pest control aircraft pilots registered to operate in the county pursuant to Section 11921 of the Food and Agricultural Code.

(14) Tower structure lighting shall be prohibited unless otherwise required by another provision of law or pursuant to paragraph (13).

(15) No climbing apparatus attached to the system shall be located less than 12 feet above the ground, and the system shall be designed to prevent climbing within the first 12 feet.

(16) No sign shall be attached to the system if visible from a public road, except for manufacturer or installer-identification signs, owner-identification signs, or public-health and safety signs applicable to the installed system, but in no case shall the signs be larger than four square feet and located at the base of the system within 10 feet of the ground surface unless approved by the city or county.

(17) A small wind energy system shall not be allowed where otherwise prohibited by any of the following:

(A) A local coastal program and any implementing regulations adopted pursuant to the California Coastal Act (Division 20 (commencing with Section 30000) of the Public Resources Code).

(B) The California Coastal Commission, pursuant to the California Coastal Act (Division 20 (commencing with Section 30000) of the Public Resources Code).

(C) The regional plan and any implementing regulations adopted by the Tahoe Regional Planning Agency pursuant to the Tahoe Regional Planning Compact (Title 7.4 (commencing with Section 66800)).

(D) The San Francisco Bay Plan and any implementing regulations adopted by the San Francisco Bay Conservation and Development Commission pursuant to the McAteer-Petris Act (Title 7.2 (commencing with Section 66600)).

(E) A comprehensive land use plan and any implementing regulations adopted by an airport land use commission pursuant to Article 3.5 (commencing with Section 21670) of Chapter 4 of Division 9 of Part 1 of the Public Utilities Code.

(F) The Alquist-Priolo Earthquake Fault Zoning Act (Chapter 7.5 (commencing with Section 2621) of Division 2 of the Public Resources Code).

(G) A local agency to protect the scenic appearance of the scenic highway corridor designated pursuant to Article 2.5 (commencing with Section 260) of Chapter 2 of Division 1 of the Streets and Highways Code or pursuant to scenic highways designated in the local general plan.

(H) The terms of a conservation easement entered into pursuant to Chapter 4 (commencing with Section 815) of Division 2 of Part 2 of the Civil Code.

(I) The terms of an open-space easement entered into pursuant to the Open-Space Easement Act of 1974 (Chapter 6.6 (commencing with Section 51070) of Division 1 of Title 5).

(J) The terms of an agricultural conservation easement entered into pursuant to the California Farmland Conservancy Program Act (Division 10.2 (commencing with Section 10200) of the Public Resources Code).

(K) The terms of a contract entered into pursuant to the Williamson Act (Chapter 7 (commencing with Section 51200) of Division 1 of Title 5).

(L) The listing of the proposed site in the National Register of Historic Places or the California Register of Historical Resources pursuant to Section 5024.1 of the Public Resources Code.

(c) A local agency may, if it deems it necessary due to circumstances specific to the proposed installation, provide notice by placing a display advertisement of at least one-eighth of a page in at least one newspaper of general circulation within the local agency in which the installation is proposed.

(d) A local agency may require as a condition of approval that a small wind energy system be removed if it remains inoperable for 12 consecutive months, and at that time the small wind energy system shall be subject to nuisance codes and code enforcement action.

65897. It is the policy of the state to promote and encourage the use of distributed renewable energy systems and to limit obstacles to their use, and it is the intent of the Legislature that local agencies encourage the installation of distributed renewable energy systems by removing obstacles to, and minimizing costs of, permitting distributed renewable energy systems.

65898. On or before January 1, 2016, the State Energy Resources Conservation and Development Commission shall submit to the Assembly Committee on Local Government and the Senate Committee on Local Government a report that contains all of the following:

(a) The number of ordinances adopted on or after July 1, 2010, by local agencies pursuant to Section 65895.

(b) The number of applications to install small wind energy systems received by local agencies on or after July 1, 2010.

(c) The number of applications to install small wind energy systems approved by local agencies on or after July 1, 2010.

(d) The tower heights, system heights, parcel sizes, and generating capacities of the small wind energy systems approved by local agencies on or after July 1, 2010.

(e) Any recommendations to the Legislature by the State Energy Resources Conservation and Development Commission for the continuation, modification, or termination of this article.

65899. This article shall remain in effect only until January 1, 2017, and as of that date is repealed, unless a later enacted statute, that is enacted before January 1, 2017, deletes or extends that date.

ATTACHMENT D

July 1, 2009 Letter from
California Wind Energy Collaborative at UC-Davis

UNIVERSITY OF CALIFORNIA, DAVIS

BERKELEY • DAVIS • IRVINE • LOS ANGELES • MERCED • RIVERSIDE • SAN DIEGO • SAN FRANCISCO SANTA BARBARA • SANTA CRUZ

DEPARTMENT OF MECHANICAL AND
AERONAUTICAL ENGINEERING
TELEPHONE: (530) 752-0580
FAX: (530) 752-4158
http://mae.engr.ucdavis.edu

ONE SHIELDS AVENUE
DAVIS, CALIFORNIA 95616-5294

1 July 2009

Mr. Parfrey et al:

Thank you for the opportunity to provide feedback on the draft ordinance for wind energy systems in Yolo County. Our mission is to support the development of safe, reliable, cost effective, and environmentally responsible wind power in California. Providing information to you to support the development of good ordinances is a fundamental part of that mission. We are especially pleased to have the chance to contribute to our home county.

Below, we have detailed some comments regarding the staff report and draft ordinance, File #2007-080, May 14, 2009. References are included that provide additional information.

Distinguishing Between Small and Large Wind Systems

There is no consensual standard for the maximum size of a small wind system or the minimum size of a large system. Various numbers (10, 30, 50, 100, 250, 300 kW) are used by different entities (utilities, state agencies, counties, trade organizations, etc.), often selected on a somewhat arbitrary basis. Note that there is no existing California legislation defining 50 kW as an upper limit.

Of course, it remains pragmatic to define some sort of boundary between large and small systems. There are many possible ways to distinguish between them:

- *By how the produced energy is primarily used* – on-site to offset electricity consumption (small) or off-site through electricity sales (large). Electricity consumption can vary dramatically between consumers. A mid-sized home may never use more than a few kilowatts. However, even a small agricultural or industrial operation can easily consume several hundred kilowatts of power. Wind power installations intended primarily for energy sales are typically much, much larger. In the 2000s, new wind plants are at least 150 MW with individual turbines of at least 1.5 MW (e.g., the newest California wind plant, Shiloh II in Solano County, uses 75 2-MW turbines for a plant capacity of 150 MW).

- *By capacity (power rating).* Modern wind power has changed dramatically since its emergence in the early 1980's. 50 kW is no longer considered large, but twenty-five years ago, it was a utility-scale wind turbine. Today, typical utility-scale machines are 1.5 MW to 3.0 MW. A few out-of-state counties recently adopted an ordinance that addressed four size ranges: small < 20 kW; medium 20 - 100 kW; large 100 - 999 kW; utility > 1 MW

(http://tiny.cc/U3X1P). Figures 1 and 2 illustrate the size (both capacity and height) of a range of wind turbines.

- *By height.* Height limits are usually imposed for a number of reasons: general safety, limitation of noise impacts, limitation of visual impacts, and aviation safety. The first three items – general safety, noise, and visual impact – are more directly addressed through setback and explicit noise requirements, rendering a height restriction superfluous or, potentially, unnecessarily restrictive. The FAA requires an obstruction evaluation for objects exceeding 200' above ground level. Note that the most recent draft of AB 45 has dropped the 175' total system height limit. Figures 1 and 2 give an idea of turbine heights.

- *By rotor size.* There is usually some correlation between a turbine's rotor size, height, and capacity, although as shown in Figure 1, there can be significant deviations. Rotor size is used as a characteristic parameter less often than height or capacity. However, significantly, the AWEA draft standard for the performance and safety of small turbines is defined as applicable to turbines with rotors no more than 200 m^2 (corresponding to a rotor diameter of about 16 m or 52') The AWEA draft standard is in the late stages of review. We believe that it is likely to be accepted and will become the preferred standard for small turbine performance and safety certification in the near future.

Given the information above, we suggest that small turbines be defined as follows:

- Rotor swept area of 200 m^2 or less, as used in the AWEA performance and safety draft standard. Alternatively, require that for a turbine to be classified as small, it must be certified to the AWEA standard (this may be problematic as the standard has not yet been passed).
- Remove the total system height limit, allowing setback and noise requirements to ensure the safety and well-being of the neighboring community. Alternatively, increase it from 175' to 200', an established delineation mark for aviation safety. This slight increase would potentially allow for (1) slightly larger capacity turbines and (2) taller systems that could reach better wind resources.
- Remove the hub/tower height limit.
- Remove the restriction based on capacity. Alternatively, increase the capacity limit so that it does not conflict with the above two criteria.

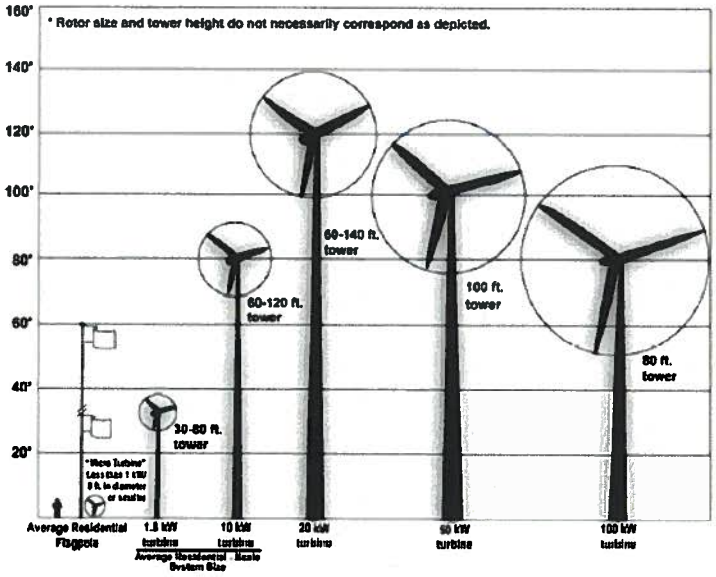

Figure 1: Typical size turbines for residential or community applications.

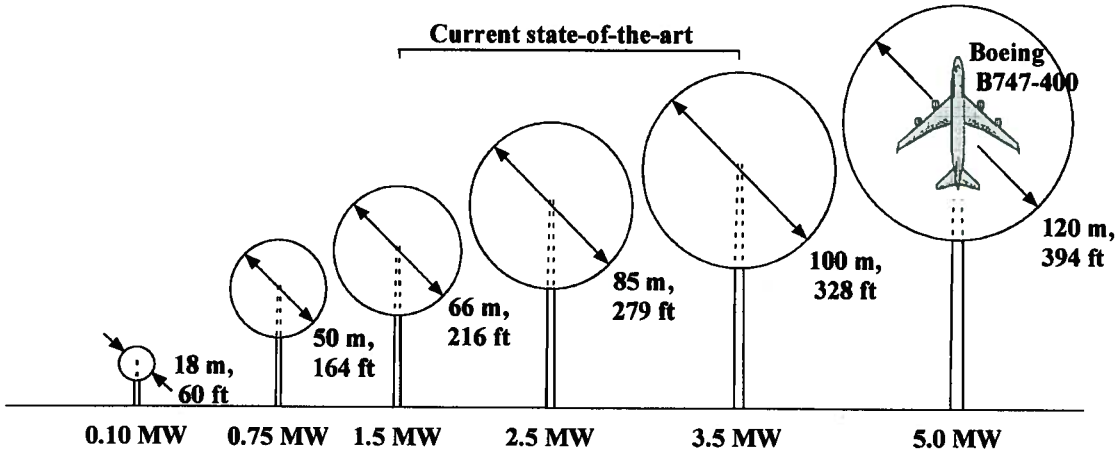

Figure 2: Typical size turbines for community or utility applications.

Useful web links:

- AWEA draft standard for small wind turbine safety and performance, http://www.awea.org/smallwind/standard/Small_Turbine_Standard_Draft_Document.pdf
- FAA obstruction evaluation, https://oeaaa.faa.gov/oeaaa/external/portal.jsp

Requirements for Wind Turbines less than 35' in Height

The Staff Analysis (p. 5) states that "Wind turbines less than 35 feet in height would be allowed with a building permit only." We have some concerns that more stringent requirements may be needed for even short (less than 35') turbines. We encourage further discussion about this.

Screening

We recommend against a requirement to place turbines such that they will "take maximum advantage of the screening afforded by any existing trees, topography and structures to minimize the system's visibility." Terrain or objects that would block the view of a wind turbine would also block the wind, both reducing the wind reaching the turbine and increasing the turbulence (gustiness) of that wind (which has a deleterious structural effect).

Color

We recommend against a requirement for a "color appropriate to the background". Attempting to match the color of a turbine with its background (e.g., green/brown below the tree line, light blue above) will likely have adverse visual effects with garish results. Long term experience and studies show that a turbine is least obtrusive when the majority of it is neutral white or light gray. On smaller turbines, darker neutral colors (dark gray, black, unfinished metal) are usually also acceptable. It is common for logos and advertising to be explicitly prohibited.

Additional Comments/Information

Setbacks

Wind turbine setbacks vary by county. For small wind systems, AWEA recommends a setback equal to the system height, regardless of the lot size. For utility-scale systems, a common setback is three times the system height.

References

- http://www.awea.org/smallwind/pdf/InThePublicInterest.pdf
- http://www.energy.ca.gov/pier/project_reports/CEC-500-2005-184.html

Turbine Applications

Wind turbines can be used for many different applications. Commonly, turbines can be divided into three separate categories, residential-scale, community-scale, or utility-scale. The size and electrical energy use are quite different depending on the application of the turbine.

A residential turbine should be sized so that the annual energy production is less than annual energy consumption of the residence (assuming enrollment in a net metering program). A community-scale turbine is sized to provide energy to large industrial or agricultural facilities or to a group of residences. Again, these applications are usually "behind the meter" using net-metering to account for the energy production. Utility-scale turbines are used to supply electricity directly to the grid, competing at wholesale electricity costs.

References

- http://www.awea.org/faq/wwt_basics.html#How%20big%20is%20a%20wind%20turbine
- http://apps3.eere.energy.gov/greenpower/markets/netmetering.shtml
- "Distributed Wind Incentive Information" document.
- http://www.awea.org/faq/

Biological Issues

The "California Guidelines for Reducing Impacts to Birds and Bats from Wind Energy Development" report is intended for utility-scale wind farms. Theses guidelines were not developed for individual installations of turbines.

References

- http://www.energy.ca.gov/windguidelines/index.html
- http://www.awea.org/smallwind/sagrillo/index.html

Pending Legislation
The state small wind legislation under development, AB 45, exempts ordinances approved prior to July 1, 2010. Thus, the Yolo County ordinance would not have to be amended if AB 45 passes.

References

- http://www.aroundthecapitol.com/bills/ab_45

California Wind Energy Collaborative Description
Please revise our description as follows:

The mission of the California Wind Energy Collaborative (CWEC, http://cwec.ucdavis.edu) is to support the development of safe, reliable, cost effective, and environmentally responsible wind power in California. To meet that goal, CWEC conducts engineering research; provides inter-sector, inter-agency coordination to address wind power issues in California; and provides and promotes education, training, and outreach. CWEC is a partnership of the University of California, Davis and the California Energy Commission.

Again, thank you for the opportunity to comment on the staff report and draft ordinance. We are pleased to see Yolo County proactively engaging in this effort. As you proceed with revisions, we would welcome a meeting to discuss the draft further. We believe that a short dialogue would be very efficient and productive.

Best regards,

Scott Johnson, Henry Shiu, C.P. "Case" van Dam
California Wind Energy Collaborative
Department of Mechanical and Aerospace Engineering
University of California, Davis
One Shields Avenue
Davis, CA 95616-5294
http://cwec.ucdavis.edu/
sjjohnson@ucdavis.edu, hjshiu@ucdavis.edu, cpvandam@ucdavis.edu